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Apsara Stack Agility

Operations and Maintenance Guide

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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}`

Table of Contents

1.ASO overview

Apsara Stack Operations (ASO) is an operations management system developed for the Apsara Stack operations management personnel, such as field operations engineers, operations engineers on the user side, and operations management engineers, operations security personnel, and audit personnel of the cloud platform. ASO provides operations engineers with information about running conditions of the system in a timely manner and allows them to perform O&M operations.

ASO provides the following features:

- Monitoring and alerting

  The Alert Monitoring module allows operations engineers to be quickly informed of system alerts, locate problems based on the alert information, track problem processing, and configure alerts.

- Resource management

  The Resource Management module monitors and manages hardware devices in the data center. You can monitor and manage the overall status information, monitoring metrics, alert delivery status, and port traffic of physical servers, physical switches, and network security devices.

- Inventory management

  The Inventory Management module allows you to view the resource usage and inventory of various services and manage system resources effectively.

- Products

  The Products module allows you to access the O&M services of other products on the cloud platform and to configure ISV access configurations.

- NOC

  The Network Operation Center (NOC) module provides operations capabilities such as the visualization of end-to-end monitoring, automated implementation, automated fault location, and network traffic analysis to enhance the efficiency of network operations engineers, reduce the operations risk, and improves the quality of Apsara Stack services.

- Storage operations center

  The Storage Operation Center module contains Apsara Distributed File System and miniOSS.

- Task management

  The Task Management module allows you to perform O&M operations without using command lines.

- System management

  The System Management module provides features such as user management, two-factor authentication, role management, department management, logon policy management, application whitelist, server password management, operation logs, and authorization. As the module for centralized management of accounts, roles, and permissions, System Management supports the Single Sign-On (SSO). After you log on to the ASO console, you can perform O&M operations on all components of the cloud platform or be redirected to the O&M page without providing the username or password.

2.Preparations before operations

2.1. Prepare an operations account

Before you perform O&M operations in the Apsara Stack Operations (ASO) console, make sure that you have obtained an operations account from an administrator.

Perform the following steps to create an operations account and grant permissions to the account:

1. Log on to the ASO console as a system administrator.
2. Create a role. For more information, see Role management.
3. Create an operations account and grant the role to the account. For more information, see User management.

> **Note** For a more fine-grained division of the operations role, the administrator can create a basic role based on Operation Administrator Manager (OAM) in the Appendix, grant permissions to the role, and then grant the role to the corresponding operations account. >

2.2. Log on to the ASO console

This topic describes how to log on to the Apsara Stack Operations (ASO) console.

Prerequisites

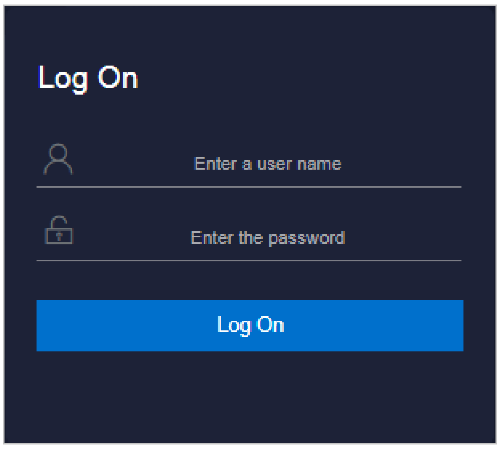
- The URL of the ASO console, and the username and password used for logging on to the console are obtained from the deployment personnel or an administrator.

  The URL of the ASO console is in the following format: *region-id*.aso.*intranet-domain-id*.com.

- A browser is available. We recommend that you use the Google Chrome browser.

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.



> **Note** You can select a language from the drop-down list in the upper-right corner of the page.

3. Enter your username and password.

   > ? **Note** Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

   When you log on to the ASO console for the first time, you must change the password of your username as prompted.

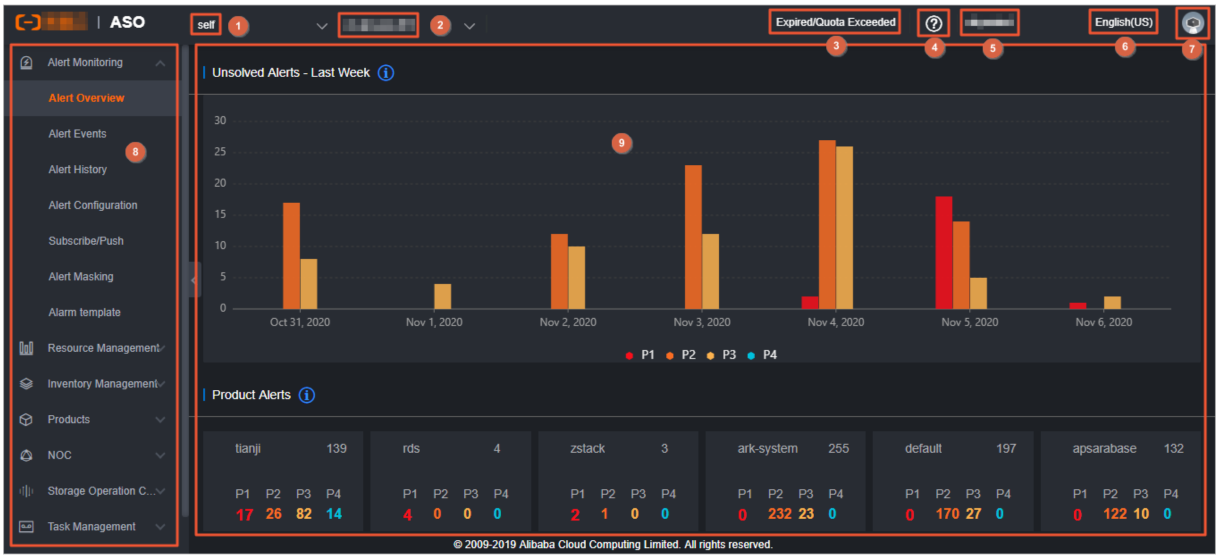
   To enhance security, a password must meet the following requirements:

   - It must contain uppercase and lowercase letters.
   - It must contain digits.
   - It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
   - It must be 10 to 20 characters in length.

4. Click **Log On** to go to the **ASO** console.

2.3. ASO console overview

When you log on to the ASO console, the homepage appears. This topic describes the basic operations and features of the ASO console.



The following table describes the ASO homepage sections.

Section		Description
①	Cloud	Switch the cloud from the drop-down list.
②	Region	Switch the region from the drop-down list and centralize each region.
③	Authorization information	Click this section to go to the **Authorization** page and then view the authorization conditions of services.

Section		Description
④	Help center	View the alert knowledge base and upload other HTML documents that are related to O&M.
⑤	Current user	Show the name of the current logon user.
⑥	Language	Show the language of the current environment.
⑦	Current user information	Move the pointer over this section and select an item to view the personal information of the current user, modify the password, configure logon parameters, or log off from the ASO console.
⑧	Left-side navigation pane	Select an O&M operation.
⑨	Operation area	The information display and operation area.

3.System settings

3.1. Default operations roles

This topic describes the default roles of Apsara Stack Operations (ASO) and their responsibilities.

For quick management, the following roles are preset in ASO: Operation Administrator Manager (OAM) super administrator, system administrator, security officer, security auditor, and multi-cloud configuration administrator. The following table describes these roles and their responsibilities.

Role	Responsibility
OAM super administrator	The administrator of OAM, with the root permissions of the system.
System administrator	Manages platform nodes, physical devices, and virtual resources, backs up, restores, and migrates product data, and searches for and backs up system logs.
Security officer	Manages permissions, security policies, and network security, and reviews and analyzes security logs and activities of auditor officers.
Security auditor	Audits, tracks, and analyzes operations of the system administrator and the security officer.
Multi-cloud configuration administrator	Manages multi-cloud operations, and adds, deletes, and modifies multi-cloud configurations.

3.2. System Management

System Management centrally manages the departments, roles, and users involved in Apsara Stack Operations (ASO), making it easy to grant different resource access permissions to different users. As the core module for centralized permission management, the user center integrates the functions such as department management, role management, logon policy management, and user management.

3.2.1. Departments

This topic describes how to create, modify, and delete departments on the Department Management page.

Context

By default, after Apsara Stack operations (ASO) is deployed, a root department is created. You can create departments under the root department. Departments are displayed in a hierarchy and you can create sub-departments under each level of departments.

Departments created under the root department are level-1 departments. Departments created under a level-1 department are level-2 departments, and so on. In ASO, sub-departments of a department refer to departments of all levels under the department. Departments reflect the tree structure of an enterprise or a unit. Each user can belong to only one department.

Procedure

1. Log on to Apsara Stack Operations.
2. In the left-side navigation pane, choose **System Management** > **Departments**. The **Department Management** page appears.
3. On the Department Management page, perform the following operations:
   - Add a department

     In the left catalog tree, select the department to which you want to add a department and click **Add Department** in the upper part of the page. In the **Add Department** dialog box, specify **Department Name** and click **OK**. Then, you can view the created department under your selected catalog.
   - Modify a department

     In the left catalog tree, select the department that you want to modify and click **Modify Department** in the upper part of the page. In the **Modify Department** dialog box, modify **Department Name** and click **OK**.
   - Delete a department

     > **Notice** Before you delete a department, make sure that it does not contain any users. Otherwise, the department cannot be deleted.

     In the left catalog tree, select the department that you want to delete and click **Delete Department** in the upper part of the page. In the message that appears, click **OK**.

3.2.2. Role management

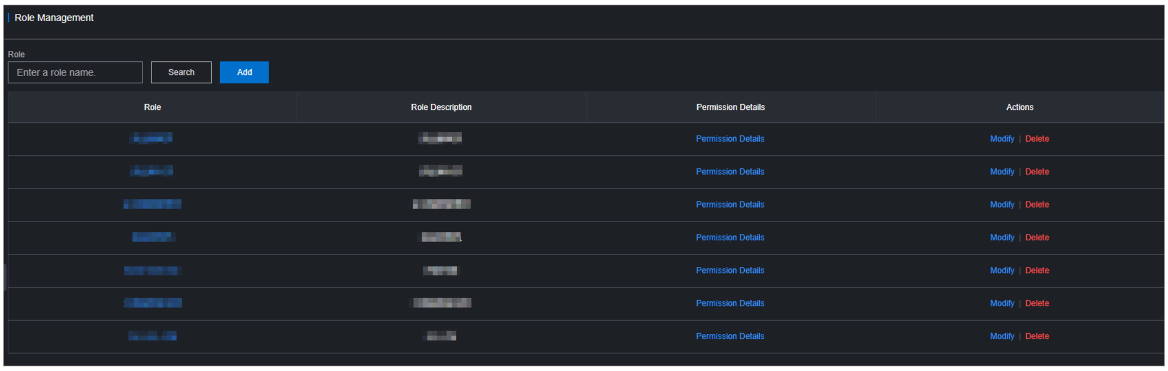
You can add custom roles in the ASO console to more efficiently grant permissions to users.

Context

A role is a set of access permissions. You can assign different roles to different users to meet requirements for system access control. Roles are classified into basic roles and user-created roles. The basic roles, also known as atomic roles, are preset by the OAM system and cannot be modified or deleted by users. The user-created roles can be modified and deleted.

Procedure

1. In the left-side navigation pane, choose **System Management** > **Roles**.



Role Management

Role: Enter a role name. Search Add

Role	Role Description	Permission Details	Actions
[redacted]	[redacted]	Permission Details	Modify | Delete
[redacted]	[redacted]	Permission Details	Modify | Delete
[redacted]	[redacted]	Permission Details	Modify | Delete
[redacted]	[redacted]	Permission Details	Modify | Delete
[redacted]	[redacted]	Permission Details	Modify | Delete
[redacted]	[redacted]	Permission Details	Modify | Delete
[redacted]	[redacted]	Permission Details	Modify | Delete

2. On the **Role Management** page that appears, perform the following operations:
   - Query roles

> Note To query roles, you must have the ASO security officer role or system administrator role.

In the upper-left corner of the page, enter a role name in the **Role** field, and then click **Search** to view the role information in the list.

- Add a role

> Note To add a role in the ASO console, you must have the ASO security officer role.

Click **Add** in the upper part of the page. In the **Add** dialog box that appears, specify **Role Name**, **Role Description**, and **Basic Role**, and then click **OK**.

- Modify a role

> Note To modify a user in the ASO console, you must have the ASO security officer role.

Find the role that you want to modify, and then click **Modify** in the **Actions** column. In the **Modify Role** dialog box that appears, modify the information, and then click **OK**.

- Delete a role

> Notice Before you delete a role, make sure that the role is not bound to any user. Otherwise, the role cannot be deleted.

Find the role that you want to delete, and then click **Delete** in the **Actions** column. In the message that appears, click **OK**.

3.2.3. Region management

In multi-region scenarios, you can bind a department to a region as a system administrator. After that, users in the department can manage and view resources in the region.

Context

In multi-region scenarios, a region is managed by its own administrator. After an administrator logs on to the ASO console, the administrator can only manage resources in the authorized region.

Relationship between departments and regions:

- A department can be bound to multiple regions.
- A region can be bound to multiple departments.

Procedure

1. In the left-side navigation pane, choose **System Management > Region Management**.
2. (Optional)In the upper-left corner of the page, enter a department name and click the search icon.
3. Click the target department in the tree on the left and select one or more regions in the **Regions** list on the right.
4. Click **Update Association**.

3.2.4. Logon policies

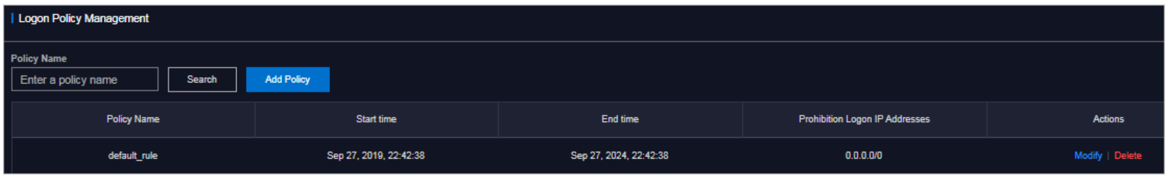
The administrator can configure logon policies to control the logon time and IP addresses of users.

Context

The system has a default policy as the initial configuration. You can configure logon policies to better control the read and write permissions of users and improve the system security.

Procedure

1. In the left-side navigation pane, choose **System Management** > **Logon Policy Management**.



Policy Name	Start time	End time	Prohibition Logon IP Addresses	Actions
default_rule	Sep 27, 2019, 22:42:38	Sep 27, 2024, 22:42:38	0.0.0.0/0	Modify | Delete

2. On the **Logon Policy Management** page, perform the following operations:
   - Query policies

     In the upper left corner of the page, enter a policy name in the **Policy Name** field, and then click **Search** to view the policy information in the list.

   - Add a policy

     Click **Add Policy** in the upper part of the page. In the Add Policy dialog box, specify **Policy Name**, **Start Time**, **End Time**, and **IP addresses prohibited for logon**. Click **OK**.

   - Modify a policy

     Find the policy that you want to modify, and then click **Modify** in the **Actions** column. In the **Update Policy** dialog box, modify the information, and then click **OK**.

   - Delete a policy

     Find the policy that you want to delete, and then click **Delete** in the **Actions** column. In the message that appears, click **OK**.

3.2.5. User management

You can create users as an administrator and assign different user roles to meet different requirements for system access control.

Prerequisites

Before you create a user, make sure that the following requirements are met:

- A department is created. For more information, see Department management.
- A custom role is created if needed. For more information, see Role management.

Context

User management provides different permissions for different users.

Procedure

1. In the left-side navigation pane, choose **System Management** > **Users**.The **Users** tab appears.
2. Perform the following operations:
   - Query users

     > **Note** To search for users in ASO, you must have the security officer role or system administrator role.

     In the upper-left corner of the tab, configure the **User Name**, **Role**, and **Department** parameters, and then click **Search** to view the user information in the list.
   - Add a user

     > **Note** To add a user in ASO, you must have the ASO security officer role.

     Click **Add** in the upper part of the tab. In the **Add User** dialog box, configure the information, such as **User Name** and **Password**, and then click **OK**.

     The added user is displayed in the user list. The value of the **Primary Key Value** parameter is used for authentication when other applications call application API operations in ASO.
   - Modify a user

     > **Note** To modify a user in ASO, you must have the ASO security officer role.

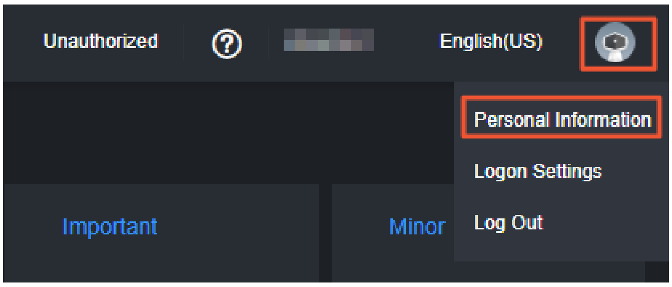
     Find the user to be modified, and then click **Modify** in the **Actions** column. In the **Modify User** dialog box, modify the parameters, and then click **OK**.
   - Delete a user

     Find the user to be deleted, and then click **Delete** in the **Actions** column. In the message that appears, click **OK**.

     > **Note** Deleted users are displayed on the **Recycled** tab. To restore a deleted user, click the **Recycled** tab. Find the user to be restored, click **Cleared** in the Actions column, and then click **OK**.
   - Bind a logon policy

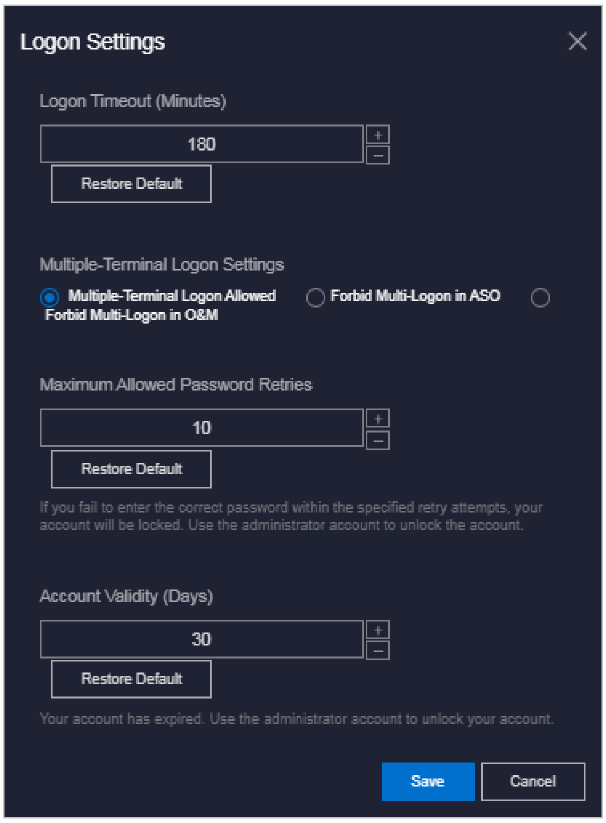
     Select a user in the user list. Click **Bind Logon Policy** to bind a logon policy to the user.
   - Query personal information of the current user

     Move the pointer over the profile picture in the upper-right corner of the page, and select **Personal Information** from the drop-down list. In the **Personal Information** dialog box, view the personal information of the current user.

- Logon settings

  Move the pointer over the profile picture in the upper-right corner of the page, and select **Logon Settings** from the drop-down list. In the **Logon Settings** dialog box, configure Logon Timeout, Multiple-Terminal Logon Settings, Maximum Allowed Password Retries, Account Validity, and Logon Policy. Click **Save**.



Logon Timeout (Minutes): 180

Multiple-Terminal Logon Settings: ● Multiple-Terminal Logon Allowed ○ Forbid Multi-Logon in ASO ○ Forbid Multi-Logon in O&M

Maximum Allowed Password Retries: 10

If you fail to enter the correct password within the specified retry attempts, your account will be locked. Use the administrator account to unlock the account.

Account Validity (Days): 30

Your account has expired. Use the administrator account to unlock your account.

3.2.6. Two-factor authentication

To make user logon more secure, you can configure two-factor authentication for users.

Context

You can use one of the following authentication methods in the ASO console:

- Google two-factor authentication

  This authentication method uses a password and mobile app to provide a two-layer protection for accounts. You can obtain the logon key after you configure users in ASO, and then enter the key in the Google Authenticator app of your mobile phone. The app dynamically generates a verification code for logon based on the time and key.

- USB key authentication

  If you use this authentication method, you must install the drive and browser controls (only Windows + IE 11 environment is supported) based on the third-party manufacturer instructions. The third-party manufacturer provides the USB key hardware and the service for authentication and verification of certificates. The USB key contains the serial number and certificate information. You must bind the user account with the serial number on the management page of the two-factor authentication, and configure the authentication server provided by the third-party manufacturer. Then, you can enable the USB key authentication for the user.

If the USB key authentication is enabled for the account, upon logon, the ASO frontend calls the browser controls, reads the certificate in the USB key, obtains the random code from the backend, encrypts the information, and then sends the information to the backend. The backend calls the authentication server to parse the encrypted strings, verifies the certificate and serial number, and then completes the other logon processes if the verification is successful.

- PKI authentication

  If you use this authentication method, you must enable ASO HTTPS mutual authentication and change the certificate provided by the user. The third-party manufacturer makes the certificate and verifies the certificate at the backend. After HTTPS mutual authentication is enabled, the request carries a client certificate upon logon and is passed to the backend. The backend calls the DNS and verification services of the third-party manufacturer for verification. The certificate includes the name and ID card number of a user. Therefore, bind the name and ID card number with a user account when you configure the authentication method in ASO.

Both USB key authentication and PKI authentication depend on the authentication server provided by the third-party manufacturer to verify the encrypted information or certificate provided upon logon. Therefore, you must add the authentication server configurations before you use these two authentication methods.

Google two-factor authentication is implemented based on public algorithms. Therefore, no third-party authentication service is required, and you are not required to configure the authentication server.

Procedure

1. In the left-side navigation pane, choose **System Management > Two Factor Authentication**.
2. On the Two Factor Authentication page, you can perform the following operations:
   - Google two-factor authentication
     a. Set **Current Authentication Method** to **Google Two-Factor Authentication**.
     b. Click **Add User** in the upper-right corner of the page. In the Add User dialog box, enter a username and click OK. The added user is displayed in the user list.
     c. Find the user for whom you want to enable Google two-factor authentication, and then click **Create Key** in the **Actions** column. After the **Added** message appears, **Show Key** is displayed in the **Actions** column. Click **Show Key**, and the key is displayed in plaintext in the Key column.
     d. Enter the key in the Google Authenticator app on your mobile phone. The app dynamically generates a verification code for logon based on the time and key. After two-factor authentication is enabled, you are required to enter the verification code on your app when you log on to the system.

        > ? **Note** The Google Authenticator app and server generate the verification code by using public algorithms and based on the time and key, and can work offline without connecting to the Internet or Google server. Therefore, you must keep your key confidential.

     e. To disable two-factor authentication, click **Delete Key** in the **Actions** column.
   - USB key authentication
     a. Set **Current Authentication Method** to **USB Key Authentication**.

b. In the upper-right corner of the **Authentication Server Configuration** section, click **Add Server**. In the Add Server dialog box, specify the **IP Address** and **Port** parameters for the server. Click OK. The added server is displayed in the server list. Click **Test** in the Actions column to test the connectivity of the authentication server.

c. In the upper-right corner of the **User List** section, click **Add User**. Configure the parameters in the dialog box that appears and click OK. The added user is displayed in the user list.

d. Find the username for which you want to enable the USB key authentication, and then click **Bind Serial Number** in the corresponding **Actions** column. In the **Confirm** message, click **OK**. ASO calls the browser control to automatically enter the serial number. If the serial number fails to be specified, enter it manually in the **Bind Serial Number** dialog box to bind the username with the serial number.

> ⓘ **Note** The serial number for USB key authentication is stored within the USB key. Insert the USB key, install the drive and browser control, and then read the serial number by using the browser control.

e. Click **Enable Authentication** in the **Actions** column.

- PKI authentication

  a. Set **Current Authentication Method** to **PKI Authentication**.

  b. In the upper-right corner of the **Authentication Server Configuration** section, click **Add Server**. In the Add Server dialog box, specify the **IP Address** and **Port** parameters. Click OK. The added server is displayed in the server list. Click **Test** in the Actions column to test the connectivity of the authentication server.

  c. In the upper-right corner of the **User List** section, click **Add User**. In the Add User dialog box, specify **Username**, **Full Name**, and **ID card Name**. Click OK. The added user is displayed in the user list.

  d. (Optional)Find the username for which you want to enable the PKI authentication, and then click **Bind** in the **Actions**column. Enter the full name and ID card number of the user to bind the user account with the name and ID card number.

  e. Click **Enable Authentication** in the **Actions** column.

- No authentication

  Set **Current Authentication Method** to **No Authentication**. Two-factor authentication is then disabled and all two-factor authentication methods become invalid.

3.2.7. Application whitelists

This topic describes how to add, modify, or delete application whitelists as a system administrator.

Context

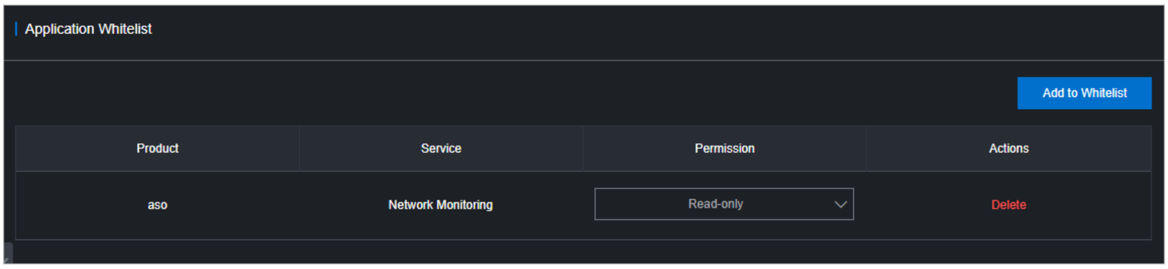
All access permissions on ASO services are managed by Operation Administrator Manager (OAM). Accounts that do not have a corresponding role are not allowed to access ASO services. The application whitelist feature allows you to access ASO services in scenarios where no permissions are granted. After the application whitelist feature is enabled, the application can be accessed by all users who have logged on. The valid application whitelist permissions are read-only and read/write. The configured value is the logon user permission.

The application whitelist is managed by the system administrator. You can access the application whitelist page after you log on as a system administrator.

When you add a whitelist, specify the product name and permission. The current product name is aso, and the service name is the name of the backend service registered in ASO. The whitelist takes effect only if the configurations are valid.

Procedure

1. In the left-side navigation pane, choose **System Management** > **Application Whitelist**.



Product	Service	Permission	Actions
aso	Network Monitoring	Read-only	Delete

2. On the **Application Whitelist** page, perform the following operations:
    - Add a whitelist

      In the upper-right corner of the page, click **Add to Whitelist**. In the **Add to Whitelist** dialog box, specify **Service** and **Permission** and click **OK**.
    - Modify permissions

      Select **Read/Write** or **Read-only** from the drop-down list in the **Permission** column.
    - Delete a whitelist

      Find the whitelist that you want to delete and click **Delete** in the **Actions** column. In the message that appears, click **OK**.

3.2.8. Manage server passwords

The Server Password module allows you to configure and manage server passwords and query history passwords for servers deployed in the Apsara Stack environment.

Context

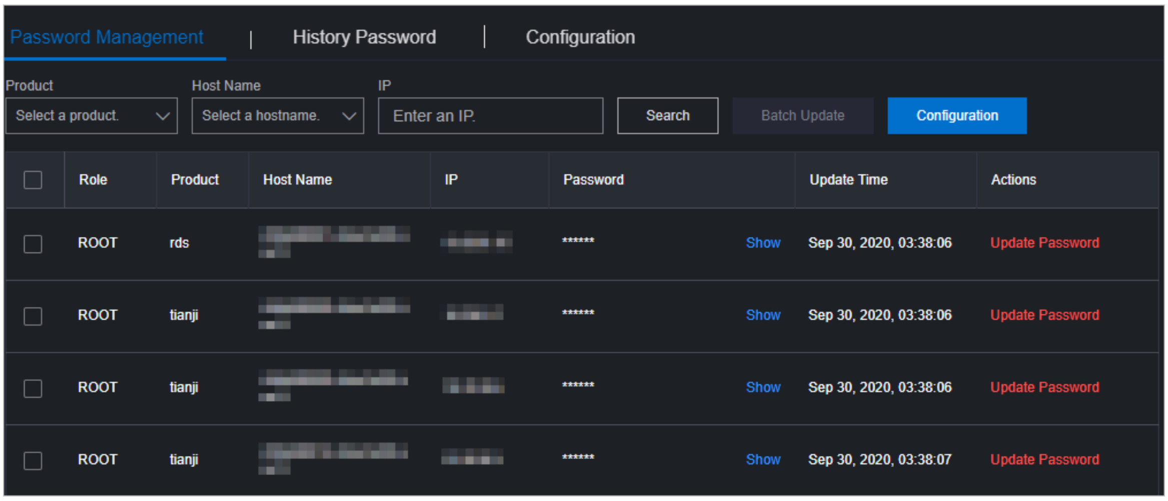
Server password management covers passwords of all the servers in the Apsara Stack environment.

- The system automatically collects information of all the servers in the Apsara Stack environment.
- The server password is updated periodically.
- You can configure the password expiration period and password length.
- You can manually update the passwords of one or more servers at a time.
- The system records the history of server password updates.
- You can search for server passwords by product, hostname, or IP address.

Procedure

1. In the left-side navigation pane, choose **System Management** > **Server Password**.

   The **Password Management** tab appears. The **Server Password** tab shows the passwords of all the servers in the current Apsara Stack environment.



□	Role	Product	Host Name	IP	Password		Update Time	Actions
□	ROOT	rds	[redacted]	[redacted]	******	Show	Sep 30, 2020, 03:38:06	Update Password
□	ROOT	tianji	[redacted]	[redacted]	******	Show	Sep 30, 2020, 03:38:06	Update Password
□	ROOT	tianji	[redacted]	[redacted]	******	Show	Sep 30, 2020, 03:38:06	Update Password
□	ROOT	tianji	[redacted]	[redacted]	******	Show	Sep 30, 2020, 03:38:07	Update Password

2. You can perform the following operations:
   - Query servers

     On the **Password Management** tab, select a product or host name, or enter an IP address, and then click **Search**.
   - Query a password
     a. On the **Password Management** tab, find a server.
     b. Click **Show** in the **Password** column. The server password in plaintext is displayed and turns into cipher text after 10 seconds. Alternatively, click **Hide** to show the cipher text.
   - Update a password
     a. On the **Password Management** tab, find a server.
     b. Click **Update Password** in the corresponding **Actions** column.
     c. In the **Update Password** dialog box, specify **Password** and **Confirm Password**. Click **OK**.

        Then, the password of the corresponding server is updated.
   - Update multiple passwords
     a. On the **Password Management** tab, select multiple servers.
     b. Click **Batch Update** in the upper part of the tab.
     c. Specify **Password** and **Confirm Password**. Click **OK**.

        The passwords of the selected servers are updated.
   - Configure the password expiration period
     a. On the **Password Management** tab, select one or more servers.
     b. Click **Configuration** in the upper part of the tab.
     c. In the **Configuration Item** dialog box, specify **Password Expiration Period** and **Unit**. Click **OK**.

        Server passwords are updated immediately after the configuration and will be updated again after an expiration period.
   - Query the update history of server passwords

     Click the **History Password** tab. Select a product, hostname, or IP address, and then click Search to view the update history of server passwords in the search results.

- Query historical passwords of servers
    a. On the **History Password** tab, find a server.
    b. Click **Show** in the **Password** column. The host password in plaintext is displayed and turns into the cipher text after 10 seconds. Alternatively, you can click **Hide** to show the cipher text.
- Query and modify the password configuration policy

    Click the **Configuration** tab. On the **Configuration** tab, view the metadata of server password management, including the initial password, password length, and retry times.

    - **Initial Password** shows the password assigned when server password management is deployed in the Apsara Stack environment. This parameter is necessary to modify the password of a server in the Apsara Stack environment.
    - **Password Length** indicates the length of passwords automatically updated by the system.
    - **Retry Times** indicates a limit of how many times a password can fail to be updated before the system stops trying.
    - **Status** specifies whether the configuration takes effect. By default, Status is disabled. To enable Status, turn on . In the **Confirm** message, click **OK**.

    To modify the configurations, click **Modify** in the **Actions** column. In the dialog box that appears, specify **Initial Password**, **Password Length**, and **Retry Times**. Click **OK**. Modify **Status**.

3.2.9. Operations logs

You can view logs to know the usage of all resources and the running status of all function modules on the platform in real time.

Context

The Operation Logs page allows you to view all the records of backend API calls, including audit operations. The auditor can filter logs by username and time period, and view the call details. You can also export the selected logs.

Procedure

1. In the left-side navigation pane, choose **System Management > Operations Logs**.
2. On the **Log Management** page, perform the following operations:
    - Query logs

        In the upper-left corner of the page, specify **User Name** and **Time Period**, and then click **Search**.
    - Delete logs

        Select one or more logs to be deleted, and then click **Delete** in the upper part of the page. In the message that appears, click **OK**.
    - Export logs

        Click the icon to export the displayed logs.

> ⓘ **Note** If the number of logs to be exported exceeds the threshold (10,000 by default), only the first 10,000 logs can be exported.

3.2.10. View authorization information

The Authorization page allows customers, field engineers, and operations engineers to query services that have authorization problems and troubleshoot the problems.

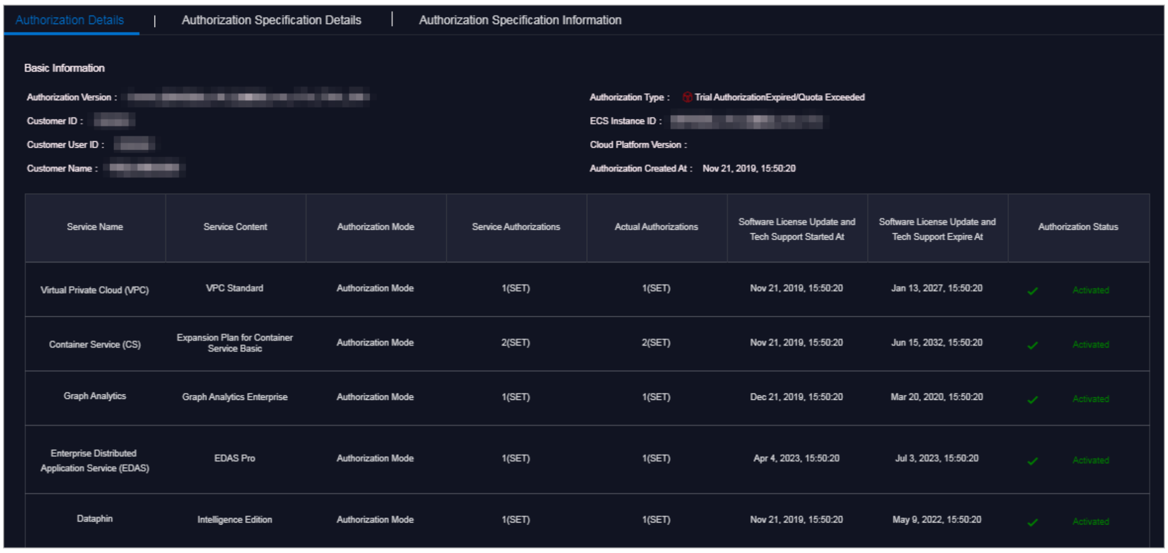
Prerequisites

Make sure that the current logon user has administrator permissions. Only a user with administrator permissions can view the trial authorization information or enter the authorization code to view the formal authorization information on the **Authorization Details** tab.

When a non-administrator user accesses this page, a message indicating that the user has insufficient permissions is displayed.

Procedure

1. In the left-side navigation pane, choose **System Management > Authorization**. The **Authorization Details** tab appears.


Authorization Details | Authorization Specification Details | Authorization Specification Information

Basic Information

Authorization Version : [redacted]

Customer ID : [redacted]

Customer User ID : [redacted]

Customer Name : [redacted]

Authorization Type : Trial AuthorizationExpired/Quota Exceeded

ECS Instance ID : [redacted]

Cloud Platform Version :

Authorization Created At : Nov 21, 2019, 15:50:20

Service Name	Service Content	Authorization Mode	Service Authorizations	Actual Authorizations	Software License Update and Tech Support Started At	Software License Update and Tech Support Expire At	Authorization Status
Virtual Private Cloud (VPC)	VPC Standard	Authorization Mode	1(SET)	1(SET)	Nov 21, 2019, 15:50:20	Jan 13, 2027, 15:50:20	✓ Activated
Container Service (CS)	Expansion Plan for Container Service Basic	Authorization Mode	2(SET)	2(SET)	Nov 21, 2019, 15:50:20	Jun 15, 2032, 15:50:20	✓ Activated
Graph Analytics	Graph Analytics Enterprise	Authorization Mode	1(SET)	1(SET)	Dec 21, 2019, 15:50:20	Mar 20, 2020, 15:50:20	✓ Activated
Enterprise Distributed Application Service (EDAS)	EDAS Pro	Authorization Mode	1(SET)	1(SET)	Apr 4, 2023, 15:50:20	Jul 3, 2023, 15:50:20	✓ Activated
Dataphin	Intelligence Edition	Authorization Mode	1(SET)	1(SET)	Nov 21, 2019, 15:50:20	May 9, 2022, 15:50:20	✓ Activated

2. Perform the following operations to view the authorization information.

> ⓘ **Note** For formal authorization, you must enter the authorization code to view the authorization information. Obtain the authorization code in the authorization letter attached by the project contract or contact the commercial business manager (CBM) of your project to obtain the authorization code.

   - On the **Authorization Details** tab, view the basic authorization information.

     You can view authorization information, including authorization version, customer information, authorization type, Elastic Compute Service (ECS) instance ID, cloud platform version, the creation time of authorization, and the authorization information of all services within the current Apsara Stack environment.

     The following table describes the detailed authorization information.

Authorization information	Description
Authorization Version	You can use the BP number in the version to associate with a project or contract. Notes: ▪ **TRIAL** in the version indicates that the authorization is a trial authorization. The trial authorization is valid within 90 days from the date of deployment. ▪ **FORMAL** in the version indicates that the authorization is a formal one. The authorization information of the service comes from the signed contract.
Authorization Type	Indicates the current authorization type and authorization status.
Customer information	Includes the customer name, customer ID, and customer user ID.
ECS Instance ID	The ECS instance ID in the deployment planner of the field environment.
Cloud Platform Version	The Apsara Stack version of the current cloud platform.
Authorization Created At	The start time of the authorization.
Authorization information of a service	Includes the service name, service content, current authorization mode, service authorization quantity, actual authorization quantity, software license update and technical support start time, software license update and technical support end time, and real-time product authorization status. If the following information appears in the **Authorization Status** column of a service: ▪ **RENEW Service Expired** Indicates that the customer must renew the subscription as soon as possible. Otherwise, field operations services (including ticket processing) will be terminated. ▪ **Specifications Above Quota** Indicates that the specifications deployed for a service have exceeded the contract quota, and the customer must scale up the service as soon as possible.

- Click the **Authorization Specification Details** tab to view the authorization specification information of a service.

  The following table describes the authorization specification information and the corresponding description.

Item	Description
Service Name	The name of an authorized service.
Specification Name	The specification name of an authorized service.
Specifications	The total number of current authorizations of a specification for a service.
Specification Quota	The authorization quota of a specification for a service.
Specification Status	The current authorization status of a specification for a service.

- Click the **Authorization Specification Information** tab to view the authorization specification information and the authorization specification excess information of services.

  In the upper part of the tab, specify **Licensing Specification Level** as **IDC Level**, select IDC ID, service name, start time, and end time, and then click **Search**. You can view the authorization specification information of a service in the current environment, including the maximum and minimum number of specifications and their occurrence time points as well as the average number of specifications within the specified time range.

  In the **Authorization Specification Information** or **Authorization Specification Excess Information** section, click the + icon on the left side of a service to view the specifications, specification quota, and recorded time of authorization specifications of the specified time range last day for the specification of the service. Click **View More** to view the authorization specification information of the service within the specified time range by date.

3.2.11. Multi-cloud management

The Multi-cloud Management module provides the function of multi-cloud configurations. By using the multi-cloud configurations, you can perform Operations & Maintenance (O&M) operations on different data centers on an operations and maintenance platform.

3.2.11.1. Add multi-cloud configurations

If a multi-cloud environment is used, you can add multi-cloud configurations as a multi-cloud configuration administrator or super administrator. After you add multi-cloud configurations, you can switch to different data centers in the same console and then view or perform related operations.

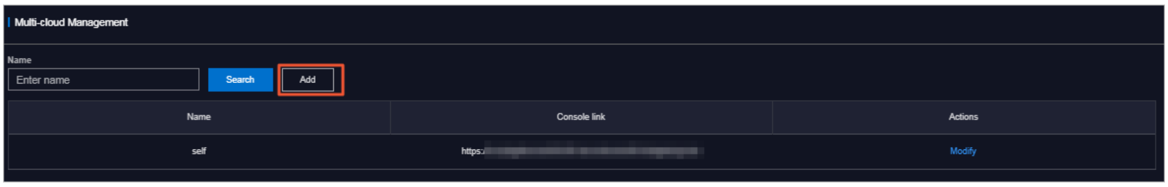
Prerequisites

Before you add multi-cloud configurations, make sure that the following requirements are met:

- Data centers are interconnected and share accounts that have the same usernames and passwords with each other.
- You are granted the permissions of a multi-cloud configuration administrator or super administrator.

Procedure

1. Log on to the ASO console as a multi-cloud configuration administrator or super administrator.
2. In the left-side navigation pane, choose **System Management > Multi-cloud Management**.
3. In the upper part of the page, click **Add**.



Name	Console link	Actions
self	https:[redacted]	Modify

4. In the dialog box that appears, add the console link of another data center and click **OK**.

Parameter	Description
Name	The name of another data center.
Console Link	The console link of another data center. Make sure that the console link is correct. Otherwise, an error message is returned.

After you add multi-cloud configurations, you can log on to the ASO console by using a shared account to switch to different data centers and then perform related operations.

3.2.11.2. Modify the name of a data center

After you add multi-cloud configurations, you can modify the name of a data center as a multi-cloud configuration administrator or super administrator.

Procedure

1. In the left-side navigation pane, choose **System Management > Multi-cloud Management**.
2. (Optional)Enter the target name in the Name search box and then click **Search**.
3. Find the target name and click **Modify** in the **Actions** column.
4. In the dialog box that appears, modify the name of the data center and click **OK**.

3.2.12. Menu settings

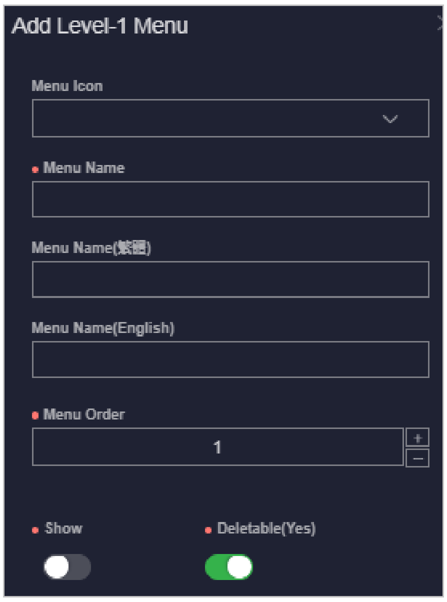
You can hide, add, modify, or delete a system menu based on business needs.

3.2.12.1. Add a level-1 menu

This topic describes how to add a level-1 menu.

Procedure

1. In the left-side navigation pane, choose **System Management > Menu Configuration**.
2. In the upper part of the page, click **Add**.
3. In the Add Level-1 Menu pane that appears, configure the menu parameters.



Add Level-1 Menu

Menu Icon

• Menu Name

Menu Name(繁體)

Menu Name(English)

• Menu Order

1

• Show

• Deletable(Yes)

The following table describes the configuration of the parameters.

Parameter	Description
Menu Icon	Select the icon of the target level-1 menu from the drop-down list.
Menu Name	Specifies the name of the menu.
Menu Order	Specifies the order of items of this menu from top to bottom.
Show or Hide	Specifies whether to show the menu. Toggle the switch to hide or show the menu. By default, the menu is displayed.
Deletable	Specifies whether this menu can be deleted after being added. Toggle the switch to configure whether the menu can be deleted. By default, the menu can be deleted. This parameter cannot be modified after being specified.

4. Click **OK**.

Result

Then, you can view the added level-1 menu in the menu list and in the left-side navigation pane.

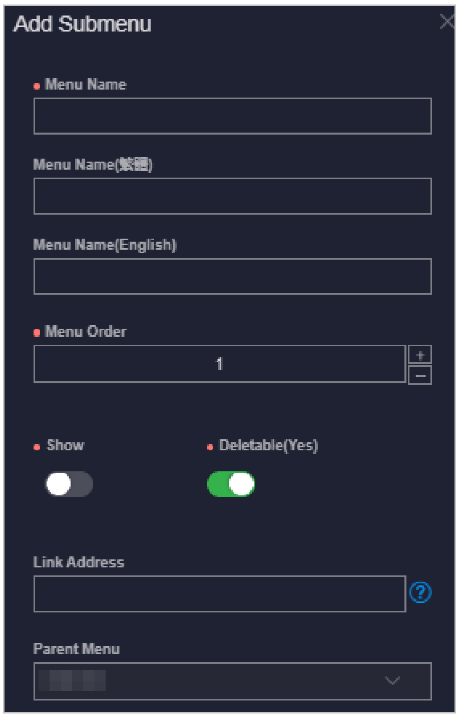
3.2.12.2. Add a submenu

This topic describes how to add a level-2 and a level-3 menu.

Procedure

1. In the left-side navigation pane, choose **System Management > Menu Configuration**.
2. Add a level-2 menu.
   i. Find the level-1 menu to which you want to add a level-2 menu, and then click **Add** in the **Actions** column.

ii. In the Add Submenu pane, configure the submenu parameters.



Add Submenu

- Menu Name
Menu Name(繁體)
Menu Name(English)
- Menu Order: 1
- Show: off
- Deletable(Yes): on
Link Address
Parent Menu: [redacted]

The following table describes the parameters.

Parameter	Description
Menu Name	Specifies the name of the level-2 menu.
Menu Order	Specifies the order of items of this level-2 menu from top to bottom.
Show or Hide	Specifies whether to hide this level-2 menu. Turn on or off the switch to hide or show the menu. By default, the menu is not hidden.
Deletable	Specifies whether this level-2 menu can be deleted after being added. Turn on or off the switch to configure whether the menu can be deleted. By default, the menu can be deleted. The settings cannot be modified after being configured.
Link Address	Specifies the menu path in the format of module name/path name. Example: /Dashboard/#/dashboardView.
Parent Menu	The parent menu of this menu.

iii. Click **OK**.
You can view the added level-2 menu under the corresponding level-1 menu in the menu list and the left-side navigation pane.

3. Click the fold button on the left side of the level-1 menu to expand the level-2 menus. Add a level-3 menu by following the preceding steps.

> Note The system only supports up to three levels of menus. You cannot add submenus for a level-3 menu.

After you add a level-3 menu, you can view it under the corresponding level-2 menu in the menu list and the left-side navigation pane.

3.2.12.3. Hide a menu

This topic describes how to hide a menu.

Prerequisites

> Notice You cannot hide the **System Management** menu and its submenus.

Procedure

1. In the left-side navigation pane, choose **System Management > Menu Configuration**.
2. Perform the following operations:
   - Hide a level-1 menu

     In the menu list, find the level-1 menu you are about to hide, and then click **Modify** in the **Actions** column. In the Modify Menu pane, turn on the switch to hide the menu, and then click **OK**.
   - Hide a level-2 or level-3 menu

     In the menu list, find the level-2 or level-3 menu you are about to hide, and then click **Modify** in the **Actions** column. In the Modify Menu pane, turn on the switch to hide the menu, and then click **OK**.

3.2.12.4. Modify a menu

This topic describes how to modify the icon, name, and order of a menu.

Procedure

1. In the left-side navigation pane, choose **System Management > Menu Management**.
2. In the menu list, find the menu or submenu to be modified. Click **Modify** in the **Actions** column.
3. In the Modify Menu pane, modify the icon, name, and order of a level-1 menu, or modify the name, order, and link address of a submenu.

3.2.12.5. Delete a menu

This topic describes how to delete a menu that is no longer needed.

Prerequisites

> Notice You can only delete a menu that had **Deletable** enabled when the menu was added.

Procedure

1. In the left-side navigation pane, choose **System Management > Menu Configuration**.
2. In the menu list, find the menu or submenu to be deleted. Click **Delete** in the **Actions** column.
3. In the message that appears, click **OK**.

4.Monitoring

4.1. Alert Monitoring

The Alert Monitoring module allows operations engineers to quickly know the information of alerts generated by the system, locate the problems based on the alert information, track the problem processing, and configure the alerts.

4.1.1. Dashboard

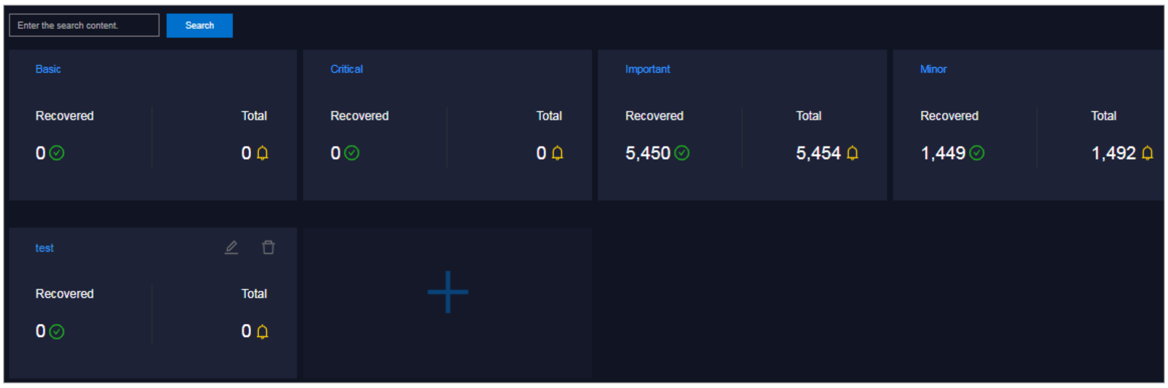
The Alert Monitoring module allows you to view the overview information of alerts.

Context

You can configure filter conditions to filter alerts by adding a custom filter.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Dashboard**.



2. Perform the following operations:
   - View the total number of alerts and the number of recovered alerts in the basic, critical, important, and minor monitoring metrics, as well as custom filters.

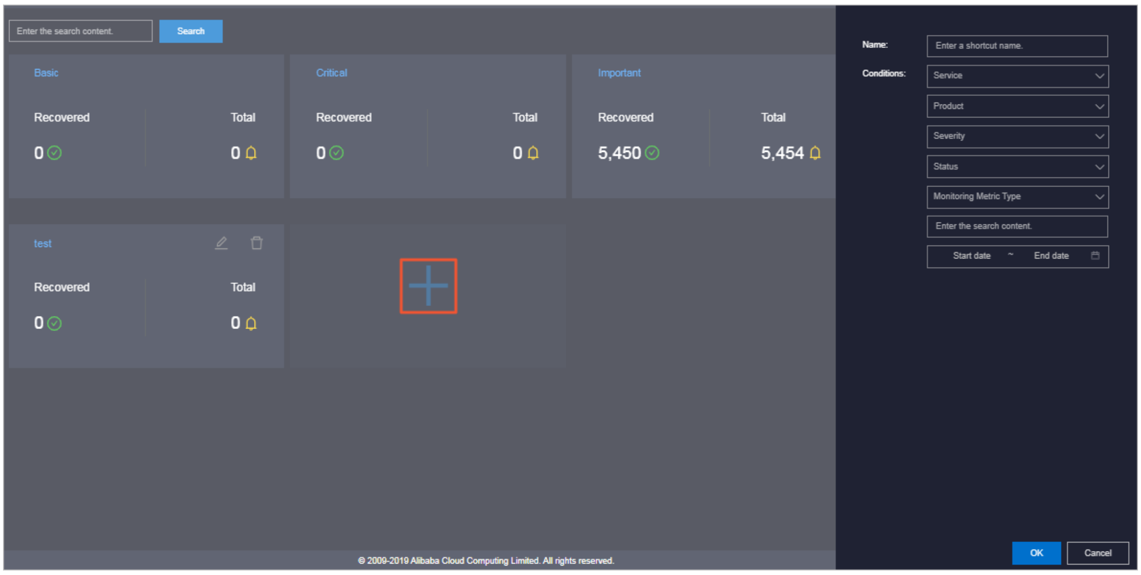
     > **Note** Click a monitoring metric or custom filter to go to the corresponding **Alert Events** page.

   - Search for alerts

     Enter a keyword, such as cluster, product, service, severity, status, or monitoring metric name, in the search box. Click **Search** to search for the corresponding alert event.

   - Add a custom filter

Click the + icon. In the Add Filter pane, configure the parameters.



The following table describes the parameters for adding a filter.

Parameter	Description
Name	The filter name to be displayed on the **Dashboard** page.

Parameter	Description
Conditions	Configure the following filter conditions: - **Service**: the service to which the alerts to be filtered belong. - **Product**: the product to which the alerts to be filtered belong. - **Severity**: the severity of the alerts to be filtered. Alert levels are classified into the following types: - **P0**: indicates the cleared alerts, corresponding to alerts whose **Alert Level** is **Restored** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. - **P1**: indicates the critical alerts, corresponding to alerts whose **Alert Level** is **P1** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. - **P2**: indicates major alerts, corresponding to alerts whose **Alert Level** is **P2** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. - **P3**: indicates the minor alerts, corresponding to alerts whose **Alert Level** is **P3** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. - **P4**: indicates the alerts for notice, corresponding to alerts whose **Alert Level** is **P4** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. - **P5**: indicates the system alerts. - **Status**: the current status of the alerts to be filtered. - **Monitoring Metric Type**: the type of the metric to which the alerts to be filtered belong. Valid values: - **Basic** - **Critical** - **Important** - **Minor** - **Enter the search content**: the information about the alerts to be filtered. - Select the start date and end date of the alerts to be filtered.

After you add a custom filter, you can view the overview information that meets the filter conditions on the **Dashboard** page.

- Modify a custom filter

  After you configure a custom filter, you can click the ✎ icon to modify the filter conditions and obtain the new filter results.

- Delete a custom filter

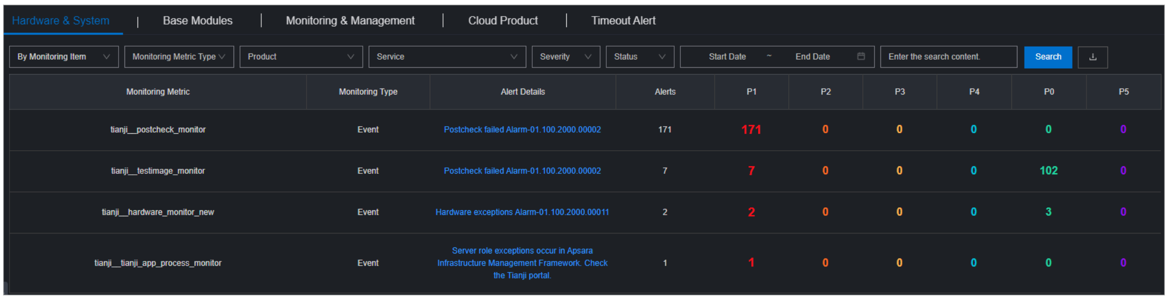
  After you add custom filters, you can click the 🗑 icon to delete a filter that is no longer needed.

4.1.2. Alert events

The Alert Events module displays the information of all alerts generated by the system on different tabs. The alert information is aggregated by monitoring item or product name. You can search for alerts based on filter conditions such as monitoring metric type, product, service, severity, status, and time range when the alert is triggered, and then perform O&M operations on the alerts.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Events**.



Monitoring Metric	Monitoring Type	Alert Details	Alerts	P1	P2	P3	P4	P0	P5
tianji__postcheck_monitor	Event	Postcheck failed Alarm-01.100.2000.00002	171	171	0	0	0	0	0
tianji__testimage_monitor	Event	Postcheck failed Alarm-01.100.2000.00002	7	7	0	0	0	102	0
tianji__hardware_monitor_new	Event	Hardware exceptions Alarm-01.100.2000.00011	2	2	0	0	0	3	0
tianji__tianji_app_process_monitor	Event	Server role exceptions occur in Apsara Infrastructure Management Framework. Check the Tianji portal.	1	1	0	0	0	0	0

2. You can click the **Hardware & System**, **Base Modules**, **Monitoring & Management**, **Cloud Product**, or **Timeout Alert** tab, and perform the following operations:
   - Search for an alert

     In the upper part of the tab, you can search for an alert by specifying **Monitoring Metric Type**, **Product**, **Service**, **Severity**, **Status**, **Start Date**, **End Date**, or search content.
   - View alert sources
     a. If the alert information is aggregated by **Product Name** on this tab, click + on the left side of the product name to show the monitoring metrics. If the alert information is aggregated by **Monitoring Item** on this tab, skip this step.
     b. Find the monitoring metric and severity of the target alert, and then click the number in the specific severity column.
     c. Move the pointer over the alert source information in blue in the **Alert Source** column to view the alert source details.
   - View the details of a metric
     a. If the alert information is aggregated by **Product Name** on this tab, click + on the left side of the product name to show the monitoring metrics. If the alert information is aggregated by **Monitoring Item** on this tab, skip this step.
     b. Find the monitoring metric and severity of the target alert, and then click the number in the specific severity column.
     c. Click the alert details in blue in the **Alert Details** column. On the **Alert Details** page, you can view the alert information such as the alert description, reference, impact scope, and resolution.
   - View the original alert information of an alert

a. If the alert information is aggregated by **Product Name** on this tab, click + on the left side of the product name to show the monitoring metrics. If the alert information is aggregated by **Monitoring Item**, skip this step.

b. Find the monitoring metric and severity of the target alert, and then click the number in the specific severity column.

c. Click the number in blue in the **Alerts** column. The **Alerts** pane appears.

d. Click **Details** in the **Alert Information** column to view the original alert information.

- Process alerts

  Find the monitoring metric and severity of the target alert, and then click the number in the specific severity column.

  > ? **Note** If the alert information is aggregated by **Product Name** on this tab, click + on the left side of the product name to show the monitoring metrics.

  - If an alert is being processed by operations engineers, choose **Actions > Process** in the **Actions** column to set to**In Process**.
  - If the alert has been processed, choose **Actions > Processed** in the **Actions** column to set the alert status to **Processed**.
  - To view the whole processing flow of an alert, choose **Actions > Alert Tracing** in the **Actions** column.
  - View the recent monitoring data

    Choose **Actions > Exploration** in the **Actions** column corresponding to an alert to view the trend chart of a monitoring metric of a product.

- Export reports

  Click the ⤓ icon in the upper part of the tab to download the alert list.

4.1.3. Alert history

The Alert History page shows all alerts generated by the system and their information in chronological order.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert History**.
2. On the **Alert History** page, perform the following operations:
   - Search for an alert

     In the upper part of the page, you can search for an alert by specifying **Monitoring Metric Type**, **Product**, **Service**, **Severity**, **Status**, **Start date**, **End date**, or search content.

   - Export the alert list

     Click the ⤓ icon in the upper part of the page to export a list of historical alerts.

   - View alert sources

Move the pointer over an alert source name in blue in the **Alert Source** column to view the alert source details.

- View the details of a metric

  Click an alert name in blue in the **Alert Details** column. On the **Alert Details** page, you can view the alert information such as the alert description, reference, impact scope, and resolution.

- View the original alert information

  Click **Details** in the **Alert Information** column to view the original information of the alert.

- View the alert duration

  The alert duration is the total duration of an alert from the start time to the time when the alert is terminated. You can view the duration of an alert in the **Duration** column. You can also move the pointer over a value in the **Duration** column to view the specific start time of the alert.

4.1.4. Alert configuration

The **Alert Configuration** module provides you with three functions: contacts, contact groups, and static parameter settings.

4.1.4.1. Alert contacts

You can query, add, modify, or delete an alert contact based on business needs.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Configuration**. The **Contacts** tab appears.
2. You can perform the following operations:
   - Search for alert contacts

     In the upper-lefter corner of the tab, specify the product name, contact name, and phone number and then click **Search**. The alert contacts that meet the search conditions are displayed in the list.

   - Add an alert contact

     In the upper-left corner of the tab, click **Add**. The **Add Contact** pane appears. Configure the parameters, and then click **OK**.

   - Modify an alert contact

     Find the alert contact to be modified and then click **Modify** in the **Actions** column. In the **Modify Contact** pane, modify the relevant information and then click **OK**.

   - Delete an alert contact

     Find the alert contact to be deleted and then click **Delete** in the **Actions** column. In the message that appears, click **OK**.

4.1.4.2. Alert contact groups

You can query, add, modify, or delete an alert contact group based on business needs.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Configuration**.
2. Click the **Contact Group** tab.
3. Perform the following operations:
   - Query an alert contact group

     Enter a group name in the search box and click **Search**. The information of the alert contact group that meets the search condition is displayed.
   - Add an alert contact group

     Click **Add** in the upper-left corner of the tab. In the **Add Contact Group** pane, enter a group name and select the contacts to be added to the contact group. Click **OK**.
   - Modify an alert contact group

     Find the contact group to be modified, and then click **Modify** in the **Actions** column. In the **Modify Contact Group** pane, modify the group name, description, contacts, and notification method. Click **OK**.
   - Delete one or more alert contact groups

     Find the contact group to be deleted, and then click **Delete** in the **Actions** column. In the message that appears, click **OK**.

     Select one or more contact groups to be deleted and click **Delete All** in the upper part of the tab. In the message that appears, click **OK**.

4.1.4.3. Configure static parameters

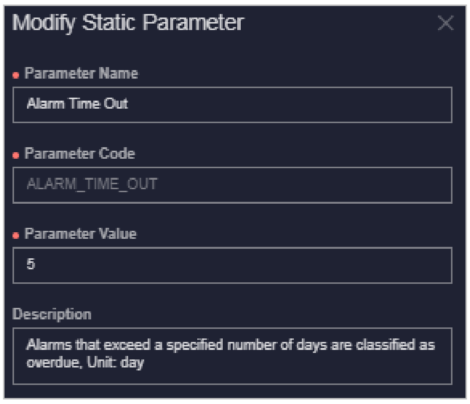
You can configure alert-related static parameters based on your business needs. Only parameters related to timeout alerts can be configured.

Context

You cannot add new alert configurations in the current version. You can modify the default parameter configurations for timeout alerts.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Configuration**.
2. Click the **Static Parameter Settings** tab.
3. (Optional)Enter a parameter name in the search box and click **Search** to query the static parameter configurations.
4. Find the static parameter to be modified, and then click **Modify** in the **Actions** column.
5. In the **Modify Static Parameter** pane, modify the parameter name, parameter value, and description.



Modify Static Parameter

- Parameter Name: Alarm Time Out
- Parameter Code: ALARM_TIME_OUT
- Parameter Value: 5
- Description: Alarms that exceed a specified number of days are classified as overdue, Unit: day

Parameter	Description
Parameter Name	Enter a parameter name related to the configuration.
Parameter Value	Enter the parameter value. The default value is 5, indicating five days. After you complete the configuration, you can choose **Alert Monitoring > Alert Events** and then click the **Timeout Alert** tab to view alert events that meet the condition specified by this parameter value. For example, if the parameter value is 5, you can choose **Alert Monitoring > Alert Events** and then click the **Timeout Alert** tab, alert events that are retained more than five days are displayed.
Description	Enter the description related to the configuration.

6. Click **OK**.

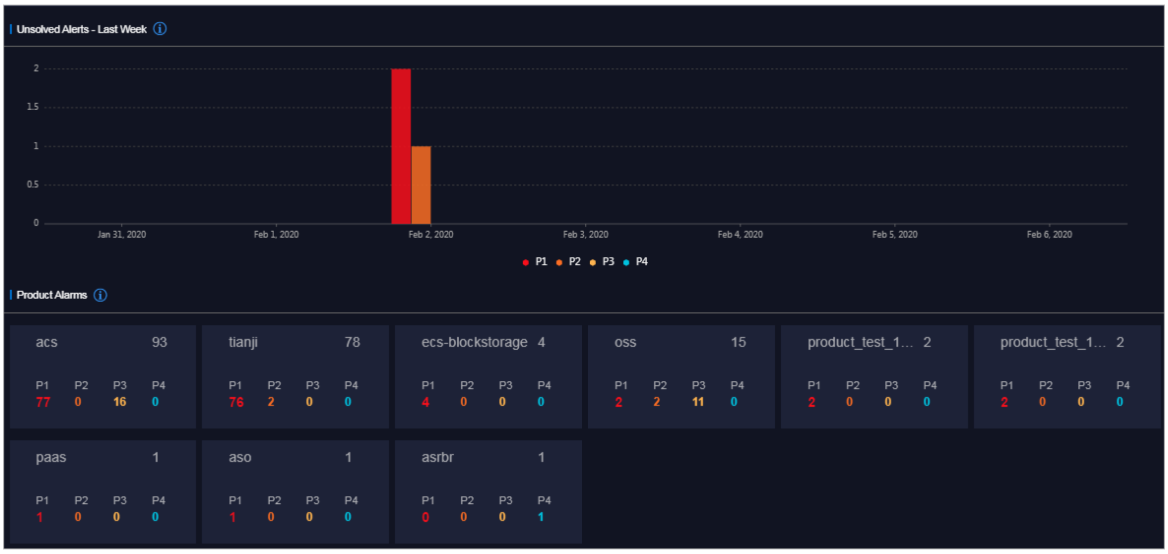
4.1.5. Alert overview

The Alert Overview module allows you to query the distribution of different levels of alerts for Apsara Stack services.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Overview**.

   The **Alert Overview** page appears.



Product Alarms

	Total	P1	P2	P3	P4
acs	93	77	0	16	0
tianji	78	76	2	0	0
ecs-blockstorage	4	4	0	0	0
oss	15	2	2	11	0
product_test_1...	2	2	0	0	0
product_test_1...	2	2	0	0	0
paas	1	1	0	0	0
aso	1	1	0	0	0
asrbr	1	0	0	0	1

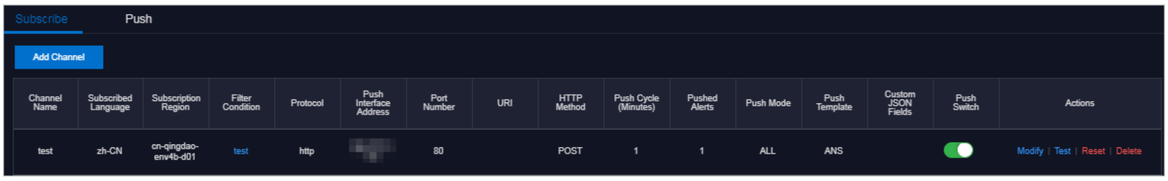
- The column chart in the upper part of the page shows the number of unresolved alerts for the last seven days.
- The section in the lower part of the page shows the alert statistics in the current system by service.

4.1.6. Alert subscription and push

The alert subscription and push feature allows you to configure alert notification channels and then push alerts to operations engineers.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Subscribe/Push**.



Channel Name	Subscribed Language	Subscription Region	Filter Condition	Protocol	Push Interface Address	Port Number	URI	HTTP Method	Push Cycle (Minutes)	Pushed Alerts	Push Mode	Push Template	Custom JSON Fields	Push Switch	Actions
test	zh-CN	cn-qingdao-env4b-d01	test	http	[redacted]	80		POST	1	1	ALL	ANS		●	Modify | Test | Reset | Delete

2. On the **Subscribe** tab, click **Add Channel**.
3. In the **Add Subscription** pane, configure the following parameters.

Parameter	Description
Channel Name	The name of the subscription channel.
Subscribed Language	The subscription language. Valid values: Chinese and English.
Subscription Region	The region where the subscription is located.

Parameter	Description
Filter Condition	The filter conditions used to filter alerts. Valid values: ○ **Basic** ○ **Critical** ○ **Important** ○ **Minor** ○ Custom filter
Protocol	The protocol used to push alerts. Only HTTP is supported.
Push Interface Address	The IP address of the push interface.
Port Number	The port number of the push interface.
URI	The URI of the push interface.
HTTP Method	The request method used to push alerts. Only the POST method is supported.
Push Cycle (Minutes)	The interval for pushing alerts. Unit: minutes.
Pushed Alerts	The number of alerts pushed each time.
Push Mode	The mode used to push alerts. Valid values: ○ **ALL**: All alerts are pushed each push cycle. ○ **TOP**: Only high priority alerts are pushed each push cycle.
Push Template	The template used to push alerts. Valid values: ○ ASO: the default template. ○ ANS: select this template to push alerts by DingTalk, short messages, or emails. You can only configure a single channel of this type. **Note** A preset ANS template exists if the system already connects with ANS. To restore the initial configurations of the template with one click, click **Reset** in the upper part of the page.
Custom JSON Fields	The person who receives the push can use this field to customize an identifier. The field must be in the JSON format.

Parameter	Description
Push Switch	Specifies whether to push alerts. If the switch in this pane is not turned on, after you configure the subscription channel, you can enable the push feature in the **Push Switch** column.

4. Click **OK**. To modify or delete a channel, click **Modify** or **Delete** in the **Actions** column corresponding to the channel.
5. (Optional)The newly added channel is displayed in the list. Click **Test** in the **Actions** column corresponding to the channel to test the connectivity of the push channel.

   ⓘ **Note** For the ANS push channel, after you click **Test** in the Actions column, you must enter the mobile phone number, email address, or DingTalk to which alerts are pushed.

6. After you configure the push channel and turn on the push switch, you can click the **Push** tab to view the push records.

4.1.7. Alert masking

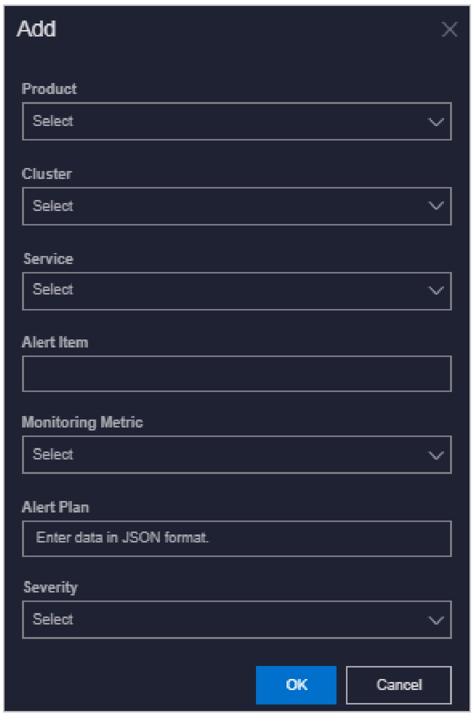
The Alert Masking module allows you to mask a type of alerts and remove the masking as needed.

4.1.7.1. Add masking rules

Masking rules allow you to mask alerts that you no long need to pay attention to.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Masking**.
2. In the upper part of the page, click **Add**.
3. In the **Add** pane, configure parameters related to the alerts to be masked.



Add

Product
Select

Cluster
Select

Service
Select

Alert Item

Monitoring Metric
Select

Alert Plan
Enter data in JSON format.

Severity
Select

Parameter	Description
Product	Optional. The product to which the alerts to be masked belong.
Cluster	Optional. The cluster to which the alerts to be masked belong.
Service	Optional. The service to which the alerts to be masked belong.
Alert Item	Optional. The alert name to be masked. **Note** When you configure **Alert Item**, if the number of alerts is large, you may need to wait a few minutes.
Monitoring Metric	Optional. The monitoring metric to which the alerts to be masked belong.
Alert Plan	Optional. The alert details of the alerts to be masked. Example: `{"serverrole":"ecs-yaochi.ServiceTest#","machine":"vm0100120****","level":"error"}`

Parameter	Description
Severity	Optional. The severity levels of the alert. Valid values: ○ **P0**: indicates that the alert has been cleared, corresponding to alerts whose **Alert Level** is **Restored** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. ○ **P1**: indicates critical alerts, corresponding to alerts whose **Alert Level** is **P1** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. ○ **P2**: indicates major alerts, corresponding to alerts whose **Alert Level** is **P2** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. ○ **P3**: indicates minor alerts, corresponding to alerts whose **Alert Level** is **P3** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. ○ **P4**: indicates alerts for notice, corresponding to alerts whose **Alert Level** is **P4** in **Monitoring > Alert History** of Apsara Infrastructure Management Framework. ○ **P5**: indicates system alerts.

4. Click **OK**.

Result

The added masking rule is displayed in the alert masking list.

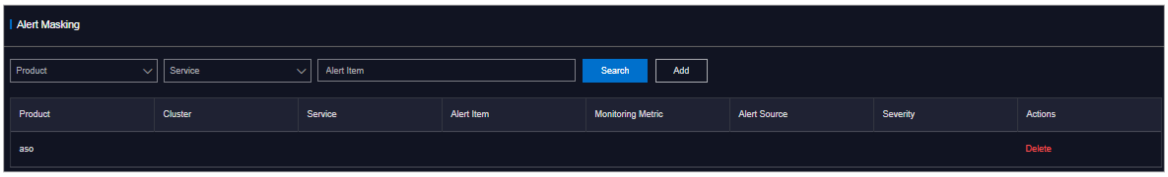
After a masking rule is added, alerts that meet the conditions in the masking rule are not displayed in the **Alert Events** and **Alert History** tabs.

4.1.7.2. Remove the masking

You can remove the masking for masked alerts.

Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Masking**.
2. (Optional)Specify a product, service, or an alert item. Click **Search**.
3. Find the alert masking rule to be removed, and then click **Delete** in the **Actions** column.



Product	Cluster	Service	Alert Item	Monitoring Metric	Alert Source	Severity	Actions
aso							Delete

4. In the message that appears, click **OK**.

Result

After you remove the masking, alerts that were masked by the deleted masking rule are displayed in the **Alert Events** and **Alert History** tabs.

4.1.8. Alert templates

This topic describes how to query, import, and export alert templates on the Alert Templates page. After you import an alert template to the system, the system delivers the configurations to servers for data collection and alert notification.

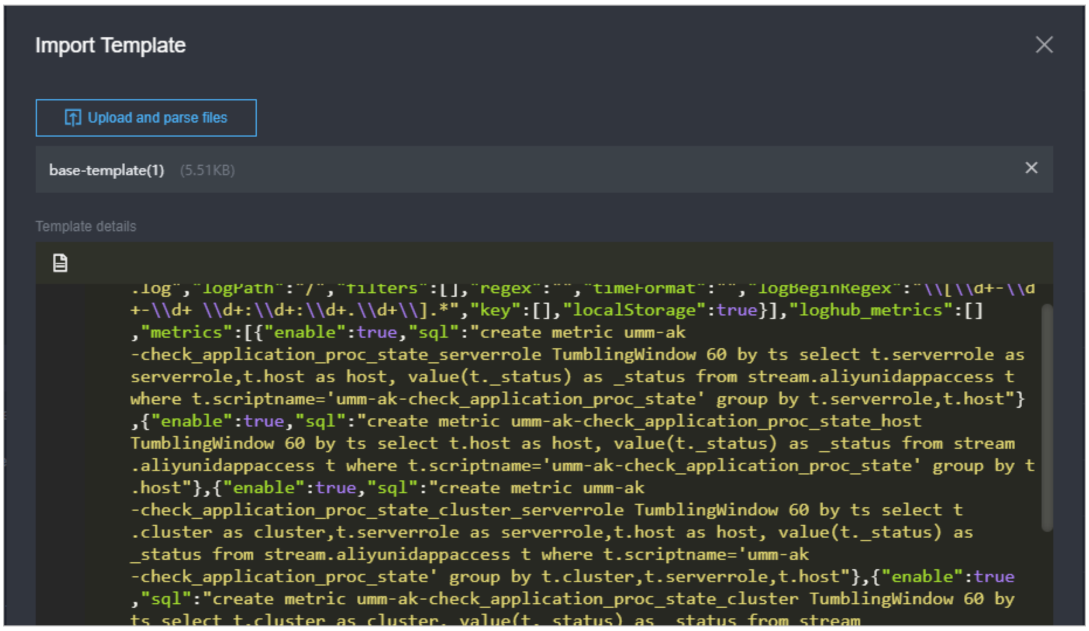
Procedure

1. In the left-side navigation pane, choose **Alert Monitoring > Alert Templates**.
2. On the **Alert Templates** page, perform the following operations:
   - Query an alert template

     In the upper part of the page, you can search for an alert template by specifying **Product**, **Cluster**, or **Service**. To clear the filter conditions, click **Reset**.
   - Import an alert template
     a. Select a product and service, and then click **Import** in the corresponding **Actions** column.
     b. In the **Import Template** dialog box, click **Upload and Parse File** in the upper-left corner.

        > **Note** You can contact Alibaba Cloud technical support personnel to obtain the template file to be uploaded.

        Select and upload the template file that you want to upload. The file is parsed to the **Template Details** section.

```
.log","logPath":"/","filters":[],"regex":"","timeFormat":"","logBeginRegex":"\\[\\d+-\\d
+-\\d+ \\d+:\\d+:\\d+.\\d+\\].*","key":[],"localStorage":true}],"loghub_metrics":[]
,"metrics":[{"enable":true,"sql":"create metric umm-ak
-check_application_proc_state_serverrole TumblingWindow 60 by ts select t.serverrole as
serverrole,t.host as host, value(t._status) as _status from stream.aliyunidappaccess t
where t.scriptname='umm-ak-check_application_proc_state' group by t.serverrole,t.host"}
,{"enable":true,"sql":"create metric umm-ak-check_application_proc_state_host
TumblingWindow 60 by ts select t.host as host, value(t._status) as _status from stream
.aliyunidappaccess t where t.scriptname='umm-ak-check_application_proc_state' group by t
.host"},{"enable":true,"sql":"create metric umm-ak
-check_application_proc_state_cluster_serverrole TumblingWindow 60 by ts select t
.cluster as cluster,t.serverrole as serverrole,t.host as host, value(t._status) as
_status from stream.aliyunidappaccess t where t.scriptname='umm-ak
-check_application_proc_state' group by t.cluster,t.serverrole,t.host"},{"enable":true
,"sql":"create metric umm-ak-check_application_proc_state_cluster TumblingWindow 60 by
ts select t.cluster as cluster, value(t._status) as _status from stream
```

     c. Click **Save and Upload**

        The name of the uploaded file is displayed in the **Associated Template** column of the alert template list.
   - Export an alert template

     Select a product and service, and then click **Export** in the **Actions** column. The associated template file is downloaded.

4.2. Resource management

The Resource Management module allows you to view the topology information, related alerts, server information, and monitoring data of all products that are deployed in Apsara Stack.

4.2.1. Physical servers

Operations personnel can monitor and view the physical servers where each product is located.

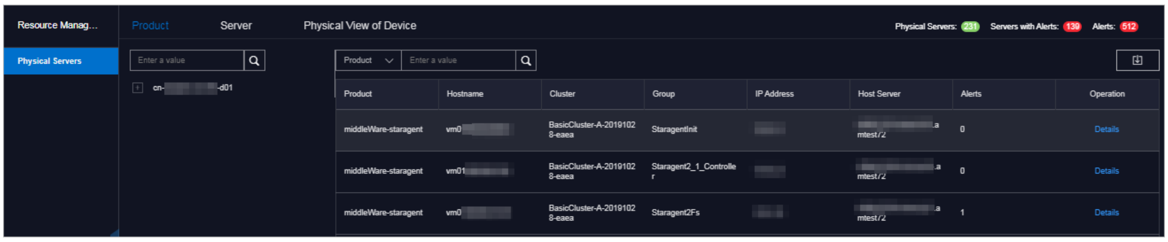
4.2.1.1. View the physical server information

This topic describes how to view the physical server list and the details of physical servers.

Product tab

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.



Physical Servers: 231 Servers with Alerts: 139 Alerts: 512

Product	Hostname	Cluster	Group	IP Address	Host Server	Alerts	Operation
middleWare-staragent	vm0[redacted]	BasicCluster-A-20191028-eaea	StaragentInit	[redacted]	[redacted].a mtest72	0	Details
middleWare-staragent	vm01[redacted]	BasicCluster-A-20191028-eaea	Staragent2_1_Controller	[redacted]	[redacted].a mtest72	0	Details
middleWare-staragent	vm0[redacted]	BasicCluster-A-20191028-eaea	Staragent2Fs	[redacted]	[redacted].a mtest72	1	Details

2. On the Product tab, perform the following operations to view the physical server information:
   - Expand the left-side navigation tree by selecting a region, product, and cluster in sequence to view the list of physical servers where a cluster of a service is located.
   - In the left-side search box, enter the product name, cluster name, group name, or hostname to search for the corresponding node.
   - In the right-side search box, search for physical servers by product, cluster, group, or hostname and view the details of a physical server.
   - Select a product and click **Details** in the **Actions** column. On the **Physical Server Details** page, you can view the basic information, monitoring details, and alert information of the physical server to which the product belongs.

     You can switch the tab to view the monitoring and alert information.

     Monitoring information includes the CPU usage, system load, disk usage, memory usage, network throughput, and disk IO. When you view the monitoring information, you can select a monitoring item in the upper-right corner of each monitoring graph and then select the time range to view the monitoring value in the specific time range.

     In the upper-right corner of the CPU usage, system load, disk usage, memory usage, network throughput, and disk IO sections, you can perform the following operations:

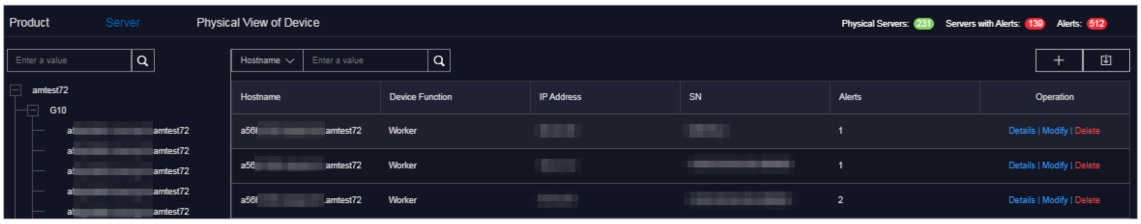
     - Click the ⛶ icon to view the monitoring graph in full screen.
     - Click the ⤓ icon to download the monitoring graph to your local computer.

- Click the ⟳ icon to manually refresh the monitoring data.
- Click the ⟳ icon. The icon will turn green. The system automatically refreshes the monitoring data every 10 seconds. To disable the auto refresh feature, click the icon again.

Server tab

1. In the left-side navigation pane, choose **Resource Management** > **Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.
2. Click the **Server** tab.
3. On the Server tab, perform the following operations to view the physical server list:
   - Expand the left-side navigation tree by selecting an IDC and a rack in sequence to view the physical server list in a rack.
   - Enter the rack name in the left-side search box and press the Enter key to search for and view the list of all the physical servers in the rack.



Hostname	Device Function	IP Address	SN	Alerts	Operation
a56[redacted]amtest72	Worker	[redacted]	[redacted]	1	Details | Modify | Delete
a56[redacted]amtest72	Worker	[redacted]	[redacted]	1	Details | Modify | Delete
a56[redacted].amtest72	Worker	[redacted]	[redacted]	2	Details | Modify | Delete

4. To view the details of a physical server, enter the hostname, IP address, device function, or serial number (SN) in the right-side search box and press the Enter key.
5. Find the physical server whose details you are about to view and then click **Details** in the **Actions** column. On the **Physical Machine Details** page, view the basic information, monitoring information, and alert information of the physical server.

   You can switch the tab to view the monitoring and alert information.

   Monitoring information includes the CPU usage, system load, disk usage, memory usage, network throughput, and disk IO. When you view the monitoring information, you can select a monitoring item in the upper-right corner of each monitoring graph and then select the time range to view the monitoring value in the specific time range.

   In the upper-right corner of the CPU usage, system load, disk usage, memory usage, network throughput, and disk IO sections, you can perform the following operations:

   - Click the ⛶ icon to view the monitoring graph in full screen.
   - Click the ⤓ icon to download the monitoring graph to your local computer.
   - Click the ⟳ icon to manually refresh the monitoring data.
   - Click the ⟳ icon. The icon will turn green. The system automatically refreshes the monitoring data every 10 seconds. To disable the auto refresh feature, click the icon again.

The Physical View of Device tab

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

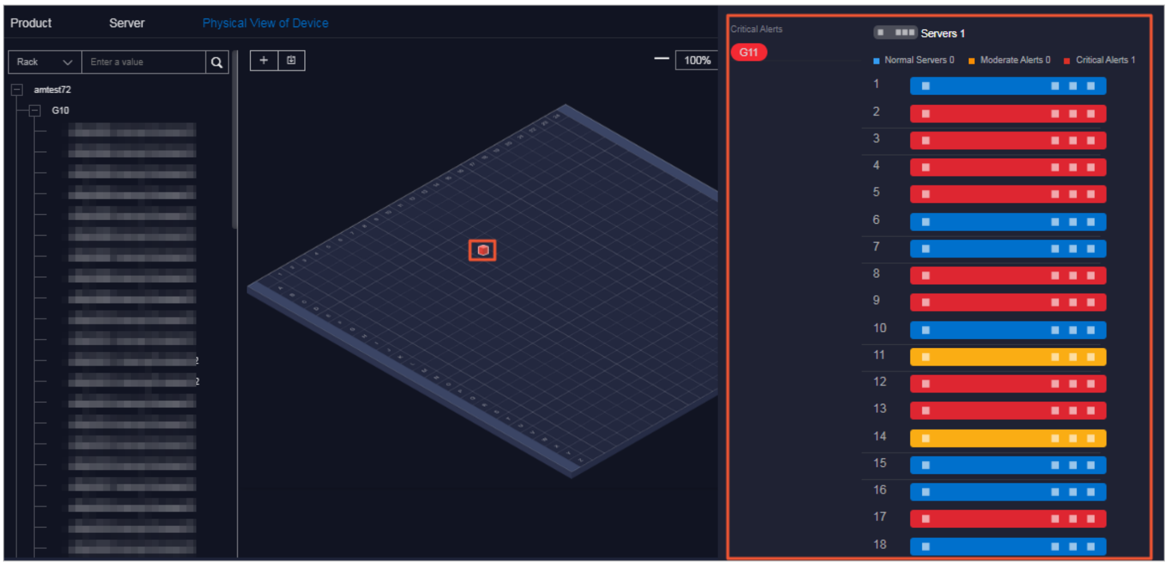
2. Click the **Physical View of Device** tab.

3. On the **Physical View of Device** tab, expand the left-side navigation tree by selecting an IDC and a rack in sequence to view the corresponding rack information on the right. In addition, the rack details pane appears on the right side of the tab and shows the server information of the rack.

   Racks and servers are displayed in different colors to indicate the alert condition of servers:

   - Red indicates a critical alert.
   - Orange indicates a moderate alert.
   - Blue indicates that the physical server is normal.

   In the upper-right corner, you can view the alert legend. By default, the check box at the left of the legend is selected, indicating that the information of racks or servers of this alert type is displayed on the rack graph or in the rack details pane. Clear the check box at the left of a legend to hide the information of racks or servers of this alert type on the rack graph or in the rack details pane.

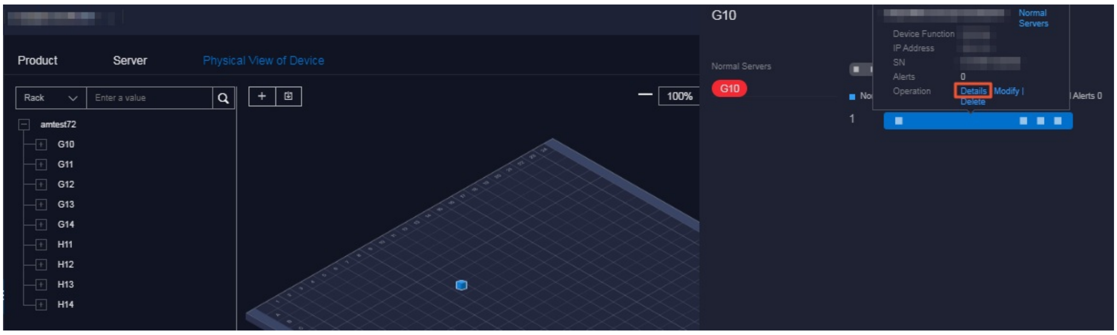


4. To view the details of a physical server, perform the following operations:

   i. Find the physical server whose details you are about to view in the left-side navigation tree or rack graph on the right side of the tab.

   ii. In the rack details pane that appears, click the color block of a server to view the basic information of the server.

iii. Click **Details** in the **Operation** row of the basic information.



iv. On the **Physical Server Details** page, view the basic information, monitoring details, and alert information of the physical server.

You can switch the tab to view the monitoring information and alert information.

Monitoring information includes the CPU usage, system load, disk usage, memory usage, network throughput, and disk IO. When you view the monitoring information, you can select a monitoring item in the upper-right corner of each monitoring graph and then select the time range to view the monitoring value in the specific time range.

In the upper-right corner of the CPU usage, system load, disk usage, memory usage, network throughput, and disk IO sections, you can perform the following operations:

- Click the ⛶ icon to view the monitoring graph in full screen.
- Click the ⤓ icon to download the monitoring graph to your local computer.
- Click the ↻ icon to manually refresh the monitoring data.
- Click the ↻ icon. The icon will turn green. The system automatically refreshes the monitoring data every 10 seconds. To disable the auto refresh feature, click the icon again.

4.2.1.2. Add physical servers

Operations personnel can add the information of existing physical servers in the environment to the ASO console.

Procedure

1. In the left-side navigation pane, choose **Resource Management** > **Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the page, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

2. Click the **Server** or **Physical View of Device** tab.
3. In the upper-right corner of the **Server** tab or the upper-left corner of the **Physical View of Device** tab, click the + icon.
4. In the **Add Physical Server** pane, configure the parameters.

   The following table describes the parameters.

Parameter	Description
Zone	The zone where the target physical server is located.
Data Center	The data center where the target physical server is located.
Rack	The rack where the target physical server is located.
Room	The room where the target physical server is located.
Physical Server Name	The name of the target physical server.
Memory	The memory size of the target physical server.
Disk Size	The disk size of the target physical server.
CPU Cores	The CPU cores of the target physical server.
Rack Group	The rack group to which the target physical server belongs.
Server Type	The type of the target physical server.
Server Role	The function or purpose of the target physical server.
Serial Number	The serial number (SN) of the target physical server.
Operating System Template	The template used by the operating system of the target physical server.
IP Address	The IP address of the target physical server.

5. Click **OK**.

4.2.1.3. Modify a physical server

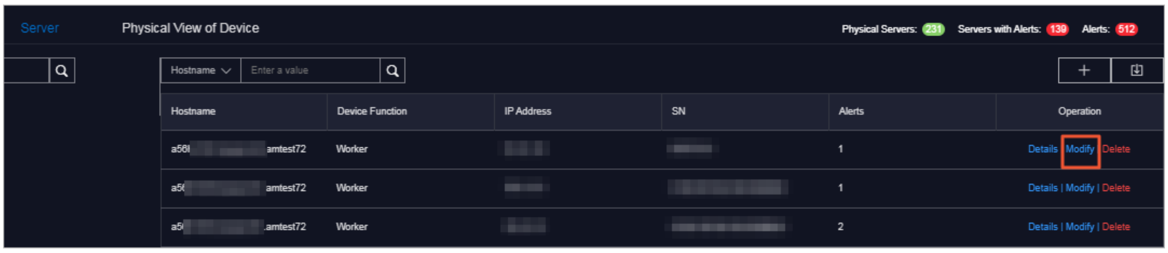
This topic describes how to modify the physical server information in the system when the information is changed in the Apsara Stack environment.

Server tab

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

2. Click the **Server** tab.
3. (Optional)In the right-side search box, search for the physical server to be modified by hostname, IP address, device function, or serial number (SN).
4. Find the target physical server, and then click **Modify** in the **Actions** column.



Hostname	Device Function	IP Address	SN	Alerts	Operation
a56l[redacted]amtest72	Worker	[redacted]	[redacted]	1	Details Modify Delete
a5[redacted]amtest72	Worker	[redacted]	[redacted]	1	Details | Modify | Delete
a5[redacted]amtest72	Worker	[redacted]	[redacted]	2	Details | Modify | Delete

5. In the **Modify Physical Server** pane, modify the physical server information. You can modify the following physical server information: zone, data center, rack, room, physical server name, memory size, disk size, CPU cores, rack group, server type, server role, serial number, operating system template, and IP address.
6. Click **OK**.

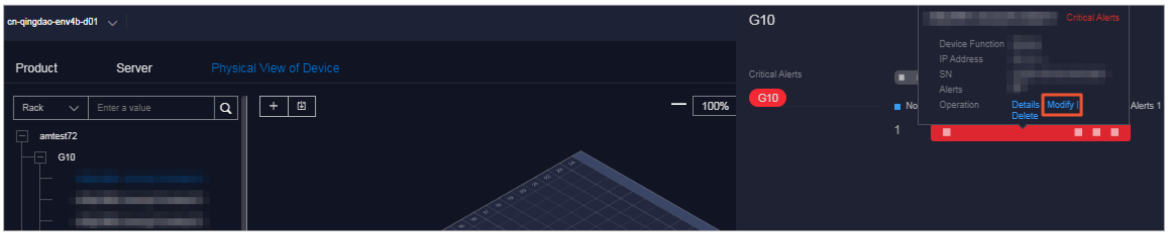
Physical View of Device tab

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.
2. Click the **Physical View of Device** tab.
3. Expand the left-side navigation tree by selecting an IDC and a rack in sequence to find the physical server to be modified.

> **Note** In the left-side search box, you can also search for the target physical server by rack, hostname, IP address, device function, SN, or IDC.

4. In the rack details pane that appears, click the color block of a server to view the basic information of the server.
5. Click **Modify** in the **Operation** row of the basic information.



6. In the **Modify Physical Server** pane, modify the physical server information. You can modify the following physical server information: zone, data center, rack, room, physical server name, memory size, disk size, CPU cores, rack group, server type, server role, serial number, operating system template, and IP address.
7. Click **OK**.

4.2.1.4. Export server information

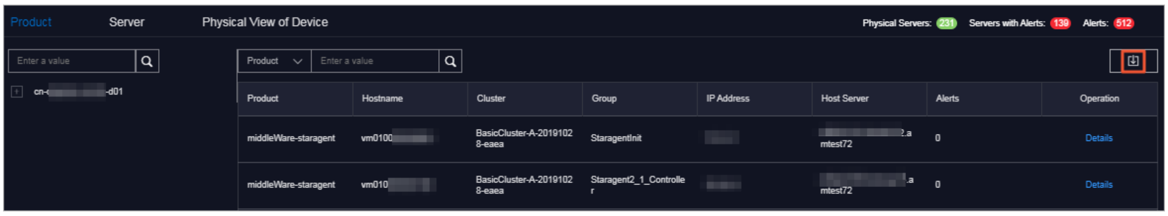
You can export the information of all physical servers within the system for offline viewing.

Product tab

The physical server information exported from the **Product** tab includes the zone, hostname, disk size, CPU cores, memory size, information about the data center (data center, rack, room, and rack group), model, device function, serial number, operating system template, IP address, out-of-band IP address, CPU architecture, host server, alerts, region, product, cluster, and service role group.

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the page, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

Product	Hostname	Cluster	Group	IP Address	Host Server	Alerts	Operation
middleWare-staragent	vm0100[redacted]	BasicCluster-A-20191028-eaea	StaragentInit	[redacted]	[redacted]2.amtest72	0	Details
middleWare-staragent	vm010[redacted]	BasicCluster-A-20191028-eaea	Staragent2_1_Controller	[redacted]	[redacted].amtest72	0	Details

2. In the upper-right corner of the tab, click the ⤓ icon to export the information of all the physical servers of all services to your local computer.

Server or Physical View of Device tab

The physical server information exported from the **Server** or the **Physical View of Device** tab includes the zone, hostname, disk size, CPU cores, memory size, information about the data center (data center, rack, room, and rack group), model, device function, serial number, operating system template, IP address, out-of-band IP address, CPU architecture, and alerts.

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the page, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

2. Click the **Server** or the **Physical View of Device** tab.
3. In the upper-right corner of the **Server** tab or in the upper part of the **Physical View of Device** tab, click the ⤓ icon to export all the information of physical servers to your local computer.

4.2.1.5. Delete a physical server

This topic describes how to delete a physical server that does not need to be monitored.

Server tab

1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

2. Click the **Server** tab.
3. (Optional)In the right-side search box, search for the physical server to be deleted by hostname, IP address, device function, or serial number (SN).
4. Find the target physical server, and then click **Delete** in the **Actions** column.
5. In the message that appears, click **OK**.

Physical View of Device tab

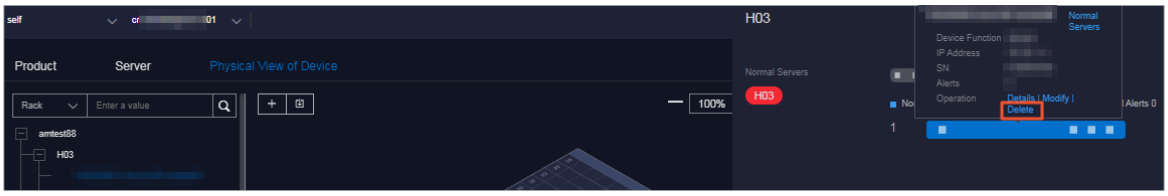
1. In the left-side navigation pane, choose **Resource Management > Physical Servers**.

   The **Product** tab appears. In the upper-right corner of the tab, the number of current physical servers, the number of servers with alerts, and the number of alerts are displayed.

2. Click the **Physical View of Device** tab.
3. Expand the left-side navigation tree by selecting an IDC and a rack in sequence to find the physical server to be deleted.

   > ⓘ **Note** In the left-side search box, you can also search for the physical server to be deleted by rack, hostname, IP address, device function, SN, or IDC.

4. In the rack details pane that appears, click the color block of a server to view the basic information of the server.
5. Click **Delete** in the **Operation** row of the basic information.



6. In the message that appears, click **OK**.

4.2.2. Product O&M

O&M personnel can view the product topology and the clusters and alerts related to each product.

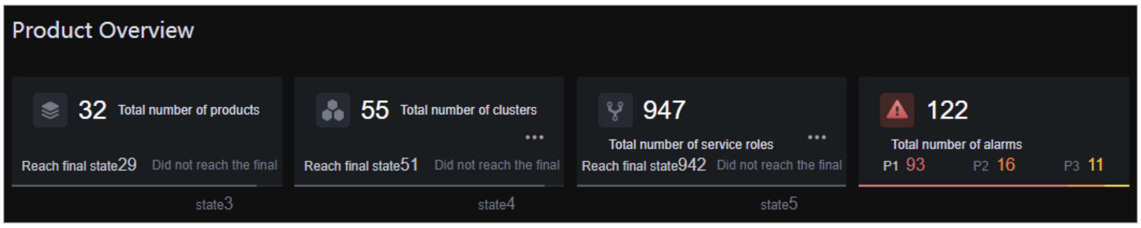
4.2.2.1. Product overview

The Product Overview page allows you to view the statistics of all products and the related topology and alert information.

Procedure

1. In the left-side navigation pane, choose **Resource Management > Product Overview**.
2. On the **Product Overview** page, you can view the product statistics and architecture.
   - Statistics

     In the upper part of the **Product Overview** page, you can view the number of products, clusters, service roles, and alerts.

     
     Product Overview
32 Total number of products
Reach final state29 Did not reach the final state3
55 Total number of clusters
Reach final state51 Did not reach the final state4
947
Total number of service roles
Reach final state942 Did not reach the final state5
122
Total number of alarms
P1 93
P2 16
P3 11

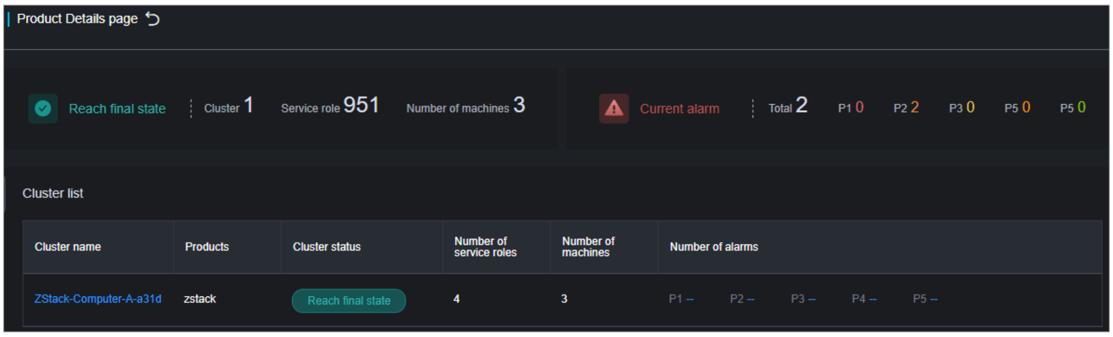
     Click the ••• icon in the upper-right corner of the Clusters or Service Roles section to go to the **Clusters** or **Service Roles** page.

   - Architecture

In the **Architecture** section, you can view the product hierarchical architecture and products in categories.

- Architecture

  In the upper part of the **Architecture** section, click a state of products such as **All States**. In the left side of the section, click a product category such as **Elastic Computing**. You can find a specific product in the product hierarchical architecture in categories.Click a product name such as **zastck** to go to the corresponding **Product Details** page and view the detailed product information.



Product Details page

Reach final state | Cluster 1 Service role 951 Number of machines 3

Current alarm | Total 2 P1 0 P2 2 P3 0 P5 0 P5 0

Cluster list

Cluster name	Products	Cluster status	Number of service roles	Number of machines	Number of alarms
ZStack-Computer-A-a31d	zstack	Reach final state	4	3	P1 -- P2 -- P3 -- P4 -- P5 --

- Products

  Click the ☰ icon in the upper-right corner of the **Architecture** section to go to the product list page. You can click a product category in the upper part of the section to view the name, cluster status, and number of clusters, service roles, servers, and alerts of products.

4.2.2.2. View clusters

The Clusters page allows you to view the cluster status and the number of alerts.

Procedure

1. In the left-side navigation pane, choose **Resource Management > Cluster List**.
2. On the **Clusters** page, you can search by **Product Name**, **Cluster**, or **Status** to view the information of a cluster.

Column	Description
Cluster Name	The name of the cluster. Click a cluster name to go to the **Cluster Details** page. You can view the cluster statistics and service roles.
Associated Product	The information about the product to which the cluster belongs.

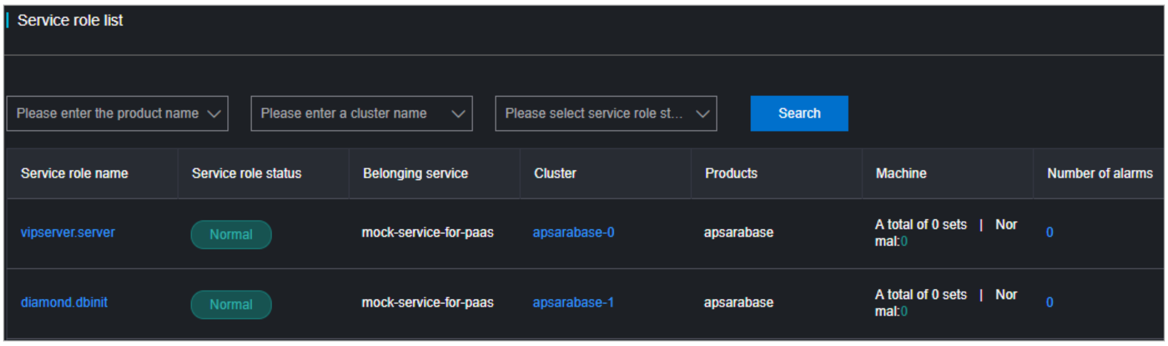
Column	Description
Cluster Status	The status of the cluster. ○ **Desired State**: The cluster has reached the desired state. ○ **Not Desired State**: The cluster has reached the desired state for the first time but then a service role cannot reach the desired state due to undefined reasons.
Number of Service Roles	The number of service roles within the cluster.
Number of Servers	The number of servers within the cluster.
Number of Alerts	The number of alerts in the cluster. Alerts are classified into the following severity levels: ○ **P0**: an alert that has been cleared ○ **P1**: an urgent alert ○ **P2**: a major alert ○ **P3**: a minor alert ○ **P4**: a reminder alert

4.2.2.3. View service roles

The Service Roles page allows you to view the status and alerts of each service role in a cluster.

Procedure

1. In the left-side navigation pane, choose **Resource Management > Service Role List**.
2. On the **Service Roles** page, you can search by **Product Name**, **Cluster Name**, or **Status** to view the information of a service role.



Service role list

Please enter the product name | Please enter a cluster name | Please select service role st... | Search

Service role name	Service role status	Belonging service	Cluster	Products	Machine	Number of alarms
vipserver.server	Normal	mock-service-for-paas	apsarabase-0	apsarabase	A total of 0 sets | Normal:0	0
diamond.dbinit	Normal	mock-service-for-paas	apsarabase-1	apsarabase	A total of 0 sets | Normal:0	0

Column	Description
Service Role Name	The name of the service role.

Column	Description
Service Role Status	The status of the service role. ◦ **Normal**: The service role version is correct and the service role is running normally. ◦ **Service Error**: An exception occurs in the service role. ◦ **Inconsistent Versions**: The service role has not been upgraded to the desired version. ◦ **Changing**: The service role is being upgraded or removed. ◦ **Server Error**: One or more servers on which the service role is deployed are not in the normal state. ◦ **In Operation**: The service role is in an operation other than being upgraded or removed.
Associated Service	The service to which the service role belongs.
Associated Cluster	The name of the cluster to which the service role belongs.
Associated Product	The name of the product to which the service role belongs.
Server	The number of servers on which the service role is deployed. Click the number next to the server status corresponding to a server. In the dialog box that appears, click **View Details** to go to the **Physical Servers** page and view detailed server information.
Number of Alerts	The total number of alerts of the service role.

4.3. Inventory Management

The Inventory Management module allows you to view the current usage and inventory of various product resources, and manage resources in the system effectively.

4.3.1. View the RDS inventory

By viewing the Relational Database Service (RDS) inventory, you can query the usage and availability of RDS resources to more efficiently perform O&M operations.

Procedure

1. In the left-side navigation pane, choose **Inventory Management** > **RDS**.

> Note You can click the ⚙ icon in the upper-right corner of the page to set the inventory thresholds of each engine.

2. View the RDS inventory.

   On this page:

   - The **RDS Inventory** section shows the inventory of different RDS services for the last five days. Different RDS services are displayed in different colors.
   - You can query the RDS inventory by pages by specifying **Engines** or **Date** in the **RDS Inventory Details** section.

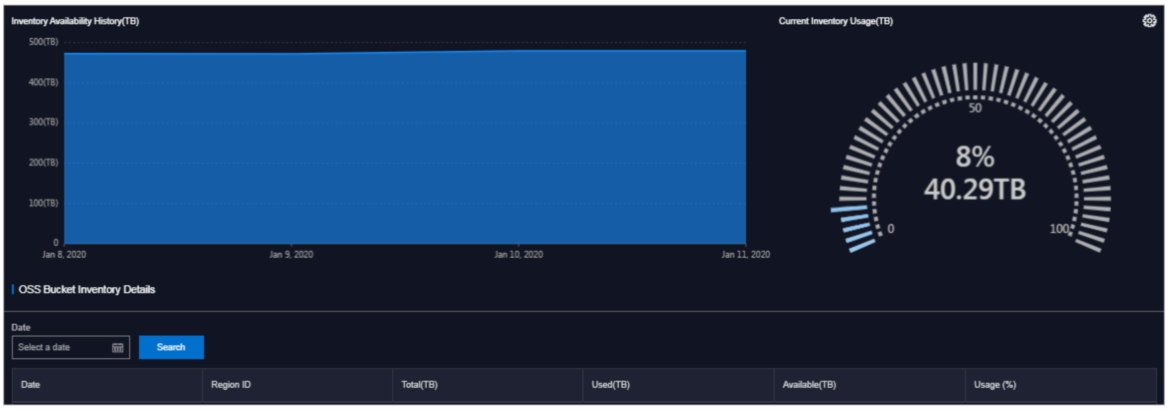
4.3.2. View the OSS inventory

By viewing the Object Storage Service (OSS) inventory, you can query the usage and availability of OSS resources to more efficiently perform O&M operations.

Procedure

1. In the left-side navigation pane, choose **Inventory Management** > **OSS**.

> Note You can click the ⚙ icon in the upper-right corner to configure the inventory thresholds.



Date	Region ID	Total(TB)	Used(TB)	Available(TB)	Usage (%)

2. View the OSS inventory.

   The following information is displayed:

   - The **Inventory Availability History (TB)** section shows the available OSS inventory for the last five days.
   - The **Current Inventory Usage (TB)** section shows the amount and percentage of OSS inventory that are being used.
   - The **OSS Bucket Inventory Details** section shows the OSS inventory details on multiple pages by **Date**.

4.4. Storage operation center

The Storage Operation Center module contains Apsara Distributed File System and miniOSS.

4.4.1. Apsara Distributed File System

The Apsara Distributed File System module shows the overview information, cluster information, node information, and the statuses of clusters.

4.4.1.1. Overview

The Apsara Distributed File System module allows you to view the overview information, health heatmap, and data of top five clusters of a service.

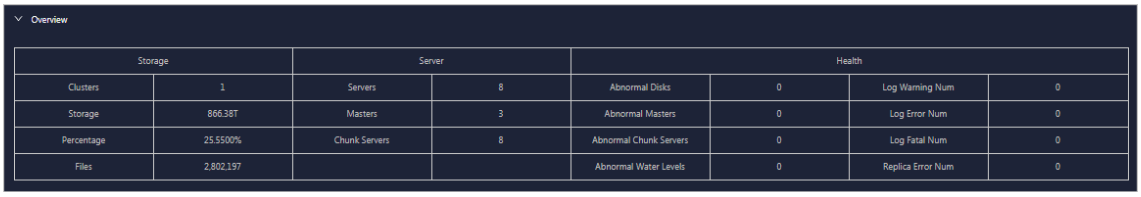
Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > Apsara Distributed File System > Overview**.
2. Select the service that you want to view from the **Service** drop-down list. You can view the following information:

   The Apsara Distributed File System module shows the overview information, health heatmap, and data of top five clusters of services as of the current date.

   - **Overview**

     The Overview section shows the storage space, server information, and health information of the specified service. In the **Health** section, when the value of **Abnormal Disks**, **Abnormal Masters**, **Abnormal Chunk Servers**, or **Abnormal Water Levels** is greater than 0, the value is displayed in red.

     Overview

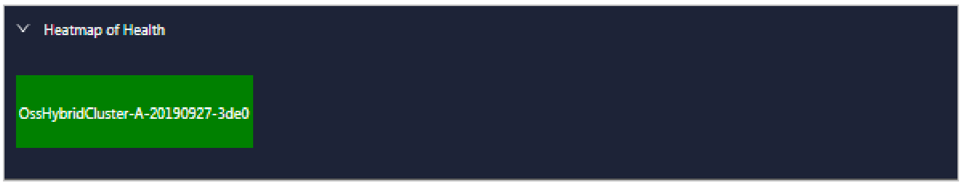
Storage		Server		Health			
Clusters	1	Servers	8	Abnormal Disks	0	Log Warning Num	0
Storage	866.38T	Masters	3	Abnormal Masters	0	Log Error Num	0
Percentage	25.5500%	Chunk Servers	8	Abnormal Chunk Servers	0	Log Fatal Num	0
Files	2,802,197			Abnormal Water Levels	0	Replica Error Num	0

   - **Heatmap of Health**

     The Heatmap of Health section shows the health information of all clusters within the specified service. Clusters in different health statuses are displayed in different colors.

     - Green indicates that the cluster works properly.
     - Yellow indicates that the cluster has a warning.
     - Red indicates that the cluster has an exception.
     - Dark red indicates that the cluster has a fatal error.
     - Grey indicates that the cluster is disabled.

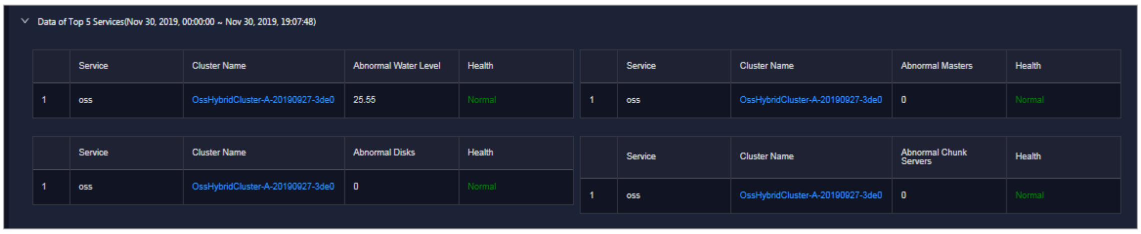
     Click the name of an enabled cluster to go to the corresponding cluster information page.

   - **Data of Top 5 Services**

The Data of Top 5 Services section shows the data of the top five healthiest clusters of the specified service for the current date over the time range from 00:00 to the current time.

This section shows the top five clusters in terms of abnormal water levels, abnormal masters, abnormal disks, and abnormal chunk servers. Click the cluster name to go to the corresponding cluster information page.



Data of Top 5 Services(Nov 30, 2019, 00:00:00 ~ Nov 30, 2019, 19:07:48)

	Service	Cluster Name	Abnormal Water Level	Health
1	oss	OssHybridCluster-A-20190927-3de0	25.55	Normal

	Service	Cluster Name	Abnormal Masters	Health
1	oss	OssHybridCluster-A-20190927-3de0	0	Normal

	Service	Cluster Name	Abnormal Disks	Health
1	oss	OssHybridCluster-A-20190927-3de0	0	Normal

	Service	Cluster Name	Abnormal Chunk Servers	Health
1	oss	OssHybridCluster-A-20190927-3de0	0	Normal

4.4.1.2. Cluster information

The Cluster Information module allows you to view the overview information and run charts of a cluster.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > Apsara Distributed File Storage > Cluster Information**.

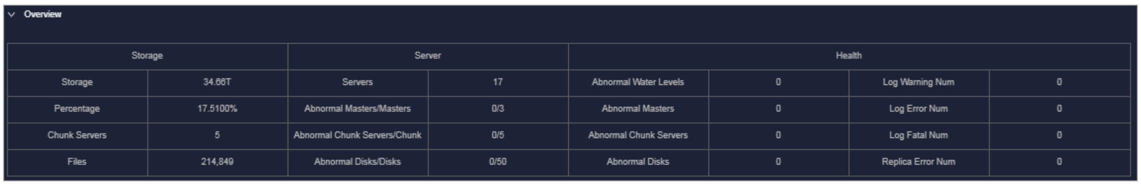
   On the page that appears, the data of the first cluster in the **Cluster Name** drop-down list is displayed.

2. Select the cluster that you want to view from the **Cluster Name** drop-down list. The following information is displayed:

   > **Note** All the enabled clusters that are accessed within the current environment are displayed in the **Cluster Name** drop-down list.

   - **Overview**

     This section shows the storage space, server information, and health information of the specified cluster. In the **Health** section, when the value of **Abnormal Disks**, **Abnormal Masters**, **Abnormal Chunk Servers**, or **Abnormal Water Levels** is greater than 0, the value is displayed in red font.

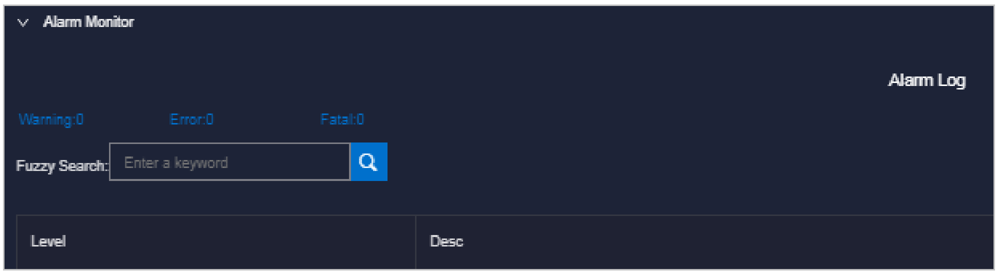


Overview

Storage		Server		Health			
Storage	34.66T	Servers	17	Abnormal Water Levels	0	Log Warning Num	0
Percentage	17.5100%	Abnormal Masters/Masters	0/3	Abnormal Masters	0	Log Error Num	0
Chunk Servers	5	Abnormal Chunk Servers/Chunk	0/5	Abnormal Chunk Servers	0	Log Fatal Num	0
Files	214,849	Abnormal Disks/Disks	0/50	Abnormal Disks	0	Replica Error Num	0

   - **Alarm Monitor**

     This section shows the alert information of the specified cluster. You can query data by keyword.



- Replica

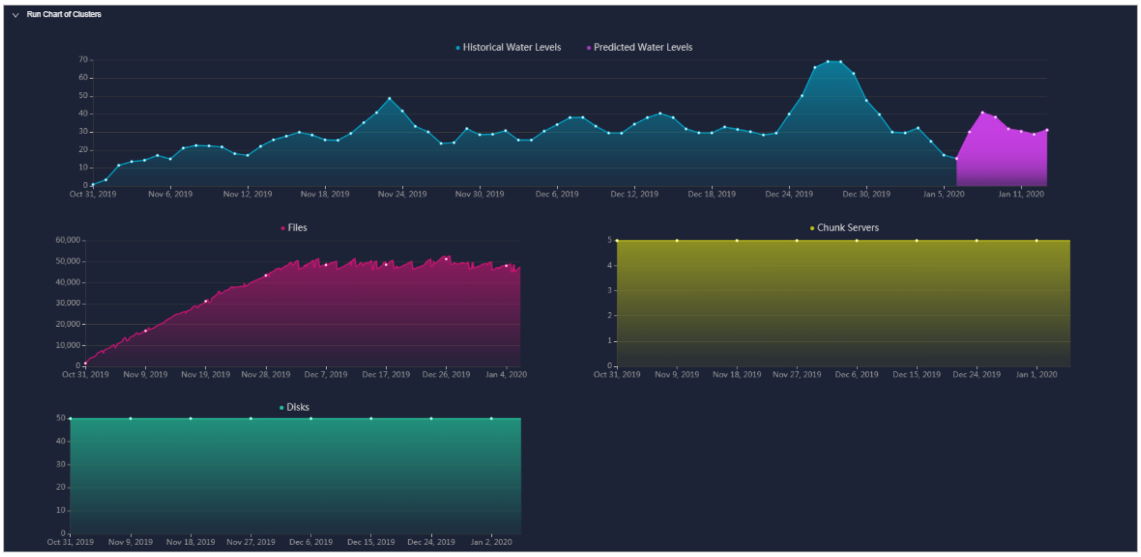
  This section shows the replica information of the specified cluster.

- Run Chart of Clusters

  This section shows the charts of historical water levels, predicted water levels, number of files, number of chunk servers, and number of disks for the specified cluster.

  Predicted water levels predicts the run chart of the next seven days.

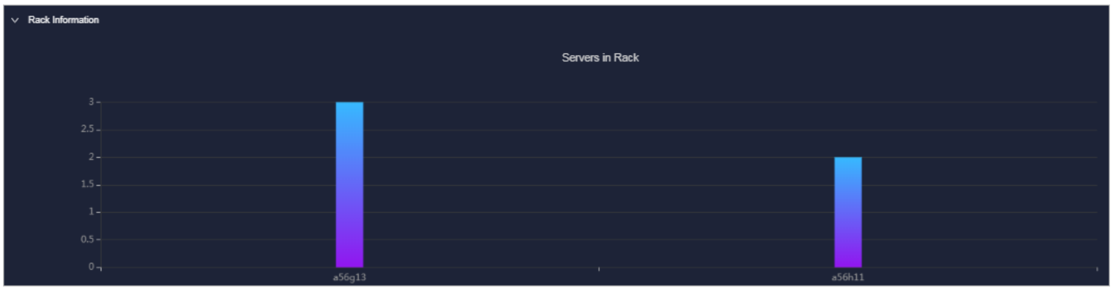
  > ? **Note** The water level can only be predicted if there is enough historical water level data. Some clusters may not have predicted water levels.



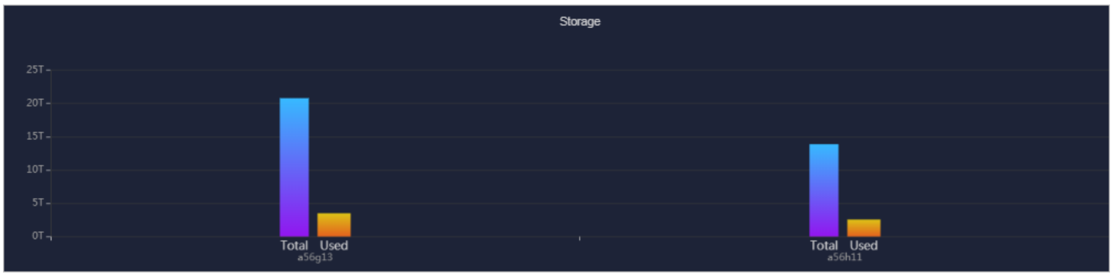
- Rack Information

  Rack information includes rack capacity and servers in rack.

  - **Servers in Rack** shows the number of machines in each rack of the specified cluster.



- **Storage** shows the total and used storage of each rack in the specified cluster.



4.4.1.3. Node information

The Node Information module allows you to view the master information and chunk server information in a cluster.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > Apsara Distributed File System > Node Information**.

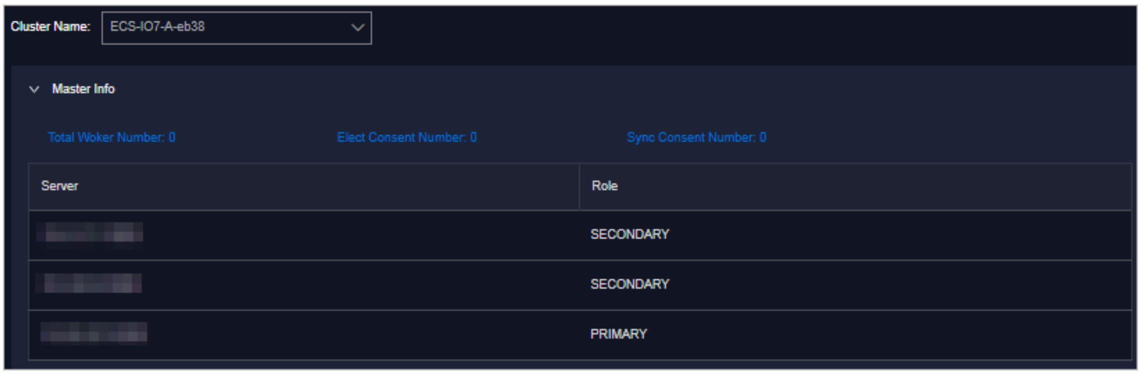
   On the page that appears, the data of the first cluster in the **Cluster Name** drop-down list is displayed, including master information and chunk server information.

2. Select the name of the cluster that you want to view from the **Cluster Name** drop-down list. The following information is displayed:

   > Note All accessed clusters that are not disabled in the current environment are displayed in the **Cluster Name** drop-down list.

   - **Master Info**

     This section shows the master information of the specified cluster. You can click **Refresh** to refresh the master information of the specified cluster.

     Cluster Name: ECS-IO7-A-eb38

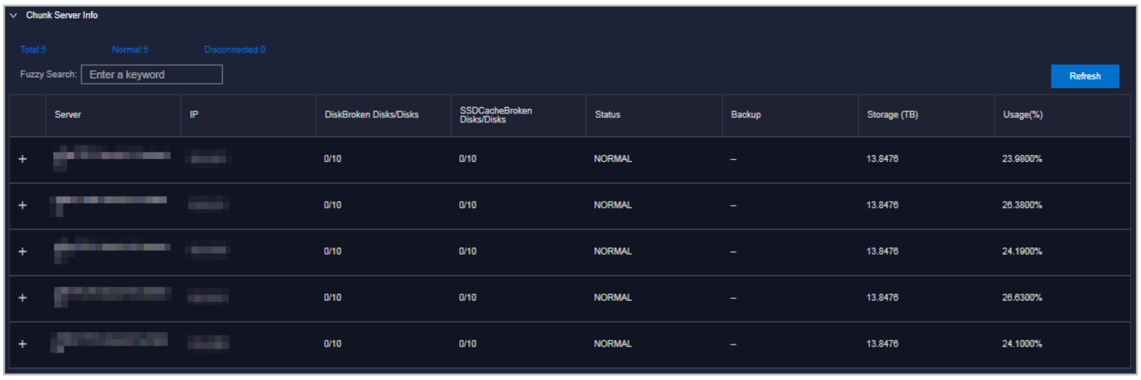
     Master Info

     Total Woker Number: 0　Elect Consent Number: 0　Sync Consent Number: 0

Server	Role
[redacted]	SECONDARY
[redacted]	SECONDARY
[redacted]	PRIMARY

   - **Chunk Server Info**

     This section shows the chunk server information of the specified cluster. You can click **Refresh** to show the chunk server information of the cluster. Click the **+** icon in front of a server, the disk and SSD cache information of the server is displayed. Fuzzy search is supported in this section.



Chunk Server Info

Total:5 Normal:5 Disconnected:0

Fuzzy Search: Enter a keyword

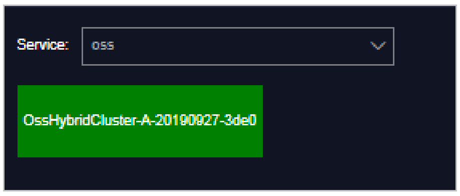
	Server	IP	DiskBroken Disks/Disks	SSDCacheBroken Disks/Disks	Status	Backup	Storage (TB)	Usage(%)
+	[redacted]	[redacted]	0/10	0/10	NORMAL	--	13.8476	23.9800%
+	[redacted]	[redacted]	0/10	0/10	NORMAL	--	13.8476	26.3800%
+	[redacted]	[redacted]	0/10	0/10	NORMAL	--	13.8476	24.1900%
+	[redacted]	[redacted]	0/10	0/10	NORMAL	--	13.8476	26.6300%
+	[redacted]	[redacted]	0/10	0/10	NORMAL	--	13.8476	24.1000%

4.4.1.4. Operations and maintenance

The Operations and Maintenance module allows you to view the cluster statuses.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > Apsara Distributed File System > Operations and Maintenance**.
2. Select a service from the **Service** drop-down list to view the cluster status of the service. Clusters in different health statuses are displayed in different colors.
   - Green indicates that the cluster works properly.
   - Yellow indicates that the cluster has a warning.
   - Red indicates that the cluster has an exception.
   - Dark red indicates that the cluster has a fatal error.
   - Grey indicates that the cluster is disabled.

   Service: oss

   OssHybridCluster-A-20190927-3de0

3. Move the pointer over a cluster name to view the service name, server name, and IP address to which the cluster belongs.

4.4.1.5. Product configuration

By default, the system configures thresholds for all clusters. You can modify the water threshold, chunk server threshold, and disk threshold for each cluster.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > Apsara Distributed File System > Product Configuration**.
2. In the upper part of the page, select the cluster that you want to configure from the **Cluster Name** drop-down list.
3. In the lower part of the page, click **Modify** to modify the thresholds of the cluster.

   The following table describes the parameters.

Section		Description
Cluster Water Level	**Warn Threshold**	When the storage usage of the cluster is greater than or equal to this value, a warning alert is triggered and the health heatmap of the cluster is displayed in yellow. Value range: (0,100]. If this parameter is not specified, a warning alert is triggered by default when the water level of the cluster is greater than or equal to 65%.
	Error Threshold	When the storage usage of the cluster is greater than or equal to this value, an error alert is triggered and the health heatmap of the cluster is displayed in red. Value range: (0,100]. If this parameter is not specified, an error alert is triggered by default when the water level of the cluster is greater than or equal to 85%.
	Fatal Error Threshold	When the storage usage of the cluster is greater than or equal to this value, a fatal-error alert is triggered and the health heatmap of the cluster is displayed in dark red. Value range: (0,100]. If this parameter is not specified, a fatal-error alert is triggered by default when the water value of the cluster is greater than or equal to 92%.
Chunk Server	**Warn Threshold (Abnormal Chunk Server Quantity)**	When the number of abnormal chunk servers is greater than or equal to this value, a warning alert is triggered and the health heatmap of the cluster is displayed in yellow. If this parameter is not specified, a warning alert is triggered by default when the number of abnormal chunk servers is greater than or equal to 1.
	Error Threshold (Chunk Server Ratio)	If the ratio of abnormal chunk servers to all the chunk servers is greater than this value, an error alert is triggered and the health heatmap of the cluster is displayed in red. If this parameter is not specified, an error alert is triggered by default when the ratio of abnormal chunk servers to all the chunk servers is greater than or equal to 10%.

Section		Description
Disk	**Warn Threshold (Abnormal Disk Quantity)**	When the number of abnormal disks is greater than or equal to this value, a warning alert is triggered and the health heatmap of the cluster is displayed in yellow. If this parameter is not specified, a warning alert is triggered by default when the number of abnormal disks is greater than or equal to 1.
	Error Threshold (Abnormal Disk Ratio)	When the ratio of abnormal disks to all the disks is greater than this value, an error alert is triggered and the health heatmap of the cluster is displayed in red. If this parameter is not specified, an error alert is triggered by default when the ratio of abnormal disks to all the disks is greater than or equal to 10%.

> ? **Note** To reset the configurations during the modification, click **Cancel** to cancel the current configurations.

4. Click **Save**.

4.4.2. miniOSS

The miniOSS module provides features such as monitoring dashboard, user management, permission and quota management, array monitoring, and system management.

4.4.2.1. Monitoring dashboard

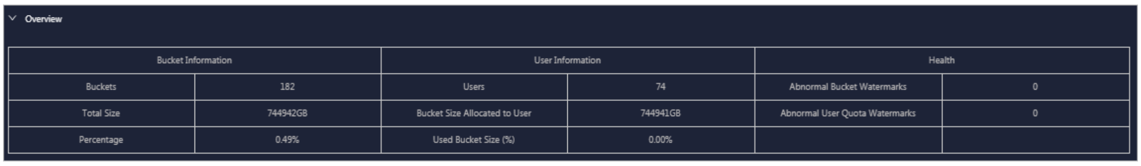
The Monitoring Dashboard module allows you to view the overview, bucket watermark heatmap, user quota watermark heatmap, watermark trend, and network traffic trend of miniOSS in the system, and download logs to your local computer.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > miniOSS > Monitoring Dashboard**.
2. On the page that appears, view the following information:
   - **Overview**

     This section displays the bucket information, user information, and health information of miniOSS.

     In the **Health** section, if the value of **Abnormal Bucket Watermark** or **Abnormal User Quota Watermarks** is greater than 0, the value is displayed in red.



Overview

Bucket Information		User Information		Health	
Buckets	182	Users	74	Abnormal Bucket Watermarks	0
Total Size	744942GB	Bucket Size Allocated to User	744941GB	Abnormal User Quota Watermarks	0
Percentage	0.49%	Used Bucket Size (%)	0.00%		

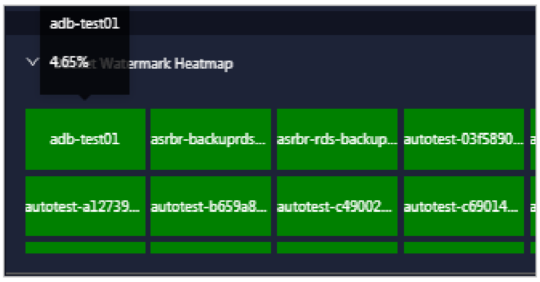
- **Bucket Watermark Heatmap**

  This section displays the bucket capacity usage.

  The number of sections in **Bucket Watermark Heatmap** is the same as the value of Buckets in **Overview**. Buckets in different statuses are displayed in different colors:

  - Green indicates that the bucket works properly.
  - Yellow indicates that the bucket has a warning.
  - Red indicates that the bucket has an exception.
  - Dark red indicates that the bucket has a fatal error.
  - Grey indicates that the bucket is disabled.

  Move the pointer over a bucket section to view the usage of the bucket.



- **User Quota Watermark Heatmap**

  This section displays the user quota watermark information.

  User quota watermark = Used capacity of all buckets of the user/Total capacity of all buckets of the user. Buckets of different watermark values are displayed in different colors:

  - Green indicates that the bucket works properly.
  - Yellow indicates that the bucket has a warning.
  - Red indicates that the bucket has an exception.
  - Dark red indicates that the bucket has a fatal error.
  - Grey indicates that the bucket is disabled.

  Move the pointer over a section to view the percentage of capacity used by all buckets of a user.

- **Watermark Trend**

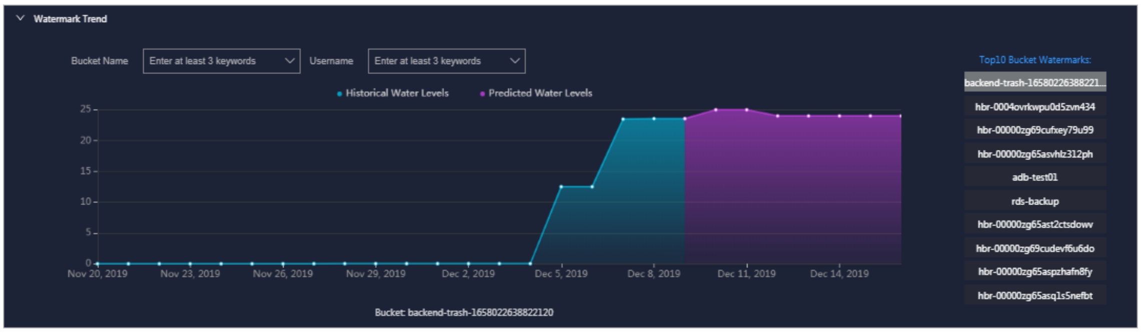
  This section displays the historical water levels and predicted water levels of a user or bucket. Watermark represents the disk utilization, and watermark of a user indicates the disk usage of buckets.

  Data in the watermark trend comes from scheduled tasks in the system. The system stores or updates data every 30 minutes.

  Select a bucket or user from the drop-down list to view the corresponding watermark trend.

> **Note** You can enter a keyword of a **Bucket Name** or **Username** to perform a fuzzy search.

The top 10 data in terms of the bucket watermarks is displayed on the right. Click a bucket name in the top 10 data to view the watermark trend of the bucket on the left.

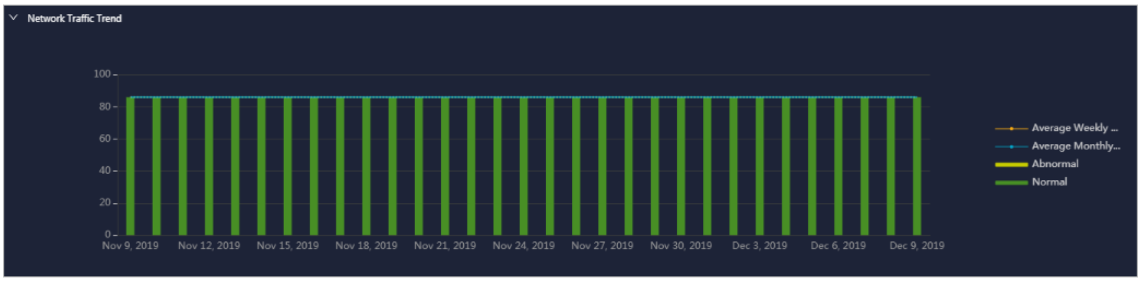


- **Network Traffic Trend**

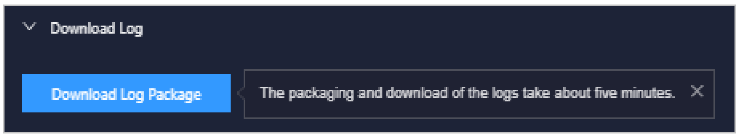
  This section displays the daily network traffic data of miniOSS in the last month, including the normal network traffic, abnormal network traffic, average weekly network traffic, and average monthly network traffic.

  In the network traffic trend:

  - Green indicates that the network traffic is normal.
  - Yellow indicates that the network traffic is abnormal.
  - Orange indicates the average weekly network traffic.
  - Blue indicates the average monthly network traffic.



3. (Optional)In the **Download Log** section, click **Download Log Package**, and then use the download URL to download logs to your local computer for subsequent review and analysis.



The packaging and download of the logs take about five minutes.

4.4.2.2. User management

The User Management module consists of User List, Bucket List of User, and Network Traffic Control. You can use this module to view user information, network traffic bandwidth, and the list of user buckets.

Procedure

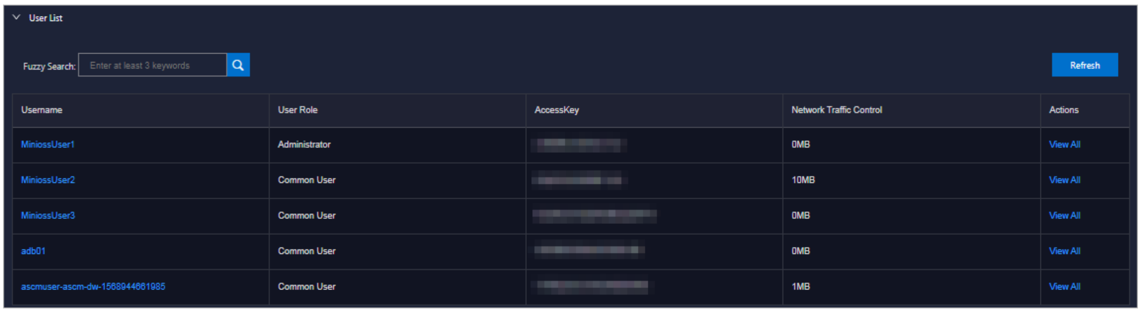
1. In the left-side navigation pane, choose **Storage Operation Center > miniOSS > User Management**.
2. On the page that appears, perform the following operations:
   - View the user information

     By default, all users (including the administrator and common users) are displayed in the list.

     Click **View All** in the **Actions** column corresponding to a user. In the dialog box that appears, view the SecretKey of the user.

     In the **User List** section, enter three characters of the username, such as def, and then press the Enter key or click the search icon. This section shows information such as the username, user role, Accesskey, and network traffic bandwidth, of the user that meets the search condition.

     Note After the search, to view all the users in the list, click **Refresh**.

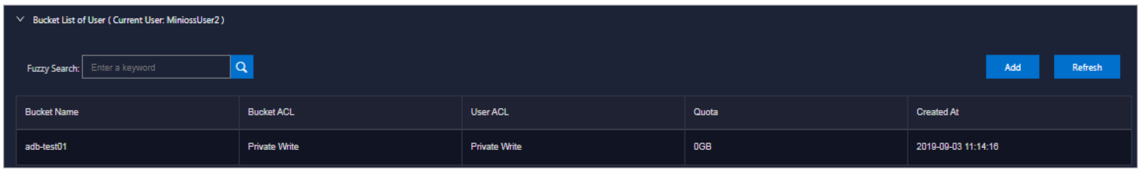
Username	User Role	AccessKey	Network Traffic Control	Actions
MiniossUser1	Administrator	[redacted]	0MB	View All
MiniossUser2	Common User	[redacted]	10MB	View All
MiniossUser3	Common User	[redacted]	0MB	View All
adb01	Common User	[redacted]	0MB	View All
ascmuser-ascm-dw-1568944661985	Common User	[redacted]	1MB	View All

   - View the bucket information of a user

     Click a username in the **User List** section. View the bucket information, including the bucket name, bucket ACL, user ACL, quota, and bucket creation time, of the user in the **Bucket List of User** section.

     In the **Bucket List of User** section, enter five characters of the bucket name, such as atest, and then press the Enter key or click the search icon. The information of the bucket that meets the search condition is displayed.

     Note After the search, to view all the information of all buckets, click **Refresh**.

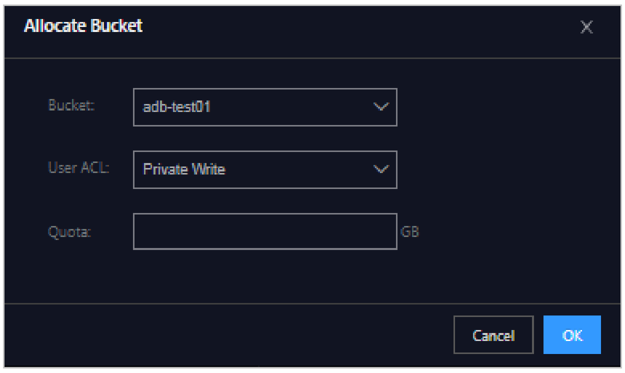
Bucket Name	Bucket ACL	User ACL	Quota	Created At
adb-test01	Private Write	Private Write	0GB	2019-09-03 11:14:16

   - Add a bucket for a common user

     Notice You can add a bucket only for a common user, instead of for an administrator.

     Find the common user for whom you are about to add a bucket in the **User List** section, and then click the username. In the **Bucket List of User** section, click **Add**. In the dialog box that appears, select the bucket and User ACL, enter the quota, and then click **OK**.

     Note Enter an integer from 0 to 4094 as the quota.



Allocate Bucket

Bucket: adb-test01

User ACL: Private Write

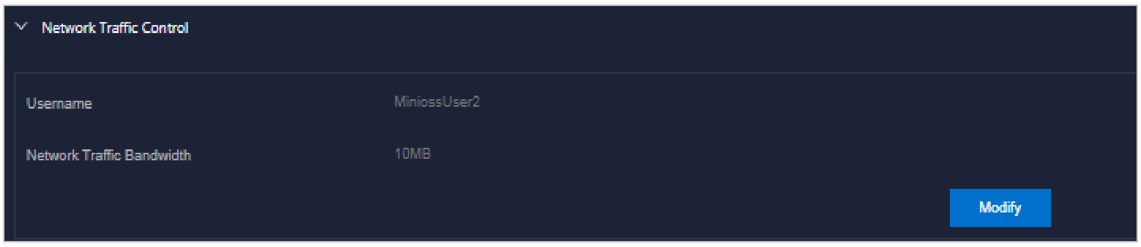
Quota: GB

- View the network traffic bandwidth of a user

  Find the user whose network traffic bandwidth you are about to view in the **User List** section, and then click the username. View the network traffic bandwidth of the user in the **Network Traffic Control** section.

- Modify the network traffic bandwidth of a user

  Find the user whose network traffic bandwidth you are about to modify in the **User List** section, and then click the username. In the **Network Traffic Control** section, click **Modify** to modify the network traffic bandwidth of the user, and then click **Save**. The traffic bandwidth value must be 0 or a positive integer.



Network Traffic Control

Username MiniossUser2

Network Traffic Bandwidth 10MB

4.4.2.3. Permission and quota management

The Permission/Quota Management module allows you to view the bucket list and user list of bucket, and add, modify, and delete a bucket.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > miniOSS > Permission/Quota Management**.
2. On the page that appears, perform the following operations:
   - View the bucket information

     By default, all the buckets are displayed in the bucket list. In the **Bucket List** section, you can view the basic information, including the bucket name, bucket ACL, quota, and network traffic bandwidth, of all the buckets.

     Enter a keyword of the bucket name in the search box in the upper-left corner, and then press the Enter key or click the search icon. The information of the bucket that meets the search condition is displayed.

     > Note After the search, to view all the buckets in the list, click **Refresh**.

- Add a bucket

  In the **Bucket List** section, click **Add**. In the dialog box that appears, enter the bucket name, and then click **OK**. The bucket name must be 3 to 63 characters in length. It can contain only lowercase letters, digits, hyphens (-), and cannot start or end with a hyphen (-).

- Modify a bucket

  In the **Bucket List** section, click **Modify** in the **Actions** column corresponding to a bucket. In the dialog box that appears, modify the bucket ACL, quota, and network traffic bandwidth, and then click **OK**.

- Delete a bucket

  In the **Bucket List** section, click **Delete** in the **Actions** column corresponding to a bucket. In the dialog box that appears, click **OK**.

- View the user information of the user to which a bucket belongs

  In the **Bucket List** section, click a bucket name to view the user information related to the bucket in the **User List of Bucket** section.

  Enter a keyword of the username in the search box in the upper part of the page, and then press the Enter key or click the search icon. The information of the user that meets the search condition is displayed.

  > ? **Note** After the search, to view the information of all the users, click **Refresh**.

4.4.2.4. Array monitoring

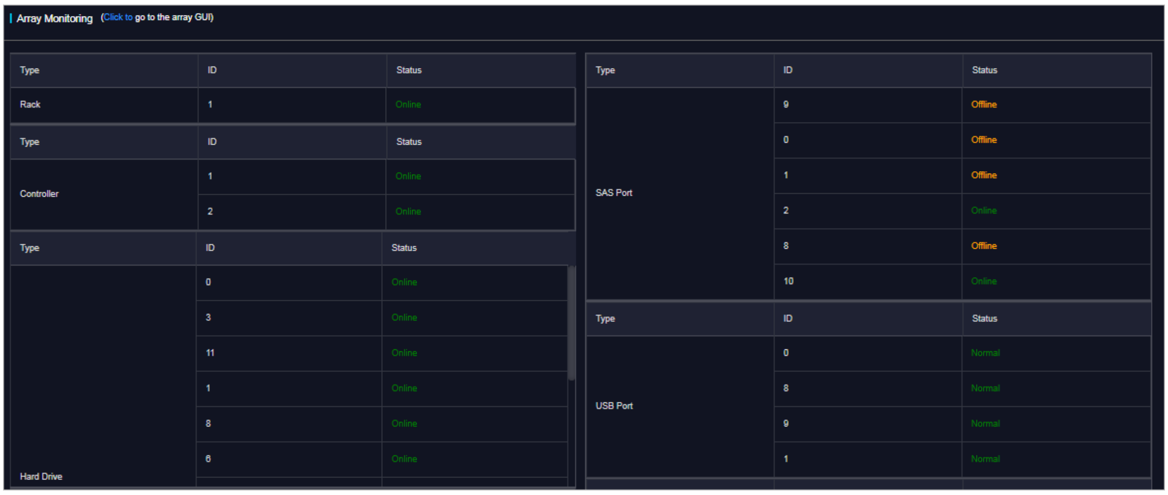
The Array Monitoring module allows you to view the running status of each device.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > miniOSS > Array Monitoring**.
2. View the running status of each device.

   By default, you can view the status information of all devices.

   The device types include rack, controller, hard drive, rack battery, power supply unit (PSU), fan, FC port, iSCSI port, SAS port, USB port, cluster node, cluster system, block storage, volume Information, storage pool information, host, NFS service, CIFS service, FTP service, and file system.



Array Monitoring (Click to go to the array GUI)

Type	ID	Status
Rack	1	Online

Type	ID	Status
Controller	1	Online
	2	Online

Type	ID	Status
Hard Drive	0	Online
	3	Online
	11	Online
	1	Online
	8	Online
	6	Online

Type	ID	Status
SAS Port	9	Offline
	0	Offline
	1	Offline
	2	Online
	8	Offline
	10	Online

Type	ID	Status
USB Port	0	Normal
	8	Normal
	9	Normal
	1	Normal

Values in different colors indicate different states:

- Green indicates that the device is online or is running normally.
- Yellow indicates that the device is offline.
- Red indicates that the device has an exception.

In the upper part of the page, click **Click** to go to the array GUI.

4.4.2.5. System management

The System Management module allows you to modify the bucket watermark threshold and user watermark threshold.

Procedure

1. In the left-side navigation pane, choose **Storage Operation Center > miniOSS > System Management**.
2. On the page that appears, perform the following operations:
   - Modify the bucket watermark threshold
     a. In the **Bucket Watermark Threshold** section, click **Modify**.
     b. Enter a positive number less than or equal to 100 as the warning value, error value, and fatal error value. Make sure that the warning value is less than the error value which is less than the fatal error value.
     c. Click **Save**.
   - Modify the user watermark threshold
     a. In the **User Watermark Threshold** section, click **Modify**.
     b. Enter a positive number less than or equal to 100 as the warning value, error value, and fatal error value. Make sure that the warning value is less than the error value which is less than the fatal error value.
     c. Click **Save**.

5.Operations tools

5.1. Products

The Products module allows you to click operations and maintenance services of other products on the cloud platform and ISV access configurations to go to the corresponding page.

5.1.1. Product list

On the Product List page, you can go to the corresponding operations and maintenance page of a product or ISV page by using Single Sign-On (SSO) and redirection.

Prerequisites

To access the ISV page, make sure that the ISV access information is configured on the **ISV Access Configurations** page. For more information about how to configure the ISV access information, see Configure the ISV access information.

Context

After you log on to the Apsara Stack Operations (ASO) console, you can view O&M icons of different products and different ISV icons on the **Product List** page based on your permissions. An operations system administrator can view all the O&M components of the cloud platform.

The read and write permissions for product O&M are separated. Therefore, the system can dynamically assign different permissions based on different roles.

Procedure

1. In the left-side navigation pane, choose **Products** > **Product List**.
2. On the **Product List** page, you can view the O&M icons of different products and ISV icons based on your permissions.

5.1.2. ISV access configurations

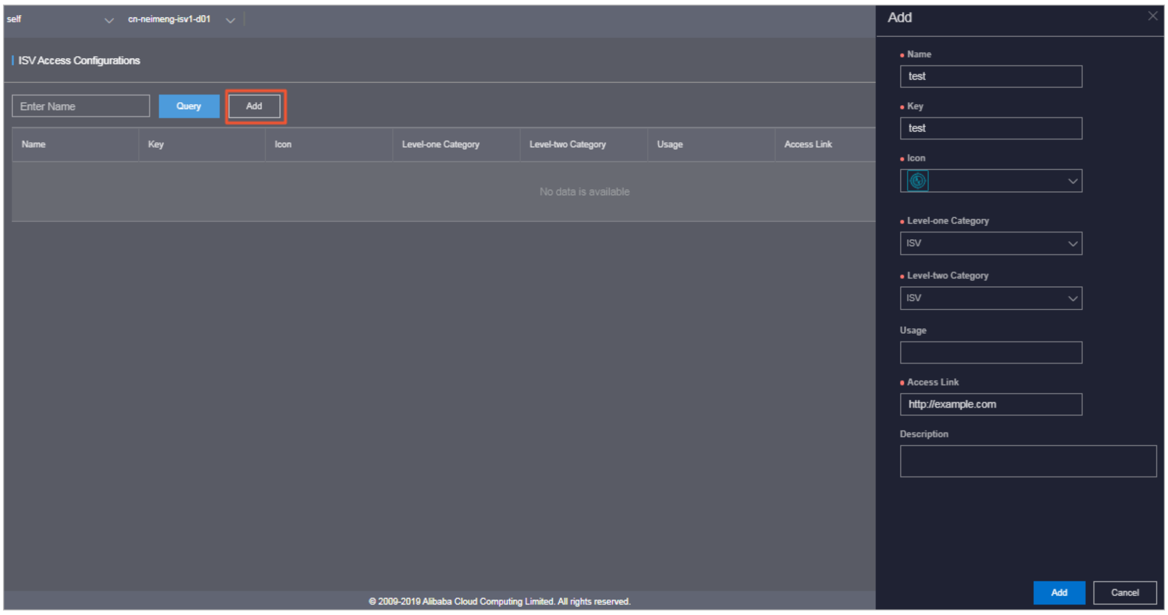
The **ISV Access Configurations** module allows you to configure, modify, and delete the ISV access information.

5.1.2.1. Configure the ISV access information

You can configure the ISV access information in the system based on business needs. Then, you can click an icon on the product list page to access the corresponding ISV page.

Procedure

1. In the left-side navigation pane, choose **Products** > **ISV Access Configuration**.
2. In the upper part of the page, click **Add**.
3. In the **Add** pane, configure the ISV access information.



- Name: test
- Key: test
- Icon
- Level-one Category: ISV
- Level-two Category: ISV
- Access Link: http://example.com

The following table describes the parameters.

Parameter	Description
Name	The name of the ISV to be accessed.
Key	Typically, enter an identifier related to the ISV business as the key.
Icon	Select the icon displayed on the **Product List** page for the ISV to be accessed.
Level-one Category and **Level-two Category**	The category to which the ISV to be accessed belongs on the **Product List** page.
Usage	The function of the ISV to be accessed.
Access Link	The address of the ISV to be accessed.
Description	The description related to the ISV to be accessed.

4. Click **Add**.

Result

You can view the added ISV icon in the Product List page by choosing **Products > Product List**. Click the icon and then you can go to the corresponding page.

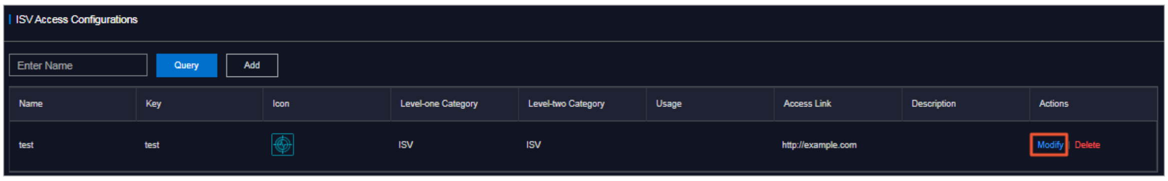
5.1.2.2. Modify the ISV access information

If the ISV information is changed, you can modify the ISV access information.

Procedure

1. In the left-side navigation pane, choose **Products > ASV Access Configuration**.
2. (Optional)In the search box on the page, enter the ISV name, and then click **Query**. Fuzzy search is supported.

3. Find the ISV whose access information is to be modified. Click **Modify** in the **Actions** column.



ISV Access Configurations

Name	Key	Icon	Level-one Category	Level-two Category	Usage	Access Link	Description	Actions
test	test		ISV	ISV		http://example.com		Modify Delete

4. In the **Modify** pane, modify the name, key, icon, level-one category, level-two category, usage, access link, or description of the ISV.
5. Click **Modify**.

5.1.2.3. Delete the ISV access information

You can delete the ISV access information added in the system based on business needs.

Procedure

1. In the left-side navigation pane, choose **Products** > **ISV Access Configuration**.
2. (Optional)In the search box on the page, enter the ISV name, and then click **Query**. Fuzzy search is supported.
3. Find the ISV whose access information is to be deleted. Click **Delete** in the **Actions** column.
4. In the message that appears, click **OK**.

Result

The deleted ISV will no longer be displayed in the **Product List**.

5.2. NOC

Network Operation Center (NOC) is an all-round operations tool platform that covers the whole network (virtual network and physical network).

5.2.1. Network topology

The Network Topology tab allows you to view the physical network topology.

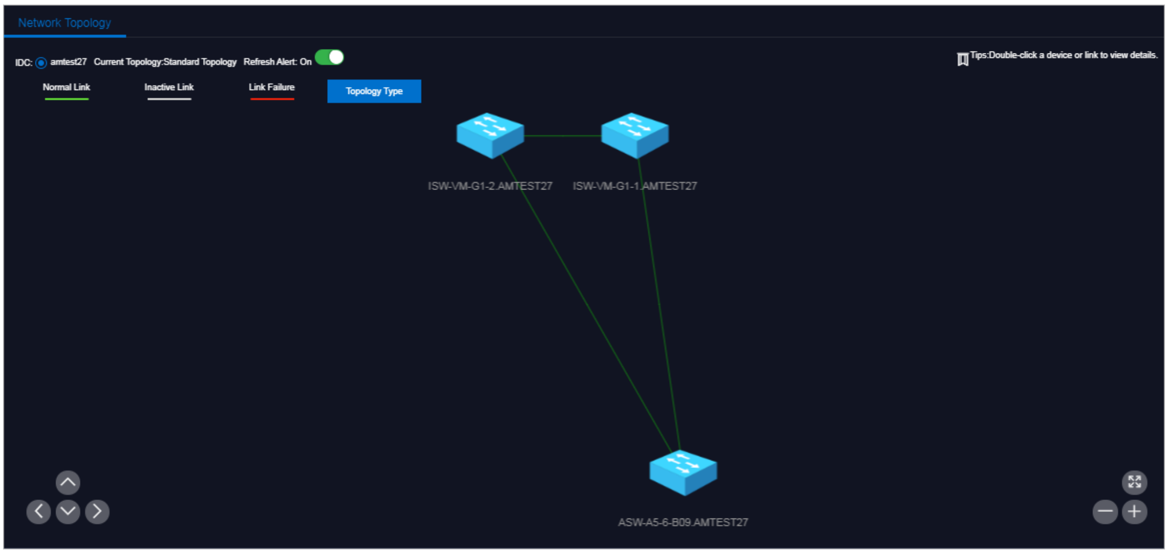
Procedure

1. In the left-side navigation pane, choose **NOC** > **Dashboard**.
2. On the **Network Topology** tab, view the physical network topology of a physical data center.

   You can set **Topology Type** to **Standard Topology** or **Dynamic Topology**.

   > Note
   >
   > The colors of connections between network devices indicate the connectivity between the network devices:
   >
   > - Green: The link works properly.
   > - Red: The link has an error.
   > - Grey: The link is inactive.

By default, if **Topology Type** is set to **Standard Topology**, the **Refresh Alert** switch is turned on. You can turn off **Refresh Alert**, and then devices or link status in the topology are not updated after new alerts are triggered.



IDC: ● amtest27 Current Topology:Standard Topology Refresh Alert: On

Tips:Double-click a device or link to view details.

3. In the topology, double-click a connection between two devices to view the links and alerts between the two devices.
4. In the topology, double-click a physical network device to view the basic information and node alerts of the device on the right.

5.2.2. Resource management

The Resource Management module is used to manage network-related resources, including the information of physical network element devices, virtual network products, and IP addresses.

5.2.2.1. Device management

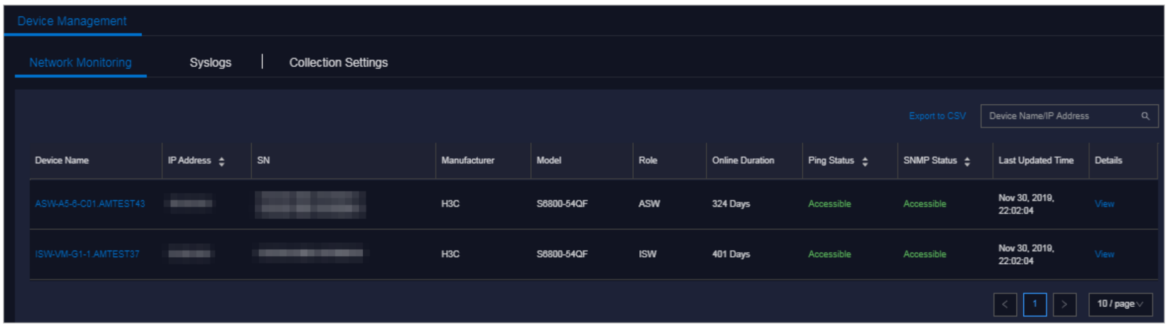
The **Device Management** page displays the basic information, running status, traffic monitoring, and logs of physical network element devices, and allows you to configure the collection settings of network devices.

5.2.2.1.1. View the network monitoring information

The Network Monitoring tab allows you to view the basic information, running status, and traffic monitoring of Apsara Stack physical network devices and check the health status of network devices in a timely manner.

Procedure

1. In the left-side navigation pane, choose **NOC** > **Resource Management** > **Network Elements**.
2. In the **Device Management** page, click the **Network Monitoring** tab.



Device Name	IP Address	SN	Manufacturer	Model	Role	Online Duration	Ping Status	SNMP Status	Last Updated Time	Details
ASW-A5-6-C01.AMTEST43	[redacted]	[redacted]	H3C	S6800-54QF	ASW	324 Days	Accessible	Accessible	Nov 30, 2019, 22:02:04	View
ISW-VM-G1-1.AMTEST37	[redacted]	[redacted]	H3C	S6800-54QF	ISW	401 Days	Accessible	Accessible	Nov 30, 2019, 22:02:04	View

3. Perform the following operations:

   - View the basic information, ping status, and SNMP status of physical network devices in Apsara Stack.

     > **Note** You can also click **Export to CSV** to export network device information to your local computer.

     If a device has a business connectivity or gateway connectivity problem, the value in the Ping Status column or SNMP Status column turns from green to red. The operations personnel are required to troubleshoot the problem.

   - In the search box in the upper-right corner, enter the device name or IP address to search for the monitoring information of a specific device.
   - View the port information and alert information of a device.

     a. Click a device name, or click **View** in the **Details** column corresponding to a device.

     b. View the port list, port working status, and other link information of the device in the **Port** column.

     c. View the alert information of the device in the **Alert Info** column.

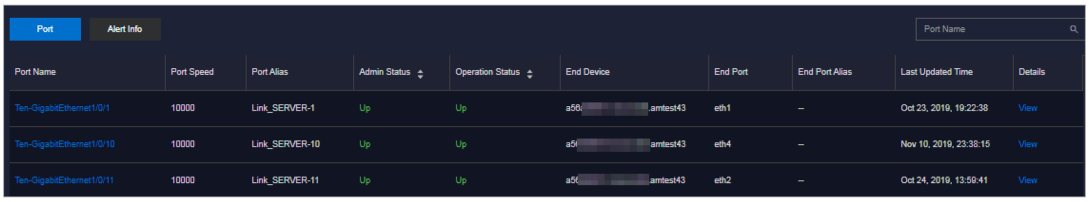
     During routine O&M, pay attention to the alert list of the device. Typically, if no data is displayed in the **Alert Info** column, it indicates that the device is operating normally.

     If alert events occur, unrecovered alert events are displayed in the list. You must handle these exceptions in time. After you handle exceptions, the alert events are automatically cleared from the list.

   - View the traffic information of a device for a specified port and time range.

     a. Click a device name, or click **View** in the **Details** column corresponding to a device.

     b. Search for the port that you are about to view by using the search box in the upper-right corner of the **Port** section. Click **View** in the **Details** column corresponding to the port.



Port Name	Port Speed	Port Alias	Admin Status	Operation Status	End Device	End Port	End Port Alias	Last Updated Time	Details
Ten-GigabitEthernet1/0/1	10000	Link_SERVER-1	Up	Up	a56[redacted].amtest43	eth1	–	Oct 23, 2019, 19:22:38	View
Ten-GigabitEthernet1/0/10	10000	Link_SERVER-10	Up	Up	a5[redacted]amtest43	eth4	–	Nov 10, 2019, 23:38:15	View
Ten-GigabitEthernet1/0/11	10000	Link_SERVER-11	Up	Up	a56[redacted]amtest43	eth2	–	Oct 24, 2019, 13:59:41	View

     c. Select a time range on the right, and then click **Search** to view the traffic in the selected time range.

     You can select 5MIN, 30MIN, 1H, or 6H in the **Quick Query** section to view the traffic within 5 minutes, 30 minutes, 1 hour, or 6 hours.

5.2.2.1.2. View logs

The Syslogs tab allows you to view logs of physical network element devices, providing necessary data for fault location and diagnosis information collection if a fault occurs.

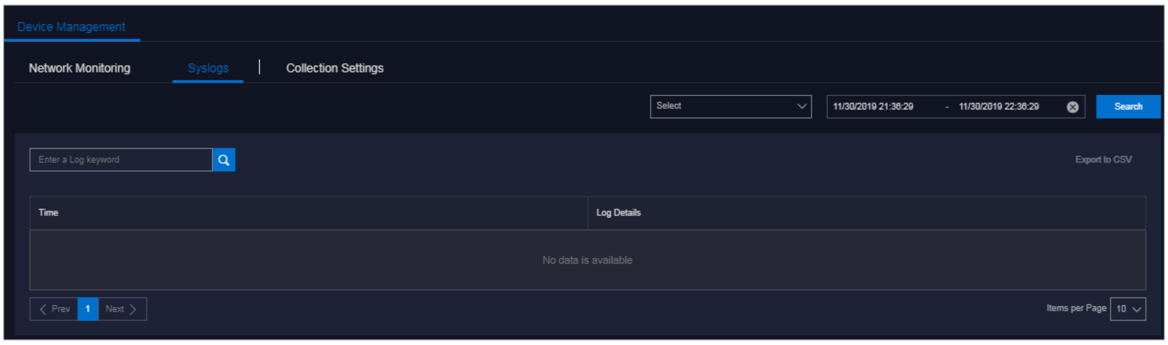
Context

During the daily inspection, you can search for logs generated by a specific network device during a specific time range on the **Syslogs** tab.

Procedure

1. In the left-side navigation pane, choose **NOC > Resource Management > Network Elements**.
2. On the **Device Management** page, click the **Syslogs** tab.
3. In the upper-right corner of the tab, select a device name from the drop-down list, select a time range, and then click **Search** to check whether the device has generated system logs in the specified time range.

   If the device has a configuration exception or does not have any generated logs for the specified time range, no search results will be returned.

4. (Optional)You can filter the search results based on the log keyword.
5. (Optional)Click **Export to CSV** in the upper-right corner o to export the search results to your local computer.

5.2.2.1.3. Collection settings

The **Collection Settings** tab allows you to configure the collection interval of physical network element devices and manage OOB network segments.

5.2.2.1.3.1. Modify the collection interval

You can modify the collection interval to adjust the time interval of collection.

Procedure

1. In the left-side navigation pane, choose **NOC > Resource Management > Network Elements**.
2. On the **Device Management** page, click the **Collection Settings** tab.
3. In the **Collection Interval Settings** section, modify the values.

Note To cancel your modification before submission, click **Reset** in the upper-right corner to reset the collection interval to the previous version.

4. Click **Submit**. One minute later, the modified collection interval of the network device information takes effect.

5.2.2.1.3.2. Add an OOB network segment

If this is the first time you are using the Network Elements feature of Network Operation Center (NOC), you must add the device loopback network segment planned by the current Apsara Stack network device, which is typically the network segment of the netdev.loopback field in the IP address planning list.

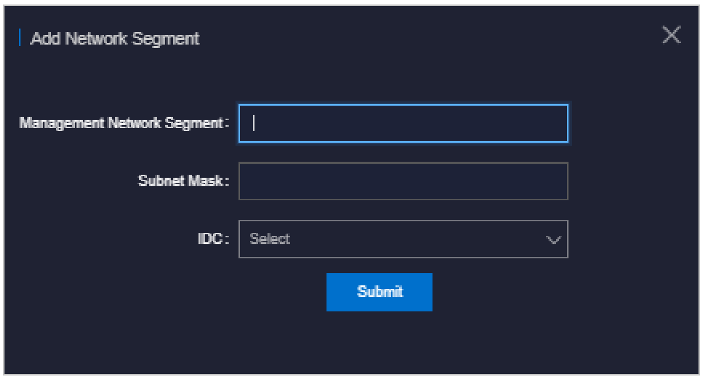
Context

The OOB Network Segments section is used to configure the management scope of a physical network element device. Typically, operations engineers are required to add the loopback network segment where the network device to be managed resides.

In the Apsara Stack scenario, a loopback network segment is used to configure the management scope of a physical network element device. To expand the network and the loopback network segment, you must add the network segment involved in the expansion to the management scope. The procedure to add an expanded network segment is the same as that used to add the loopback network segment for the first time. Then, you can search for the network segment of the managed device on this page.

Procedure

1. In the left-side navigation pane, choose **NOC** > **Resource Management** > **Network Elements**.
2. On the **Device Management** page, click the **Collection Settings** tab.
3. In the lower part of the **OOB Network Segments** section, click **Add Network Segment**.
4. In the Add Network Segment dialog box, enter the network segment that contains the mask information and subnet mask, and select an IDC.



5. Click **Submit**. The initial data entry is completed.

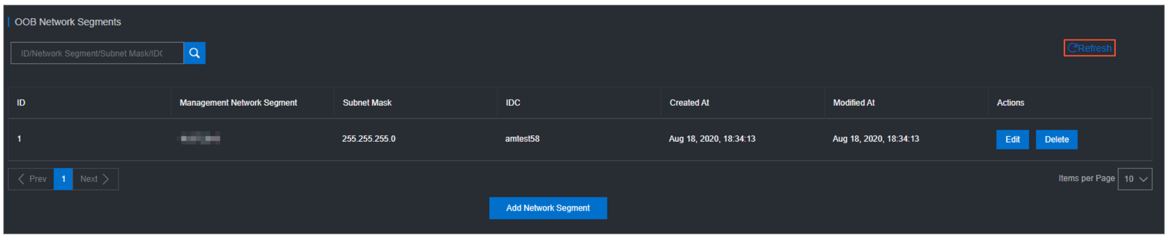
   To modify or delete an OOB network segment, find it in the list, and then click **Edit** or **Delete** in the **Actions** column.

5.2.2.1.3.3. View the OOB network segment information

You can search for and view the network segment information of your managed device.

Procedure

1. In the left-side navigation pane, choose **NOC** > **Resource Management** > **Network Elements**.
2. On the **Device Management** page, click the **Collection Settings** tab.
3. In the **OOB Network Segments** section, click **Refresh** in the upper-right corner of the section.



ID	Management Network Segment	Subnet Mask	IDC	Created At	Modified At	Actions
1	[redacted]	255.255.255.0	amtest58	Aug 18, 2020, 18:34:13	Aug 18, 2020, 18:34:13	Edit Delete

4. In the list, view the network segment information of your managed device.

> **Note** You can search for the information of a specific network segment by entering a keyword in the search box.

5.2.2.2. View the instance monitoring information

The Instance Monitoring tab allows you to view the basic information and water level of an instance, including the bps and pps.

Procedure

1. In the left-side navigation pane, choose **NOC** > **Resource Management** > **Server Load Balancers**.
2. Click the **Instance Monitoring** tab.
3. Select the cluster where the target instance resides from the cluster drop-down list. Enter the VIP address that you are about to search for in the field, and then click **Search**.
4. View the water level data of the VIP address. Select a time range, and then click **Search**. Alternatively, select 5MIN, 30MIN, 1H, or 6H in the Quick Query section to view the operating water level graph of the VIP address in a specific time range.

5.2.3. Alert management

The Alert Management module provides you with the real-time alert dashboard, history alert dashboard, and the alert settings function.

5.2.3.1. View and process current alerts

You can view and process current alerts on the Current Alerts tab.

Procedure

1. In the left-side navigation pane, choose **NOC** > **Alert Management** > **Alert Dashboard**.
2. Click the **Current Alerts** tab.
3. Enter a keyword in the search box in the upper-right corner, and then click **Search**.Alerts that meet the search conditions are displayed.

4. (Optional)You can filter the search results by device name, device IP address, or alert name.
5. Click **Details** in the **Details** column corresponding to an alert to view detailed information about the alert.
6. Find the reason why the alert is triggered and then process the alert.
   - If the alert does not affect the normal operation of the system, you can click **Ignore** in the **Actions** column to ignore the alert.
   - If the alert is no longer significant, you can click **Delete** in the **Actions** column to delete the alert.

     After the alert is processed, you can search for it on the **History Alerts** tab.
7. (Optional)Click **Export to SCV** to export the alert information to your local computer.

5.2.3.2. View historical alerts

You can view historical alerts on the History Alerts tab.

Procedure

1. In the left-side navigation pane, choose **NOC > Alert Management > Alert Dashboard**.
2. Click the **History Alerts** tab.
3. Select Alert Source, Alerting IP Address, Alerting Device, Alert Name, Alert Item, or Alerting Instance from the drop-down list, and then enter a keyword in the field. Select a time range, and then click **Search**.Alerts that meet the search conditions are displayed.
4. Click **Details** in the **Details** column corresponding to an alert to view detailed information about the alert.
5. (Optional)Click **Export to SCV** to export the alert information to your local computer.

5.2.3.3. Add a trap

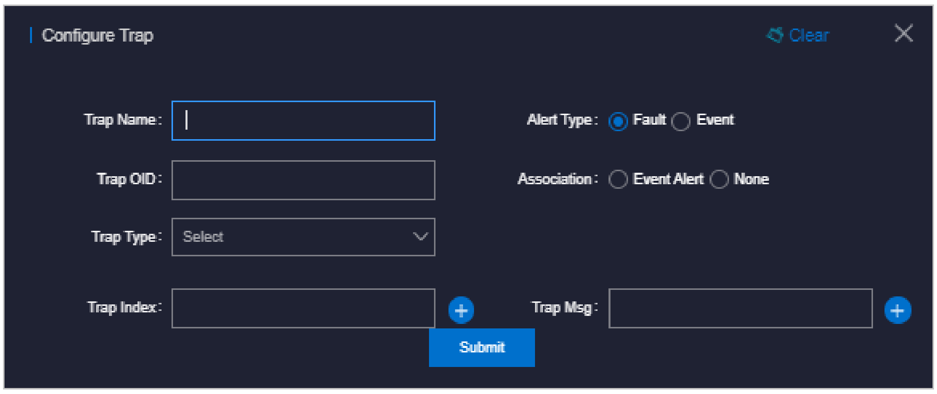
If the initially configured trap subscription does not meet the monitoring requirements, you can add a trap for monitoring match.

Context

The trap in this topic is the Simple Network Management Protocol (SNMP) trap. SNMP trap is a part of SNMP and a mechanism that devices being managed (here refers to network devices such as switches and routers) send SNMP messages to the NOC monitoring server. If an exception occurs on the side being monitored, namely the switch monitoring metrics have an exception, the SNMP agent running in a switch sends an alert event to the NOC monitoring server.

Procedure

1. In the left-side navigation pane, choose **NOC > Resource Management > Alert Configuration**.
2. On the **Alert Settings** page, click **Configure Trap**.
3. In the **Configure Trap** dialog box, configure the parameters.



Configure Trap

Trap Name:

Alert Type: ● Fault ○ Event

Trap OID:

Association: ○ Event Alert ○ None

Trap Type: Select

Trap Index:

Trap Msg:

The following table describes the parameters.

Parameter	Description	Example
Trap Name	The name of the alert event.	linkdown or BGPneighbor down. You can customize the value.
Trap OID	The OID of the alert event.	.1.3.6.1.4.1.25506.8.35.12.1.12 Configure the value based on the device document. You cannot customize the value.
Trap Type	The type of the alert event.	None
Trap Index	The index ID of the alert item. This value is the KV information in the trap message, which is used to identify the alert object. Typically, this value can be an API name, protocol ID, or index ID. Configure the value based on the device document. You cannot customize the value.	None
Trap Msg	The message of the alert item. This value is the KV information in the trap message, which is used to identify the alert data. Typically, this value can be the additional information of the alert item, such as a system message or a message indicating the location of the state machine or the current status. Configure the value based on the device document. You cannot customize the value.	None

Parameter	Description	Example
Alert Type	Specifies whether the alert is of the fault type or the event type.	None
Association	Specifies whether the alert has an event alert. If **Alert Type** is set to **Fault** and the alert has an associated alert, set Association to Event Alert and then add the trap of the associated alert.	None

4. Click **Submit** .After the configuration is submitted, the system checks whether the values of Trap OID and Trap Name are the same as the existing ones. If not, the configuration of the trap is complete.

   After the trap is added, the alert events of the configured Trap OID are monitored and displayed on the **Current Alerts** and **Alert History** tabs in the **Alert Management** module.

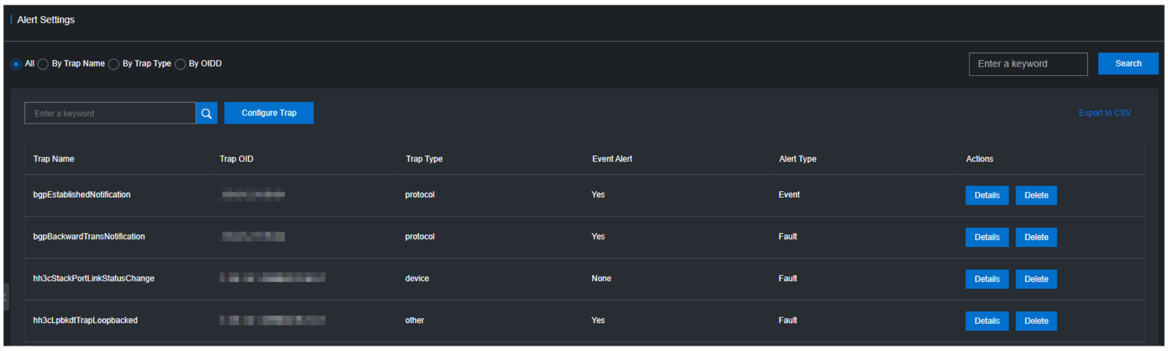
5.2.3.4. View traps

You can view traps configured in the current system.

Procedure

1. In the left-side navigation pane, choose **NOC** > **Alert Management** > **Alert Configuration**.
2. Enter a keyword in the search box in the upper-right corner, and then click **Search**.

   > **Note** After the search results are displayed, you can click **Export to CSV** in the upper-right corner to export the trap information to your local computer.



Trap Name	Trap OID	Trap Type	Event Alert	Alert Type	Actions
bgpEstablishedNotification	[redacted]	protocol	Yes	Event	Details Delete
bgpBackwardTransNotification	[redacted]	protocol	Yes	Fault	Details Delete
hh3cStackPortLinkStatusChange	[redacted]	device	None	Fault	Details Delete
hh3cLpbkdtTrapLoopbacked	[redacted]	other	Yes	Fault	Details Delete

3. (Optional)You can filter the search results by trap name, trap type, or OID.
4. Move the pointer over **Details** in the **Actions** column corresponding to a trap to view detailed information about the trap.

   > **Note** If a trap is no longer needed, you can click **Delete** in the **Actions** column corresponding to the trap.

5.3. Task Management

The system allows you to run operations scripts on the cloud platform, which reduces your actions by using command lines, lowers misoperations, and improves the security and stability of the cloud platform.

5.3.1. Overview

The Task Management module has the following functions:

- Supports viewing task overview and creating tasks quickly.
- Supports the following four methods to run tasks: manual execution, scheduled execution, regular execution, and advanced mode.
- Supports the breakpoint function, which allows a task to stop between its two scripts and wait for manual intervention.
- Supports searching for tasks by name, status, and created time.
- Supports uploading the .tar package as the script.

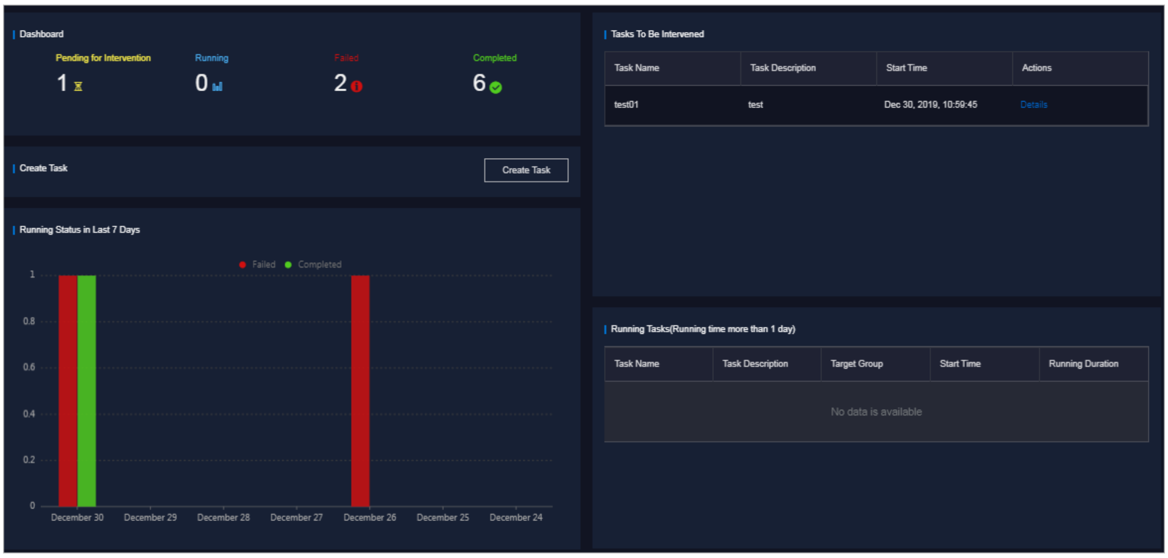
5.3.2. View the task overview

The Task Overview page shows the overall running conditions of tasks in the system. You can also create a task on this page.

Procedure

1. In the left-side navigation pane, choose **Task Management** > **Task Overview**.

   The **Task Overview** page appears.



Task Name	Task Description	Start Time	Actions
test01	test	Dec 30, 2019, 10:59:45	Details

Task Name	Task Description	Target Group	Start Time	Running Duration
No data is available				

2. You can perform the following operations:
   - In the **Dashboard** section, view the number of tasks that are in the **Pending for Intervention**, **Running**, **Failed**, or **Completed** state in the system.

     Click a state or number to view the task list of the corresponding state.
   - In the **Create Task** section, click **Create Task** to create an operations task.

For more information about how to create a task, see Create a task.

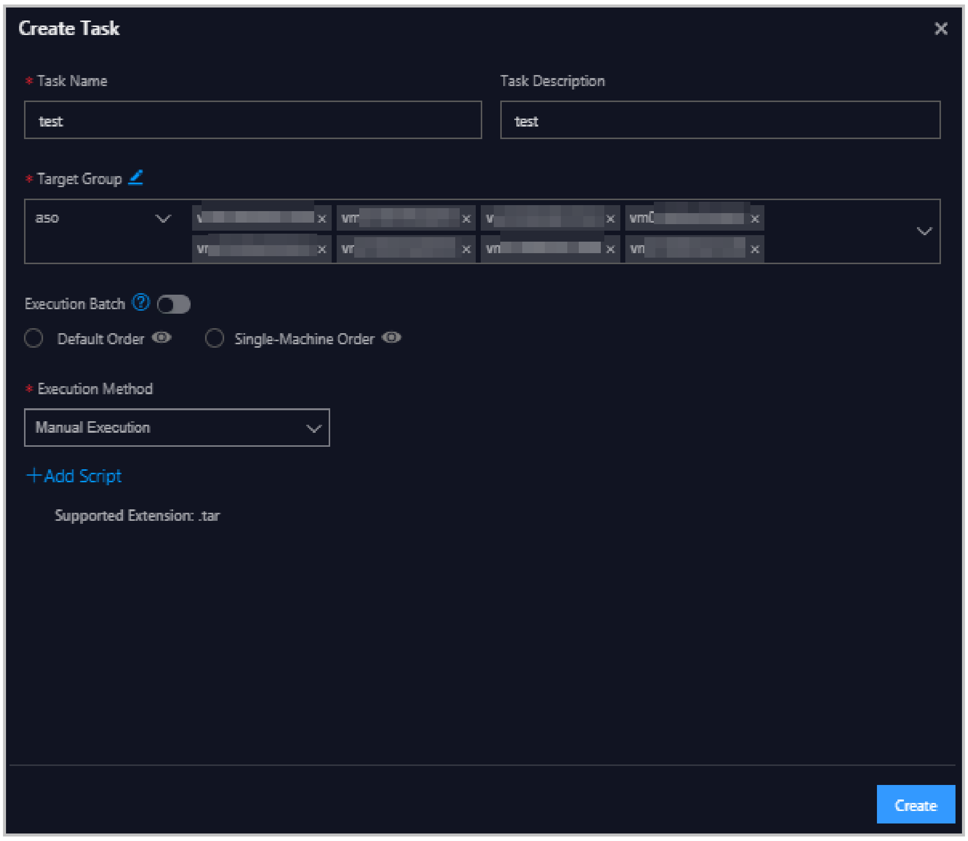
- If a task has a breakpoint and reaches the breakpoint, the task stops and waits for manual confirmation. You can view and process tasks that require manual intervention in the **Tasks To Be Intervened** section.
- In the **Running Status in Last 7 Days** section, view the running trend of tasks and whether tasks are successful within the last seven days.
- In the **Running Tasks** section, view tasks running within the last 24 hours.

5.3.3. Create a task

You can make regular modifications as tasks to run in the ASO console.

Procedure

1. In the left-side navigation pane, choose **Task Management > Task Management**.
2. Click **Create**.
3. In the dialog box that appears, configure the parameters.



Create Task

* Task Name: test

Task Description: test

* Target Group: aso [redacted]

Execution Batch

○ Default Order ○ Single-Machine Order

* Execution Method: Manual Execution

Parameter	Description
Task Name	The name of the operations task.
Task Description	The description of the operations task.

Parameter	Description
Target Group	The task target. You can use one of the following methods to configure the target group: ○ Select the **product**, **cluster**, **service**, **server role**, and **virtual machine (VM) or physical machine** in sequence. ○ Select a product. Enter the VM or physical machine in the field and then press the Enter key. You can enter multiple VMs or physical machines in sequence. ○ Click the ✎ icon next to **Target Group**. In the dialog box that appears, enter the target group, with one VM or physical machine in one line. Click **OK**.
Execution Batch	Optional. This option appears after you specify the target group. If **Execution Batch** is not specified, **Target Group** is displayed in the **Target Group** column, which can be viewed by choosing **Task Management > Task Management**. If you specify **Execution Batch**, **Batch Execution Policy** is displayed in the **Target Group** column. You can set **Execution Batch** to one of the following values: ○ **Default Order** By default, if the number of machines is less than or equal to 10, the machines are allocated to different batches, with one machine in batch 1, one machine in batch 2, two machines in batch 3, three machines in batch 4, and the other machines in batch 5. You can change the number of machines in each batch. By default, if the number of machines is greater than 10, the machines are allocated to different batches, with one machine in batch 1, three machines in batch 2, five machines in batch 3, N/3-1 (an integer) machines in batch 4, N/3-1 (an integer) machines in batch 5, until all of the machines are allocated. N is the total number of servers in the cluster. You can change the number of machines in each batch. ○ **Single-Machine Order**: By default, each batch has one machine. You can change the number of machines in each batch.

Parameter	Description
Execution Method	If **Execution Batch** is specified, **Execution Method** can only be set to **Manual Execution**. If **Execution Batch** is not specified, you can select one of the following execution methods: ○ **Manual Execution**: You must manually start the task. With **Manual Execution** specified, you must click **Start** in the **Actions** column to run the task after the task is created. ○ **Scheduled Execution**: Select the execution time. The task automatically starts when the execution time is reached. ○ **Regular Execution**: Select the time interval and times to run the task. The task starts again if the execution condition is met. ○ **Advanced**: Configure the command to run the task periodically.
Add Script	Click **Add Script**. Select one or more .tar packages to upload the script file. After the upload, you can delete and re-upload the script. After you upload the script, if **Execution Method** is set to **Manual Execution**, you must specify whether to enable **Intervention Required**. If manual intervention is enabled, the task will stop and wait for manual intervention after you run the script.

4. Click **Create**.

Result

The created task is displayed in the task list.

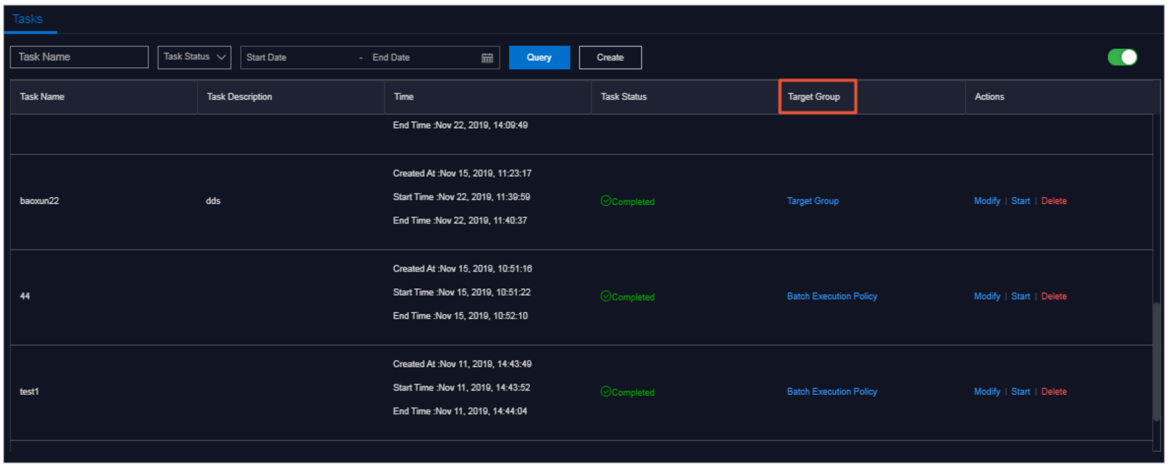
5.3.4. View the execution status of a task

After a task starts, you can view the execution status of the task.

Procedure

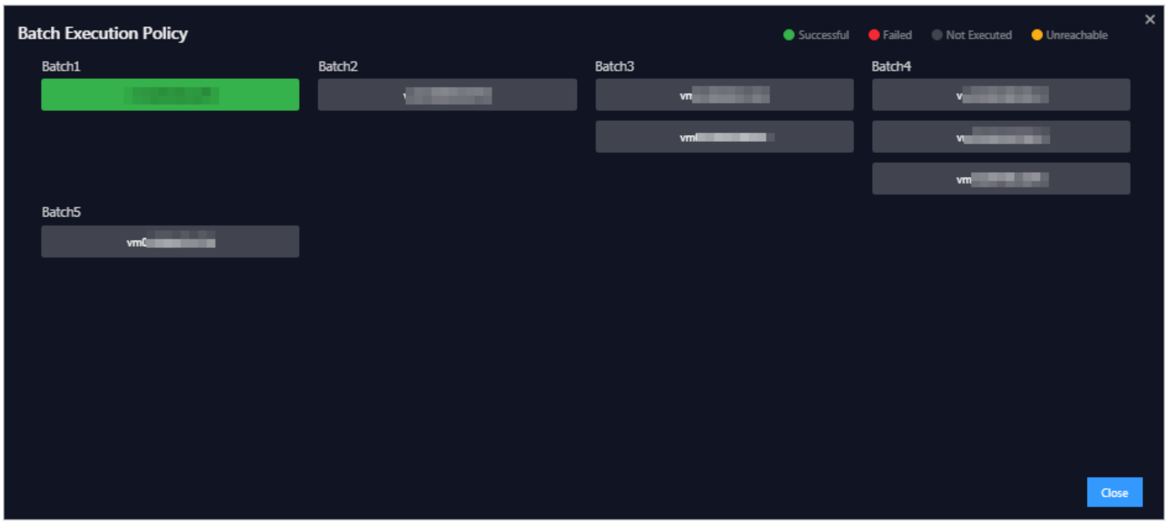
1. In the left-side navigation pane, choose **Task Management > Task Management**.
2. (Optional)Enter the task name, select the task status, start date, and end date, and then click **Query** to search for tasks.
3. Find the task that you want to view, and then click **Target Group** or **Batch Execution Policy** in the **Target Group** column.

> **Note** If **Execution Batch** is not selected when you create a task, **Target Group** is displayed in the **Target Group** column. If you select **Execution Batch** when you create a task, **Batch Execution Policy** is displayed in the **Target Group** column.



Task Name	Task Description	Time	Task Status	Target Group	Actions
		End Time :Nov 22, 2019, 14:09:49			
baoxun22	dds	Created At :Nov 15, 2019, 11:23:17 Start Time :Nov 22, 2019, 11:39:59 End Time :Nov 22, 2019, 11:40:37	✓Completed	Target Group	Modify | Start | Delete
44		Created At :Nov 15, 2019, 10:51:16 Start Time :Nov 15, 2019, 10:51:22 End Time :Nov 15, 2019, 10:52:10	✓Completed	Batch Execution Policy	Modify | Start | Delete
test1		Created At :Nov 11, 2019, 14:43:49 Start Time :Nov 11, 2019, 14:43:52 End Time :Nov 11, 2019, 14:44:04	✓Completed	Batch Execution Policy	Modify | Start | Delete

4. In the dialog box that appears, view the task execution status based on the machine color. Click a machine to view the execution results of the task.



5.3.5. Start a task

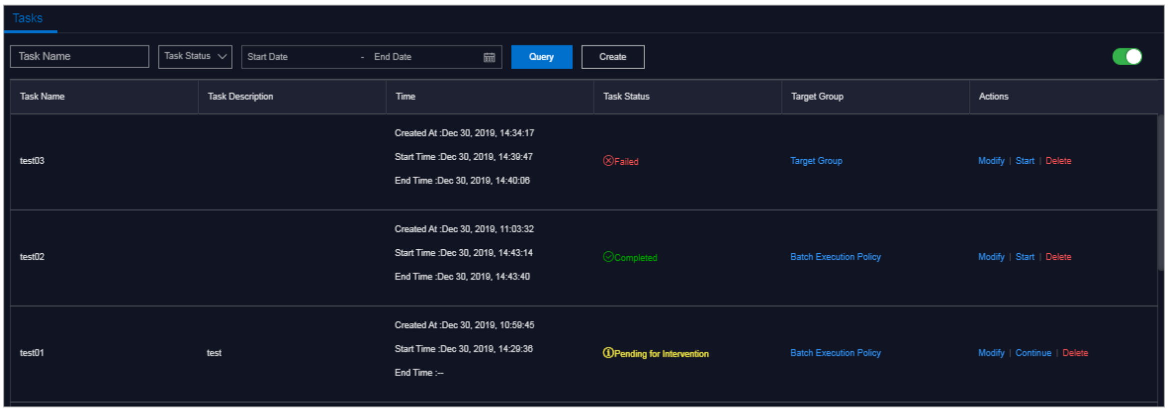
If you select **Manual Execution** when you create a task, you must manually start the task after it is created.

Procedure

1. In the left-side navigation pane, choose **Task Management > Task Management**.
2. (Optional)Enter the task name, select the task status, start date, and end date, and then click **Query** to search for tasks.
3. Find the task that you are about to start, and then click **Start** in the **Actions** column.
4. In the dialog box that appears, select the batches to start, and then click **Start**.

   For a new task, after you click **Start** for the first time, the system will indicate that the task is started. The virtual machines (VMs) or physical machines in batch 1 start to run the task. Click **Start** again and you can select VMs or physical machines in one or more batches to run the task.

   If the task has enabled Intervention Required, you must intervene the script after you click **Start**. The **Task Status** turns to **Pending for Intervention**, and you can continue to run the task only by clicking **Continue** in the **Actions** column.



Task Name	Task Description	Time	Task Status	Target Group	Actions
test03		Created At :Dec 30, 2019, 14:34:17 Start Time :Dec 30, 2019, 14:39:47 End Time :Dec 30, 2019, 14:40:06	⊗Failed	Target Group	Modify | Start | Delete
test02		Created At :Dec 30, 2019, 11:03:32 Start Time :Dec 30, 2019, 14:43:14 End Time :Dec 30, 2019, 14:43:40	✓Completed	Batch Execution Policy	Modify | Start | Delete
test01	test	Created At :Dec 30, 2019, 10:59:45 Start Time :Dec 30, 2019, 14:29:36 End Time :--	ⓘPending for Intervention	Batch Execution Policy	Modify | Continue | Delete

5.3.6. Delete a task

You can delete tasks that are no longer needed.

Procedure

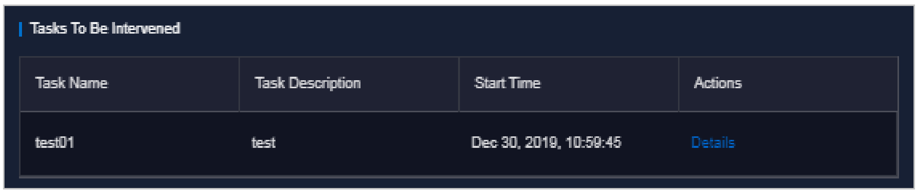
1. In the left-side navigation pane, choose **Task Management** > **Task Management**.
2. (Optional)Enter the task name, select the task status, start date, and end date, and then click **Query** to search for the task.
3. Find the task to be deleted, and then click **Delete** in the **Actions** column.
4. In the message that appears, click **OK**.

5.3.7. Process tasks to be intervened

If a task reaches a breakpoint, the task will stop and wait for manual confirmation. The task will continue only after receiving manual confirmation.

Procedure

1. In the left-side navigation pane, choose **Task Management** > **Task Overview**.
2. In the **Tasks To Be Intervened** section, find the task to be intervened, and then click **Details** in the **Actions** column.



Task Name	Task Description	Start Time	Actions
test01	test	Dec 30, 2019, 10:59:45	Details

3. On the **Task Details** tab, check the information and then click **Continue** to continue to run the task.

5.3.8. Configure the XDB backup task

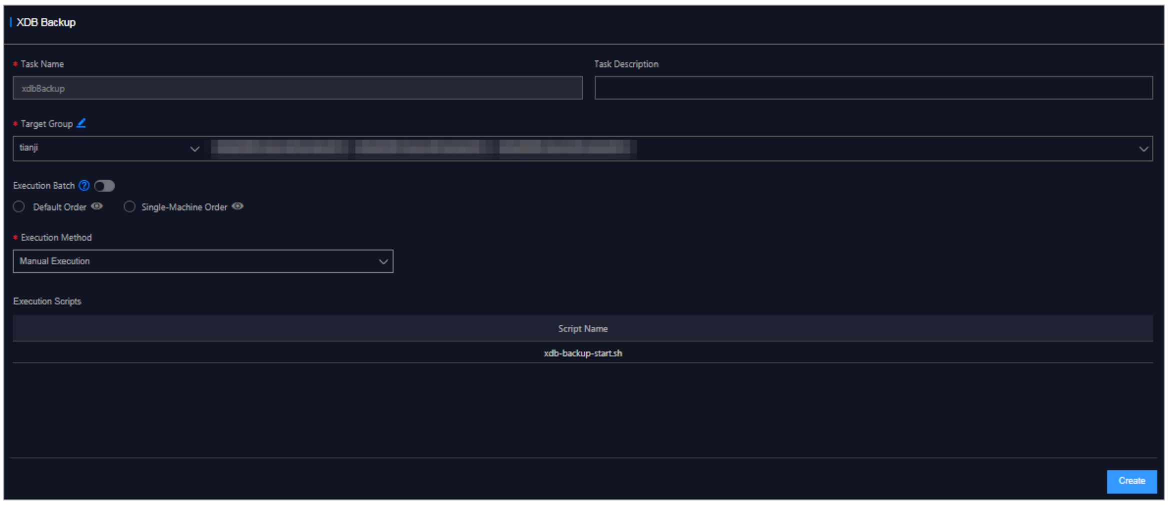
The XDB Backup module allows you to configure the XDB data backup without using command lines. You can configure and modify the backup task on the XDB Backup page to regularly back up platform data and back up data in real time.

Procedure

1. In the left-side navigation pane, choose **Task Management** > **Commonn Tasks** > **XDB Backup**.
2. On the **XDB Backup** page, configure the XDB backup task information.

Parameter	Description
Task Name	The name of the XDB backup task. By default, the name is **xdbBackup** and cannot be modified.
Task Description	The description of the XDB backup task.
Target Group	Required. The target of the XDB backup task. You can use one of the following methods to configure the target group: ○ Select from the drop-down list by selecting a **product**, **cluster**, **service**, **server role**, and **virtual machine (VM) or physical machine**. ○ Select a product. Enter the VM or physical machine in the field and press the Enter key. You can enter multiple VMs or physical machines in sequence. ○ Click the ✎ icon next to **Target Group**. In the dialog box that appears, enter the target group, with one VM or physical machine in one line. Click **OK**.
Execution Batch	Optional. This option appears after you specify the target group. You can set **Execution Batch** to one of the following options: ○ **Default Order** By default, if the number of machines is less than or equal to 10, the machines are allocated to different batches, with one machine in batch 1, one machine in batch 2, two machines in batch 3, three machines in batch 4, and the other machines in batch 5. You can adjust the batch for machines as needed. By default, if the number of machines is greater than 10, the machines are allocated to different batches, with one machine in batch 1, three machines in batch 2, five machines in batch 3, N/3-1 (an integer) machines in batch 4, N/3-1 (an integer) machines in batch 5, until all of the machines are allocated. N is the total number of servers in the cluster. You can adjust the batch for machines as needed. ○ **Single-Machine Order**: By default, each batch has one machine. You can adjust the batch for machines as needed. If **Execution Batch** is not specified, **Execution Batch** will be disabled by default. **Target Group** is displayed in the **Target Group** column in the task list, which can be viewed by choosing **Task Management** > **Task Management**. If **Execution Batch** is specified and saved, **Execution Batch** will be enabled automatically, and **Batch Execution Policy** is displayed in the **Target Group** column.

Parameter	Description
Execution Method	If **Execution Batch** is specified, **Execution Method** can only be set to **Manual Execution**. If **Execution Batch** is not enabled, you can select one of the following execution methods: ◦ **Manual Execution**: You must manually start the task. With **Manual Execution** selected, you must click **Start** in the **Actions** column to run the task after the task is created. ◦ **Scheduled Execution**: Select the execution time. The task automatically runs when the execution time is reached. ◦ **Regular Execution**: Select the time interval and times to run the task. If the execution condition is met, the task is run again. ◦ **Advanced**: Enter the crontab expression to configure the command to run the task periodically. For example, `0 20 20 **?` indicates that the task runs at 20:20 every day.
Execution Scripts	By default, the system automatically loads the XDB backup script.


XDB Backup

* Task Name: xdbBackup

Task Description:

* Target Group: tianji [redacted]

Execution Batch ○ Default Order ○ Single-Machine Order

* Execution Method: Manual Execution

Execution Scripts

Script Name
xdb-backup-start.sh

3. Click **Create**.

   You can view the created XDB task in the task list by choosing**Task Management** > **Task Management**. The system automatically runs the XDB backup task when the task execution condition is met. If **Execution Method** of the XDB backup task is specified as **Manual Execution**, start the backup task based on the procedures described in **O&M tools** > **Task management** > **Start a task**.

   Note After the XDB backup task is created, to modify the information of the backup task, you can click **Modify** in the lower part of the **XDB Backup** page.

After the XDB backup task is complete, operations engineers can view the backup file of each instance under the */alidata/xdb-backup/instance name* directory on the backup server. The backup file name is in the format of instance name-timestamp (specific to day).tar. The temporary backup information under the */alidata/xdb-backup-tmp* directory of the temporary backup folder is deleted automatically.

5.4. Apsara Infrastructure Management Framework

5.4.1. Old version

5.4.1.1. What is Apsara Infrastructure Management Framework?

This topic describes what Apsara Infrastructure Management Framework is from the aspects of core functions and basic concepts.

5.4.1.1.1. Overview

Apsara Infrastructure Management Framework is a distributed data center management system, which manages applications on clusters containing multiple machines and provides the basic functions such as deployment, upgrade, expansion, contraction, and configuration changes.

Apsara Infrastructure Management Framework also supports monitoring data and analyzing reports, which facilitates users to perform one-stop Operation & Maintenance (O&M) control. Based on the Apsara Infrastructure Management Framework services, automated O&M is implemented in the large-scale distributed environment, which greatly improves the operations efficiency and enhances the system availability.

Apsara Infrastructure Management Framework is mainly composed of TianjiMaster and TianjiClient. Apsara Infrastructure Management Framework installs TianjiClient as the agent on machines it manages. Then, TianjiMaster accepts and issues the upper-layer instructions to TianjiClient for execution. In the upper layer, Apsara Infrastructure Management Framework is divided into different components based on different functions, and then provides API server and portal for external use.

Core functions

- Network initialization in data centers
- Server installation and maintenance process management
- Deployment, expansion, and upgrade of cloud products
- Configuration management of cloud products
- Automatic application for cloud product resources
- Automatic repair of software and hardware faults
- Basic monitoring and business monitoring of software and hardware

5.4.1.1.2. Basic concepts

Before using Apsara Infrastructure Management Framework, you must know the following basic concepts for a better understanding.

project

A collection of clusters, which provides service capabilities for external entities.

cluster

A collection of physical machines, which logically provides services and is used to deploy project software.

- A cluster can only belong to one project.
- Multiple services can be deployed on a cluster.

service

A set of software, which provides relatively independent functions. A service is composed of one or more server roles and can be deployed on multiple clusters to form multiple sets of services and provide the corresponding service capabilities. For example, Apsara Distributed File System, Job Scheduler, and Apsara Name Service and Distributed Lock Synchronization System are all services.

service instance

A service that is deployed on a cluster.

server role

One or more indivisible deployment units into which a service can be divided based on functions. A server role is composed of one or more specific applications. If a service is deployed on a cluster, all the server roles of the service must be deployed to machines of this cluster. Multiple server roles, such as PanguMaster and TianjiClient, can be deployed on the same server.

server role instance

A server role that is deployed on a machine. A server role can be deployed on multiple machines.

application

Applications correspond to each process-level service component in a server role and each application works independently. The application is the minimum unit for deployment and upgrade in Apsara Infrastructure Management Framework, and can be deployed to each machine. Generally, an application is an executable software or Docker container.

If a server role is deployed on a machine, all applications in the server role must be deployed to this machine.

rolling

Each time when a user updates configurations, Apsara Infrastructure Management Framework upgrades services and modifies the cluster configurations based on the updated configurations. This process is called rolling.

service configuration template

Some configurations are the same when services are deployed on clusters. A service configuration template can be created to quickly write the same configurations to different clusters. The service configuration template is basically used for large-scale deployment and upgrade.

associated service template

A *template.conf* file that exists in the configurations. This file declares the service configuration template and its version, of which the configuration is used by the service instance.

final status

If a cluster is in this status, all hardware and software on each of its machines are normal and all software are in the target version.

dependency

The dependency between server roles in a service defines that server roles with dependencies run tasks or are upgraded based on the dependency order. For example, if A depends on B, B is upgraded first. A starts to be downloaded after B is downloaded successfully, and upgraded after B is successfully upgraded. (By default, the dependency does not take effect for configuration upgrade.)

upgrade

A way of aligning the current status with the final status of a service. After a user submits the version change, Apsara Infrastructure Management Framework upgrades the service version to the target version. With the server role as the processing unit, upgrade aims to update the versions of all machines to the target version.

At the beginning, the final status and current status of the cluster are the same. When a user submits the change, the final status is changed, whereas the current status is not. A rolling task is generated and has the final status as the target version. During the upgrade, the current status is continuously approximating to the final status. Finally, the final status and the current status are the same when the upgrade is finished.

5.4.1.2. Log on to Apsara Infrastructure Management Framework

This topic describes how to log on to Apsara Infrastructure Management Framework.

Prerequisites

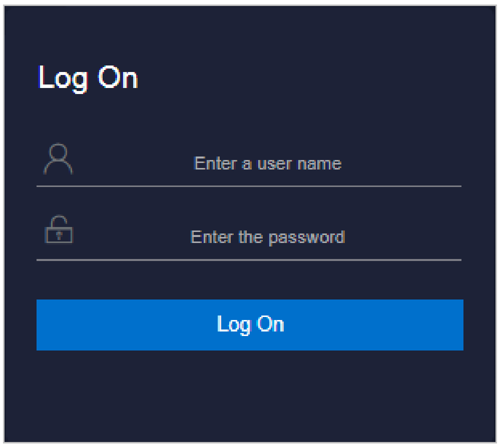
- The URL of the ASO console, and the username and password used for logging on to the console are obtained from the deployment personnel or an administrator.

  The URL of the ASO console is in the following format: *region-id*.aso.*intranet-domain-id*.com.

- A browser is available. We recommend that you use the Google Chrome browser.

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.



> **Note** You can select a language from the drop-down list in the upper-right corner of the page.

3. Enter your username and password.

> **Note** Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

When you log on to the ASO console for the first time, you must change the password of your username as prompted.

To enhance security, a password must meet the following requirements:

- It must contain uppercase and lowercase letters.
- It must contain digits.
- It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
- It must be 10 to 20 characters in length.

4. Click **Log On** to go to the **ASO** console.
5. In the left-side navigation pane, select **Products**.
6. In the product list, select **Apsara Infrastructure Management Framework**.

5.4.1.3. Web page introduction

Before performing Operation & Maintenance (O&M) operations on Apsara Infrastructure Management Framework, you must have a general understanding of the Apsara Infrastructure Management Framework page.

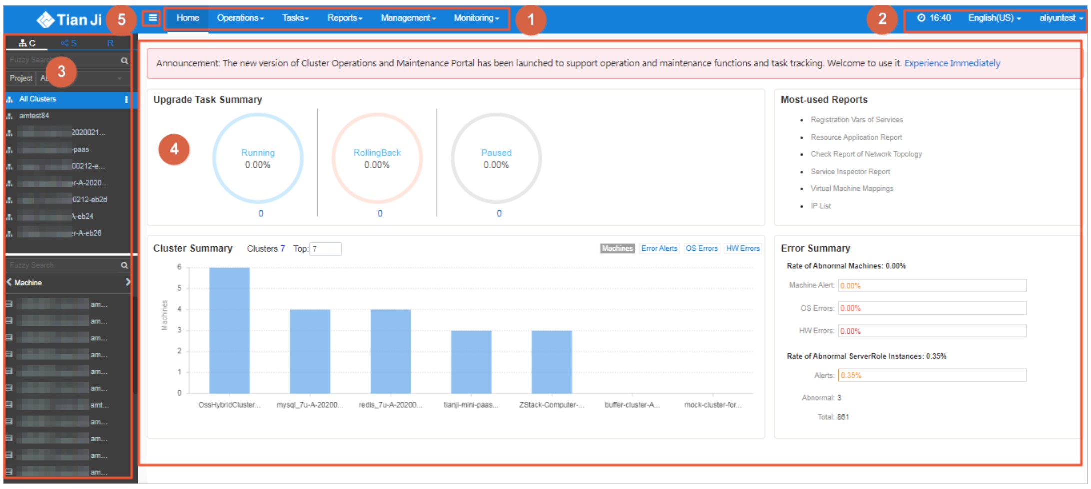
5.4.1.3.1. Introduction on the home page

After you log on to Apsara Infrastructure Management Framework, the home page appears. This topic allows you to get a general understanding of the basic operations and functions of Apsara Infrastructure Management Framework.

Log on to Apsara Infrastructure Management Framework. The home page appears, as shown in Home page of Apsara Infrastructure Management Framework.

Home page of Apsara Infrastructure Management Framework

Home page of Apsara Infrastructure Management Framework



Announcement: The new version of Cluster Operations and Maintenance Portal has been launched to support operation and maintenance functions and task tracking. Welcome to use it. Experience Immediately

Rate of Abnormal Machines: 0.00%

Machine Alert: 0.00%

OS Errors: 0.00%

HW Errors: 0.00%

Rate of Abnormal ServerRole Instances: 0.35%

Alerts: 0.35%

Abnormal: 3

Total: 861

For more information about the descriptions of functional areas on the home page, see Descriptions of functional areas.

Descriptions of functional areas

Area		Description
1	Top navigation bar	- **Operations**: the quick entrance of Operations & Maintenance (O&M) operations, which allows operations engineers to quickly find the corresponding operations and operation objects. This menu consists of the following sections: ○ **Cluster Operations**: performs O&M operations on and manages clusters with the project permissions, such as viewing the cluster status. ○ **Service Operations**: manages services with the service permissions, such as viewing the service list information. ○ **Machine Operations**: maintains and manages all the machines in Apsara Infrastructure Management Framework, such as viewing the machine status. - **Tasks**: A rolling task is generated after you modify the configurations in the system. In this menu, you can view running tasks, history tasks, and the deployment summary of clusters, services, and server roles in all projects. - **Reports**: displays the monitoring data in tables and provides the function of searching for different reports. - **Monitoring**: effectively monitors metrics in the process of system operation and sends alert notifications for abnormal conditions. This menu includes the functions of displaying alert status, modifying alert rules, and searching for the alert history.

Area		Description
2	Function buttons in the upper-right corner	- 🕘: ○ **TJDB Synchronization Time**: the generated time of the data that is displayed on the current page. ○ **Final Status Computing Time**: the computing time of the final-status data that is displayed on the current page. After data is generated, the system processes the data at maximum speed. As an asynchronous system, Apsara Infrastructure Management Framework has some latency. The time helps explain why the current data results are generated and determine whether the current system has a problem. - English(US) ▾: In the English environment, click this drop-down list to switch to another language. - aliyuntest ▾: The logon account information. Click this drop-down list and select **Logout** to log out of Apsara Infrastructure Management Framework.
3	Left-side navigation pane	In the left-side navigation pane, you can directly view the logical structure of the Apsara Infrastructure Management Framework model. You can view the corresponding detailed data analysis and operations by selecting different levels of nodes in the left-side navigation pane. For more information, see Introduction on the left-side navigation pane.
4	Home page	Displays the summary of related tasks or information as follows: - **Upgrade Task Summary**: the numbers and proportions of running, rolling back, and paused upgrade tasks. - **Cluster Summary**: the numbers of machines, error alerts, operating system errors, and hardware errors for different clusters. - **Error Summary**: the metrics for the rate of abnormal machines and the rate of abnormal server role instances. - **Most-used Reports**: links of the most commonly used statistics reports, which facilitates you to view the report information.
5	Button used to collapse/expand the left-side navigation pane	If you are not required to use the left-side navigation pane when performing O&M operations, click this button to collapse the left-side navigation pane and increase the space of the content area.

5.4.1.3.2. Introduction on the left-side navigation pane

The left-side navigation pane has three common tabs: **C** (cluster), **S** (service), and **R** (report). With some operations, you can view the related information quickly.

Cluster

Fuzzy search is supported to search for the clusters in a project, and you can view the cluster status, cluster operations information, service final status, and logs.

In the left-side navigation pane, click the **C** tab. Then, you can:

- Enter the cluster name in the search box to search for the cluster quickly. Fuzzy search is supported.
- Select a project from the **Project** drop-down list to display all the clusters in the project.
- Move the pointer over ⋮ at the right of a cluster and then perform operations on the cluster as instructed.
- Click a cluster and all the machines and services in this cluster are displayed in the lower-left corner. Move the pointer over ⋮ at the right of a machine or service and then perform operations on the machine or service as instructed.
- Click the **Machine** tab in the lower-left corner. Double-click a machine to view all the server roles in the machine. Double-click a server role to view the applications and then double-click an application to view the log files.
- Click the **Service** tab in the lower-left corner. Double-click a service to view all the server roles in the service. Double-click a server role to view the machines, double-click a machine to view the applications, and double-click an application to view the log files.
- Double-click a log file. Move the pointer over ⋮ at the right of the log file and then select **Download** to download the log file.

  Move the pointer over a log file and then click **View** at the right of the log file to view the log details based on time. On the **Log Viewer** page, enter the keyword to search for logs.

Service

Fuzzy search is supported to search for services and you can view services and service instances.

In the left-side navigation pane, click the **S** tab. Then, you can:

- Enter the service name in the search box to search for the service quickly. Fuzzy search is supported.
- Move the pointer over ⋮ at the right of a service and then perform operations on the service as instructed.
- Click a service and all the service instances in this service are displayed in the lower-left corner. Move the pointer over ⋮ at the right of a service instance and then perform operations on the service instance as instructed.

Report

Fuzzy search is supported to search for reports and you can view the report details.

In the left-side navigation pane, click the **R** tab. Then, you can:

- Enter the report name in the search box to search for the report quickly. Fuzzy search is supported.
- Click **All Reports** or **Favorites** to display groups of different categories in the lower-left corner.

Double-click a group to view all the reports in this group. Double-click a report to view the report details on the right pane.

5.4.1.4. Cluster operations

This topic describes the actions about cluster operations.

5.4.1.4.1. View cluster configurations

By viewing the cluster configurations, you can view the basic information, deployment plan, and configurations of a cluster.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Operations > Cluster Operations**.

   The **Cluster Operations** page displays the following information:

   - **Cluster**

     The cluster name. Click the cluster name to go to the Cluster Dashboard page.

   - **Scale-Out/Scale-In**

     The number of machines or server roles that are scaled out or in. Click the link to go to the Cluster Operation and Maintenance Center page.

   - **Abnormal Machine Count**

     The statistics of machines whose status is not Good in the cluster. Click the link to go to the Cluster Operation and Maintenance Center page.

   - **Final Status of Normal Machines**

     Displays whether the cluster reaches the final status. Select **Clusters Not Final** to display clusters that do not reach the final status. Click the link to go to the Service Final Status Query page.

   - **Rolling**

     Displays whether the cluster has a running rolling task. Select **Rolling Tasks** to display clusters that have rolling tasks. Click the link to go to the Rolling Task page.

3. (Optional)Select a project from the **Project** drop-down list and/or enter the cluster name in the **Cluster** field to search for clusters.
4. Find the cluster whose configurations you are about to view and then click **Cluster Configuration** in the **Actions** column. The **Cluster Configuration** page appears.

   For more information about the **Cluster Configuration** page, see Cluster configurations.

Cluster configurations

Category	Item	Description
	Cluster	The cluster name.
	Project	The project to which the cluster belongs.

Category	Item	Description
Basic Information	**Clone Switch**	○ **Mock Clone**: The system is not cloned when a machine is added to the cluster. ○ **Real Clone**: The system is cloned when a machine is added to the cluster.
	Machines	The number of machines in the cluster. Click **View Clustering Machines** to view the machine list.
	Security Verification	The access control among processes. Generally, the non-production environment uses the default configurations and does not perform the verification. In other cases, customize the configurations based on actual requirements to enable or disable the verification.
	Cluster Type	○ RDS ○ NETFRAME ○ T4: a special type that is required by the mixed deployment of e-commerce. ○ Default: other conditions.
Deployment Plan	**Service**	The service deployed in the cluster.
	Dependency Service	The service that the current service depends on.
Service Information	**Service Information**	Select a service from the **Service Information** drop-down list and then the configurations of this service are displayed.
	Service Template	The template used by the service.
	Monitoring Template	The monitoring template used by the service.
	Machine Mappings	The machines included in the server role of the service.
	Software Version	The software version of the server role in the service.
	Availability Configuration	The availability configuration percentage of the server role in the service.
	Deployment Plan	The deployment plan of the server role in the service.

Category	Item	Description
	Configuration Information	The configuration file used in the service.
	Role Attribute	Server roles and the corresponding parameters.

5. Click **Operation Logs** in the upper-right corner to view the release changes. For more information, see View operation logs.

5.4.1.4.2. View the cluster dashboard

The cluster dashboard allows you to view the basic information and related statistics of a cluster.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. You have two ways to go to the **Cluster Dashboard** page:
   - In the left-side navigation pane, click the **C** tab. Move the pointer over ℹ at the right of a cluster and then select **Dashboard**.
   - In the top navigation bar, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, click the cluster name.
3. On the **Cluster Dashboard** page, you can view the cluster information, including the basic information, final status information, rolling job information, dependencies, resource information, virtual machines, and monitoring information. For more information about the descriptions, see the following table.

Item	Description

Item	Description
Basic Cluster Information	Displays the basic information of the cluster as follows: ○ **Project Name**: the project name. ○ **Cluster Name**: the cluster name. ○ **IDC**: the data center to which the cluster belongs. ○ **Final Status Version**: the latest version of the cluster. ○ **Cluster in Final Status**: whether the cluster reaches the final status. ○ **Machines Not In Final Status**: the number of machines that do not reach the final status in the cluster when the cluster does not reach the final status. ○ **Real/Pseudo Clone**: whether to clone the system when a machine is added to the cluster. ○ **Expected Machines**: the number of expected machines in the cluster. ○ **Actual Machines**: the number of machines in the current environment. ○ **Machines Not Good**: the number of machines whose status is not Good in the cluster. ○ **Actual Services**: the number of services that are actually deployed in the cluster. ○ **Actual Server Roles**: the number of server roles that are actually deployed in the cluster. ○ **Cluster Status**: whether the cluster is starting or shutting down machines.
Machine Status Overview	The statistical chart of the machine status in the cluster.
Machines in Final Status	The numbers of machines that reach the final status and those that do not reach the final status in each service of the cluster.
Load-System	The system load chart of the cluster.
CPU-System	The CPU load chart.
Mem-System	The memory load chart.
Disk_usage-System	The statistical table of the disk usage.
Traffic-System	The system traffic chart.
TCP State-system	The TCP request status chart.
TCP Retrans-System	The chart of TCP retransmission amount.
Disk_IO-System	The statistical table of the disk input and output.

Item	Description
Service Instances	Displays the service instances deployed in the cluster and the related final status information. ◦ **Service Instance**: the service instance deployed in the cluster. ◦ **Final Status**: whether the service instance reaches the final status. ◦ **Expected Server Roles**: the number of server roles that the service instance expects to deploy. ◦ **Server Roles In Final Status**: the number of server roles that reach the final status in the service instance. ◦ **Server Roles Going Offline**: the number of server roles that are going offline in the service instance. ◦ Actions: Click **Details** to go to the **Service Instance Information Dashboard** page. For more information about the service instance dashboard, see View the service instance dashboard.
Upgrade Tasks	Displays the upgrade tasks related to the cluster. ◦ **Cluster Name**: the name of the upgrade cluster. ◦ **Type**: the type of the upgrade task. The options include app (version upgrade) and config (configuration change). ◦ **Git Version**: the change version to which the upgrade task belongs. ◦ **Description**: the description about the change. ◦ **Rolling Result**: the result of the upgrade task. ◦ **Submitted By**: the person who submits the change. ◦ **Submitted At**: the time when the change is submitted. ◦ **Start Time**: the time to start the rolling. ◦ **End Time**: the time to finish the upgrade. ◦ **Time Used**: the time used for the upgrade. ◦ Actions: Click **Details** to go to the **Rolling Task** page. For more information about the rolling task, see View rolling tasks.
Cluster Resource Request Status	◦ **Version**: the resource request version. ◦ **Msg**: the exception message. ◦ **Begintime**: the start time of the resource request analysis. ◦ **Endtime**: the end time of the resource request analysis. ◦ **Build Status**: the build status of resources. ◦ **Resource Process Status**: the resource request status in the version.

Item	Description
Cluster Resource	○ **Service**: the service name. ○ **Server Role**: the server role name. ○ **App**: the application of the server role. ○ **Name**: the resource name. ○ **Type**: the resource type. ○ **Status**: the resource request status. ○ **Error Msg**: the exception message. ○ **Parameters**: the resource parameters. ○ **Result**: the resource request result. ○ **Res**: the resource ID. ○ **Reprocess Status**: the status of interaction with Business Foundation System during the VIP resource request. ○ **Reprocess Msg**: the exception message of interaction with Business Foundation System during the VIP resource request. ○ **Reprocess Result**: the result of interaction with Business Foundation System during the VIP resource request. ○ **Refer Version List**: the version that uses the resource.
VM Mappings	The information of virtual machines in the cluster. Data is available only when virtual machines are deployed in the cluster. ○ **VM**: the hostname of the virtual machine. ○ **Currently Deployed On**: the hostname of the physical machine where the virtual machine is currently deployed. ○ **Target Deployed On**: the hostname of the physical machine where the virtual machine is expected to be deployed.
Service Dependencies	The dependencies of service instances and server roles in the cluster, and the final status information of the dependent service or server role. ○ **Service**: the service name. ○ **Server Role**: the server role name. ○ **Dependent Service**: the service on which the server role depends. ○ **Dependent Server Role**: the server role on which the server role depends. ○ **Dependent Cluster**: the cluster to which the dependent server role belongs. ○ **Dependency in Final Status**: whether the dependent server role reaches the final status.

5.4.1.4.3. View the cluster operation and maintenance center

The cluster operation and maintenance center allows you to view the status or statistics of services or machines in the cluster.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. You have three ways to go to the **Cluster Operation and Maintenance Center** page:
   - In the left-side navigation pane, click the **C** tab. Move the pointer over ⋮ at the right of a cluster and then select **Cluster Operation and Maintenance Center**.
   - In the top navigation bar, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, choose **Monitoring > Cluster Operation and Maintenance Center** in the **Actions** column at the right of a cluster.
   - In the top navigation bar, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, click a cluster name. On the **Cluster Dashboard** page, choose **Operations Menu > Cluster Operation and Maintenance Center**.
3. View the information on the **Cluster Operation and Maintenance Center** page.

Item	Description
SR not in Final Status	Displays all the server roles that do not reach the final status in the cluster. Click the number to expand a server role list, and click a server role in the list to display the information of machines included in the server role.
Running Tasks	Displays whether the cluster has running rolling tasks. Click **Rolling** to go to the **Rolling Task** page. For more information about the rolling task, see View rolling tasks.
Head Version Submitted At	The time when the head version is submitted. Click the time to view the submission details.

Item	Description
Head Version Analysis	The head version analysis is the process that Apsara Infrastructure Management Framework detects the latest cluster version and parses the version to detailed change contents. The head version analysis has the following statuses: ○ **Preparing**: No new version is available now. ○ **Waiting**: The latest version is found. The analysis module has not started up yet. ○ **Doing**: The module is analyzing the application that requires change. ○ **done**: The head version analysis is successfully completed. ○ **Failed**: The head version analysis failed. The change contents cannot be parsed. If the status is not **done**, Apsara Infrastructure Management Framework cannot detect the change contents of server roles in the latest version. Click the status to view the relevant information.
Service	Select a service deployed in the cluster from the drop-down list.
Server Role	Select a server role of a service in the cluster from the drop-down list. **Note** After you select the service and server role, the information of machines related to the service or server role is displayed in the list.
Total Machines	The total number of machines in the cluster, or the total number of machines included in a specific server role of a specific service.
Scale-in/Scale-out	The number of machines or server roles that are scaled in or out.
Abnormal Machines	The number of abnormal machines that encounter each type of the following faults. ○ **Ping Failed**: A ping_monitor error is reported, and TianjiMaster cannot successfully ping the machine. ○ **No Heartbeat**: TianjiClient on the machine does not regularly report data to indicate the status of this machine, which may be caused by the TianjiClient problem or network problem. ○ **Status Error**: The machine has an error reported by the monitor or a fault of the critical or fatal level. Check the alert information and accordingly solve the issue.

Item	Description
Abnormal Services	The number of machines with abnormal services. To determine if a service reaches the final status, see the following rules: - The server role on the machine is in the GOOD status. - Each application of the server role on the machine must keep the actual version the same as the head version. - Before the Image Builder builds an application of the head version, Apsara Infrastructure Management Framework cannot determine the value of the head version and the service final status is unknown. This process is called the change preparation process. The service final status cannot be determined during the preparation process or upon a preparation failure.
Machines	Displays all the machines in the cluster or the machines included in a specific server role of a specific service. - Machine search: Click the search box to enter the machine in the displayed dialog box. Fuzzy or batch search is supported. - Click the machine name to view the physical information of the machine in the displayed **Machine Information** dialog box. Click **DashBoard** to go to the **Machine Details** page. For more information about the machine details, see View the machine dashboard. - Move the pointer over the blank area in the **Final Status** column or the **Final SR Status** column and then click **Details** to view the machine status, system service information, server role status on the machine, and exception message. - If no service or server role is selected from the drop-down list, move the pointer over the blank area in the **Running Status** column and then click **Details** to view the running status information or exception message of the machine. If a service and a server role are selected from the corresponding drop-down lists, move the pointer over the blank area in the **SR Running Status** column and then click **Details** to view the running status information or exception message of the server role on the machine. - Click **Error**, **Warning**, or **Good** in the **Monitoring Statistics** column to view the monitored items of machines and monitored items of server roles. - Click **Terminal** in the **Actions** column to log on to the machine and perform related operations. - Click **Machine Operation** in the **Actions** column to restart, out-of-band restart, or clone the machine again.

5.4.1.4.4. View the service final status

The **Service Final Status Query** page allows you to view if a service in a cluster reaches the final status and the final status information.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. You have two ways to go to the **Service Final Status Query** page:
   - In the left-side navigation pane, click the **C** tab. Move the pointer over ⋮ at the right of a cluster and then choose **Monitoring > Service Final Status Query**.
   - In the top navigation bar, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, choose **Monitoring > Service Final Status Query** in the **Actions** column at the right of a cluster.
3. View the information on the **Service Final Status Query** page.

Item	Description
Project Name	The name of the project to which the cluster belongs.
Cluster Name	The cluster name.
Head Version Submitted At	The time when the head version is submitted.
Head Version Analysis	The head version analysis is the process that Apsara Infrastructure Management Framework detects the latest cluster version and parses the version to detailed change contents. The head version analysis has the following statuses: ○ **Preparing**: No new version is available now. ○ **Waiting**: The latest version is found. The analysis module has not started up yet. ○ **Doing**: The module is analyzing the application that requires change. ○ **done**: The head version analysis is successfully completed. ○ **Failed**: The head version analysis failed. The change contents cannot be parsed. If the status is not **done**, Apsara Infrastructure Management Framework cannot detect the change contents of server roles in the latest version.
Cluster Rolling Status	Displays the information of the current rolling task in the cluster, if any. The rolling task may not be of the head version.
Cluster Machine Final Status Statistics	The status of all machines in the cluster. Click **View Details** to go to the **Cluster Operation and Maintenance Center** page and view the detailed information of all machines. For more information about the cluster operation and maintenance center, see View the cluster operation and maintenance center.

Item	Description
Final Status of Cluster SR Version	The final status of cluster service version. **Note** Take statistics of services that do not reach the final status, which is caused by version inconsistency or status exceptions. If services do not reach the final status because of machine problems, go to **Cluster Machine Final Status Statistics** to view the statistics.
Final Status of SR Version	The number of machines that do not reach the final status when a server role has tasks.

5.4.1.4.5. View operation logs

By viewing operation logs, you can obtain the differences between different Git versions.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. You have two ways to go to the **Cluster Operation Logs** page:
   - In the left-side navigation pane, click the **C** tab. Move the pointer over ⋮ at the right of a cluster and then choose **Monitoring > Operation Logs**.
   - In the top navigation bar, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, choose **Monitoring > Operation Logs** in the **Actions** column at the right of a cluster.
3. On the **Cluster Operation Logs** page, click **Refresh**. View the Git version, description, submitter, submitted time, and task status.
4. (Optional)Complete the following steps to view the differences between versions on the **Cluster Operation Logs** page.
   i. Find the log in the operation log list and then click **View Release Changes** in the **Actions** column.
   ii. On the **Version Difference** page, complete the following configurations:
      - **Select Base Version**: Select a base version.
      - **Configuration Type**: Select **Extended Configuration** or **Cluster Configuration**. **Extended Configuration** displays the configuration differences after the configuration on the cluster is combined with the configuration in the template. **Cluster Configuration** displays the configuration differences on the cluster.
   iii. Click **Obtain Difference**.

      The differential file list is displayed.
   iv. Click each differential file to view the detailed differences.

5.4.1.5. Service operations

This topic describes the actions about service operations.

5.4.1.5.1. View the service list

The service list allows you to view the list of all services and the related information.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Operations** > **Service Operations**.
3. View the information on the **Service Operations** page.

Item	Description
Service	The service name.
Service Instances	The number of service instances in the service.
Service Configuration Templates	The number of service configuration templates.
Monitoring Templates	The number of monitoring templates.
Service Schemas	The number of service configuration validation templates.
Actions	Click **Management** to view the service instances, service templates, monitoring templates, monitoring instances, service schemas, and detection scripts.

5.4.1.5.2. View the service instance dashboard

The service instance dashboard allows you to view the basic information and statistics of a service instance.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click the **S** tab.
3. (Optional)Enter the service name in the search box. Services that meet the search condition are displayed.
4. Click a service name and then service instances in the service are displayed in the lower-left corner.
5. Move the pointer over ℹ at the right of a service instance and then select **Dashboard**.
6. View the information on the **Service Instance Information Dashboard** page.

Item	Description
Service Instance Summary	Displays the basic information of the service instance as follows: ○ **Cluster Name**: the name of the cluster to which the service instance belongs. ○ **Service Name**: the name of the service to which the service instance belongs. ○ **Actual Machines**: the number of machines in the current environment. ○ **Expected Machines**: the number of machines that the service instance expects. ○ **Target Total Server Roles**: the number of server roles that the service instance expects. ○ **Actual Server Roles**: the number of server roles in the current environment. ○ **Template Name**: the name of the service template used by the service instance. ○ **Template Version**: the version of the service template used by the service instance. ○ **Schema**: the name of the service schema used by the service instance. ○ **Monitoring System Template**: the name of the monitoring system template used by the service instance.
Server Role Statuses	The statistical chart of the current status of server roles in the service instance.
Machine Statuses for Server Roles	The status statistics of machines where server roles are located.
Service Monitoring Information	○ **Monitored Item**: the name of the monitored item. ○ **Level**: the level of the monitored item. ○ **Description**: the description of the monitored contents. ○ **Updated At**: the time when the data is updated.
Service Alert Status	○ **Alert Name** ○ **Instance Information** ○ **Alert Start** ○ **Alert End** ○ **Alert Duration** ○ **Severity Level** ○ **Occurrences**: the number of times the alert is triggered.

Item	Description
Server Role List	◦ **Server Role** ◦ **Current Status** ◦ **Expected Machines** ◦ **Machines In Final Status** ◦ **Machines Going Offline** ◦ **Rolling Task Status** ◦ **Time Used**: the time used for running the rolling task. ◦ **Actions**: Click **Details** to go to the Server Role Dashboard page.
Service Alert History	◦ **Alert Name** ◦ **Alert Time** ◦ **Instance Information** ◦ **Severity Level** ◦ **Contact Group**
Service Dependencies	The dependencies of service instances and server roles in the service instance, and the final status information of the dependent service or server role. ◦ **Server Role**: the server role name. ◦ **Dependent Service**: the service on which the server role depends. ◦ **Dependent Server Role**: the server role on which the server role depends. ◦ **Dependent Cluster**: the cluster to which the dependent server role belongs. ◦ **Dependency in Final Status**: whether the dependent server role reaches the final status.

5.4.1.5.3. View the server role dashboard

The server role dashboard allows you to view the statistics of a server role.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click the **S** tab.
3. (Optional)Enter the service name in the search box. Services that meet the search condition are displayed.
4. Click a service name and then service instances in the service are displayed in the lower-left corner.
5. Move the pointer over ℹ at the right of a service instance and then select **Dashboard**.
6. In the **Server Role List** section of the **Service Instance Information Dashboard** page, click **Details** in the **Actions** column.

7. View the information on the **Server Role Dashboard** page.

Item	Description
Server Role Summary	Displays the basic information of the server role as follows: ○ **Project Name**: the name of the project to which the server role belongs. ○ **Cluster Name**: the name of the cluster to which the server role belongs. ○ **Service Instance**: the name of the service instance to which the server role belongs. ○ **Server Role**: the server role name. ○ **In Final Status**: whether the server role reaches the final status. ○ **Expected Machines**: the number of expected machines. ○ **Actual Machines**: the number of actual machines. ○ **Machines Not Good**: the number of machines whose status is not Good. ○ **Machines with Role Status Not Good**: the number of server roles whose status is not Good. ○ **Machines Going Offline**: the number of machines that are going offline. ○ **Rolling**: whether a running rolling task exists. ○ **Rolling Task Status**: the current status of the rolling task. ○ **Time Used**: the time used for running the rolling task.
Machine Final Status Overview	The statistical chart of the current status of the server role.
Server Role Monitoring Information	○ **Updated At**: the time when the data is updated. ○ **Monitored Item**: the name of the monitored item. ○ **Level**: the level of the monitored item. ○ **Description**: the description of the monitored item.

Item	Description
Machine Information	○ **Machine Name**: the hostname of the machine. ○ **IP**: the IP address of the machine. ○ **Machine Status**: the machine status. ○ **Machine Action**: the action that the machine is performing. ○ **Server Role Status**: the status of the server role. ○ **Server Role Action**: the action that the server role is performing. ○ **Current Version**: the current version of the server role on the machine. ○ **Target Version**: the expected version of the server role on the machine. ○ **Error Message**: the exception message. ○ **Actions**: ■ Click **Terminal** to log on to the machine and perform operations. ■ Click **Restart** to restart the server roles on the machine. ■ Click **Details** to go to the **Machine Details** page. For more information about the machine details, see View the machine dashboard. ■ Click **Machine System View** to go to the **Machine Info Report** page. For more information about the machine info report, see Machine info report. ■ Click **Machine Operation** to restart, out of band restart, or clone the machine again.
Server Role Monitoring Information of Machines	○ **Updated At**: the time when the data is updated. ○ **Machine Name**: the machine name. ○ **Monitored Item**: the name of the monitored item. ○ **Level**: the level of the monitored item. ○ **Description**: the description of the monitored item.
VM Mappings	The information of virtual machines in the cluster. Data is available only when virtual machines are deployed in the cluster. ○ **VM**: the hostname of the virtual machine. ○ **Currently Deployed On**: the hostname of the physical machine where the virtual machine is currently deployed. ○ **Target Deployed On**: the hostname of the physical machine where the virtual machine is expected to be deployed.

Item	Description
Service Dependencies	The dependencies of service instances and server roles in the service instance, and the final status information of the dependent service or server role. ○ **Dependent Service**: the service on which the server role depends. ○ **Dependent Server Role**: the server role on which the server role depends. ○ **Dependent Cluster**: the cluster to which the dependent server role belongs. ○ **Dependency in Final Status**: whether the dependent server role reaches the final status.

5.4.1.6. Machine operations

This topic describes the actions about machine operations.

5.4.1.6.1. View the machine dashboard

The machine dashboard allows you to view the statistics of a machine.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click the **C** tab.
3. (Optional)On the **Machine** tab in the lower-left corner, enter the machine name in the search box. Machines that meet the search condition are displayed.
4. Move the pointer over ℹ at the right of a machine and then select **Dashboard**.
5. On the **Machine Details** page, view all the information of this machine. For more information, see the following table.

Item	Description
Load-System	The system load chart of the cluster.
CPU-System	The CPU load chart.
Mem-System	The memory load chart.
DISK Usage-System	The statistical table of the disk usage.
Traffic-System	The system traffic chart.
TCP State-System	The TCP request status chart.
TCP Retrans-System	The chart of TCP retransmission amount.
DISK IO-System	The statistical table of the disk input and output.

Item	Description
Machine Summary	○ **Project Name**: the name of the project to which the machine belongs. ○ **Cluster Name**: the name of the cluster to which the machine belongs. ○ **Machine Name**: the machine name. ○ **SN**: the serial number of the machine. ○ **IP**: the IP address of the machine. ○ **IDC**: the data center of the machine. ○ **Room**: the room in the data center where the machine is located. ○ **Rack**: the rack where the machine is located. ○ **Unit in Rack**: the location of the rack. ○ **Warranty**: the warranty of the machine. ○ **Purchase Date**: the date when the machine is purchased. ○ **Machine Status**: the running status of the machine. ○ **Status**: the hardware status of the machine. ○ **CPUs**: the number of CPUs for the machine. ○ **Disks**: the disk size. ○ **Memory**: the memory size. ○ **Manufacturer**: the machine manufacturer. ○ **Model**: the machine model. ○ **os**: the operating system of the machine. ○ **part**: the disk partition.
Server Role Status of Machine	The distribution of the current status of all server roles on the machine.
Machine Monitoring Information	○ **Monitored Item**: the name of the monitored item. ○ **Level**: the level of the monitored item. ○ **Description**: the description of the monitored contents. ○ **Updated At**: the time when the monitoring information is updated.

Item	Description
Machine Server Role Status	○ **Service Instance** ○ **Server Role** ○ **Server Role Status** ○ **Server Role Action** ○ **Error Message** ○ **Target Version** ○ **Current Version** ○ **Actual Version Update Time** ○ **Actions**: ■ Click **Details** to go to the **Server Role Dashboard** page. For more information about the server role dashboard, see View the server role dashboard. ■ Click **Restart** to restart the server roles on the machine.
Application Status in Server Roles	○ **Application Name**: the application name. ○ **Process Number** ○ **Status**: the application status. ○ **Current Build ID**: the ID of the current package version. ○ **Target Build ID**: the ID of the expected package version. ○ **Git Version** ○ **Start Time** ○ **End Time** ○ **Interval**: the interval between the time when Apsara Infrastructure Management Framework detects that the process exits and the time when Apsara Infrastructure Management Framework repairs the process. ○ **Information Message**: the normal output logs. ○ **Error Message**: the abnormal logs.

5.4.1.7. Monitoring center

You can view the alert status, alert rules, and alert history in the monitoring center.

5.4.1.7.1. Modify an alert rule

You can modify an alert rule based on the actual business requirements.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Operations > Service Operations**.

3. (Optional)Enter the service name in the search box.
4. Find the service and then click **Management** in the **Actions** column.
5. Click the **Monitoring Template** tab.
6. Find the monitoring template that you are about to edit and then click **Edit** in the **Actions** column.
7. Configure the monitoring parameters based on actual conditions.
8. Click **Save Change**.

   Wait about 10 minutes. The monitoring instance is automatically deployed. If the status becomes Successful and the deployment time is later than the modified time of the template, the changes are successfully deployed.

5.4.1.7.2. View the status of a monitoring instance

After a monitoring instance is deployed, you can view the status of the monitoring instance.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Operations > Service Operations**.
3. (Optional)Enter the service name in the search box.
4. Find the service and then click **Management** in the **Actions** column.
5. Click the **Monitoring Instance** tab. In the **Status** column, view the current status of the monitoring instance.

5.4.1.7.3. View the alert status

The **Alert Status** page allows you to view the alerts generated in different services and the corresponding alert details.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Monitoring > Alert Status**.
3. (Optional)You can configure the service name, cluster name, alert name, and/or the time range when the alert is triggered to search for alerts.
4. View the alert details on the **Alert Status** page. See the following table for the alert status descriptions.

Item	Description
Service	The service name.
Cluster	The name of the cluster where the service is located.
Instance	The name of the service instance being monitored. Click the instance to view the alert history of this instance.

Item	Description
Alert Status	Alerts have two statuses: **Restored** and **Alerting**.
Alert Level	Alerts have the following four levels, from high to low, according to the effect on services. ○ P1 ○ P2 ○ P3 ○ P4
Alert Name	The name of the generated alert. Click the alert name to view the alert rule details.
Alert Time	The time when the alert is triggered and how long the alert has lasted.
Actions	Click **Show** to show the data before and after the alert time.

5.4.1.7.4. View alert rules

The **Alert Rules** page allows you to view the configured alert rules.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Monitoring > Alert Rules**.
3. (Optional)You can configure the service name, cluster name, and/or alert name to search for alert rules.
4. View the detailed alert rules on the **Alert Rules** page. See the following table for the alert rule descriptions.

Item	Description
Service	The service name.
Cluster	The name of the cluster where the service is located.
Alert Name	The name of the generated alert.
Alert Conditions	The conditions met when the alert is triggered.
Periods	The frequency (in seconds) with which an alert rule is run.
Alert Contact	The groups and members that are notified when an alert is triggered.

Item	Description
Status	The current status of the alert rule. ○ **Running**: Click to stop this alert rule. ○ **Stopped**: Click to run this alert rule.

5.4.1.7.5. View the alert history

The **Alert History** page allows you to view all the history alerts generated in different services and the corresponding alert details.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Monitoring > Alert History**.
3. (Optional)You can configure the service name, cluster name, time range, and/or period to search for alerts.
4. View the history alerts on the **Alert History** page. See the following table for the history alert descriptions.

Item	Description
Service	The name of the service to which the alert belongs.
Cluster	The name of the cluster where the service is located.
Alert Instance	The name of the resource where the alert is triggered.
Status	Alerts have two statuses: **Restored** and **Alerting**.
Alert Level	Alerts have the following four levels, from high to low, according to the effect on services. ○ P1 ○ P2 ○ P3 ○ P4
Alert Name	The name of the generated alert. Click the alert name to view the alert rule details.
Alert Time	The time when the alert is triggered.
Alert Contact	The groups and members that are notified when an alert is triggered.
Actions	Click **Show** to show the data before and after the alert time.

5.4.1.8. Tasks and deployment summary

This topic describes how to view rolling tasks, running tasks, history tasks, and deployment summary on Apsara Infrastructure Management Framework.

5.4.1.8.1. View rolling tasks

You can view running rolling tasks and the corresponding status.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Operations > Cluster Operations**.
3. Select **Rolling Tasks** to display clusters with rolling tasks.
4. In the search results, click **rolling** in the **Rolling** column.
5. On the displayed **Rolling Task** page, view the information in the **Change Task** list and **Change Details** list.

Change Task list

Item	Description
Change Version	The version that triggers the change of the rolling task.
Description	The description about the change.
Head Version Analysis	The head version analysis is the process that Apsara Infrastructure Management Framework detects the latest cluster version and parses the version to detailed change contents. The head version analysis has the following statuses: ◦ **Preparing**: No new version is available now. ◦ **Waiting**: The latest version is found. The analysis module has not started up yet. ◦ **Doing**: The module is analyzing the application that requires change. ◦ **done**: The head version analysis is successfully completed. ◦ **Failed**: The head version analysis failed. The change contents cannot be parsed. If the status is not **done**, Apsara Infrastructure Management Framework cannot detect the change contents of server roles in the latest version.
Blocked Server Role	Server roles blocked in the rolling task. Generally, server roles are blocked because of dependencies.
Submitter	The person who submits the change.
Submitted At	The time when the change is submitted.

Item	Description
Actions	Click **View Difference** to go to the **Version Difference** page. For more information, see View operation logs. Click **Stop** to stop the rolling task. Click **Pause** to pause the rolling task.

Change Details list

Item	Description
Service Name	The name of the service where a change occurs.
Status	The current status of the service. The rolling status of the service is an aggregated result, which is calculated based on the rolling status of the server role. ○ **succeeded**: The task is successfully run. ○ **blocked**: The task is blocked. ○ **failed**: The task failed.
Server Role Status	The server role status. Click **>** at the left of the service name to expand and display the rolling task status of each server role in the service. Server roles have the following statuses: ○ **Downloading**: The task is being downloaded. ○ **Rolling**: The rolling task is running. ○ **RollingBack**: The rolling task failed and is rolling back.
Depend On	The services that this service depends on or server roles that this server role depends on.
Actions	Click **Stop** to stop the change of the server role. Click **Pause** to pause the change of the server role.

5.4.1.8.2. View running tasks

By viewing running tasks, you can know the information of all the running tasks.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Tasks > Running Tasks**.

3. (Optional)You can configure the cluster name, role name, task status, task submitter, Git version, and/or the start time and end time of the task to search for running tasks.
4. Find the task that you are about to view the details and then click **View Tasks** in the **Rolling Task Status** column. The **Rolling Task** page appears. For more information about the rolling task, see View rolling tasks.

5.4.1.8.3. View history tasks

You can view the historical running conditions of completed tasks.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Tasks** > **History Tasks**.
3. (Optional)You can configure the cluster name, Git version, task submitter, and/or the start time and end time of the task to search for history tasks.
4. Find the task that you are about to view the details and then click **Details** in the **Actions** column. The **Rolling Task** page appears. For more information about the rolling task, see View rolling tasks.

5.4.1.8.4. View the deployment summary

On the **Deployment Summary** page, you can view the deployment conditions of clusters, services, and server roles in all projects on Apsara Infrastructure Management Framework.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the top navigation bar, choose **Tasks** > **Deployment Summary**.
   - View the deployment status and the duration of a certain status for each project.
     - Gray: wait to be deployed. It indicates that some services of the project depend on server roles or service instances that are being deployed, and other service instances or server roles in the project have already been deployed.
     - Blue: being deployed. It indicates that the project has not reached the final status for one time yet.
     - Green: has reached the final status. It indicates that all clusters in the project have reached the final status.
     - Orange: not reaches the final status. It indicates that a server role does not reach the final status for some reason after the project reaches the final status for the first time.
   - Configure the global clone switch.
     - **normal**: Clone is allowed.
     - **block**: Clone is forbidden.
   - Configure the global dependency switch.
     - **normal**: All configured dependencies are checked.
     - **ignore**: The dependency is not checked.

- **ignore_service**: None of the service-level dependencies, including the server role dependencies across services, are checked, and only the server role-level dependencies are checked.

3. Click the **Deployment Details** tab to view the deployment details.

   For more information, see the following table.

Item	Description
Status Statistics	The general statistics of deployment conditions, including the total number of projects that are currently available. Click each status to display the projects in the corresponding status in the list. The projects have five deployment statuses: ○ **Final**: All the clusters in the project have reached the final status. ○ **Deploying**: The project has not reached the final status for one time yet. ○ **Waiting**: Some services of the project depend on server roles or service instances that are being deployed, and other service instances or server roles in the project have already been deployed. ○ **Non-final**: A server role does not reach the final status for some reason after the project reaches the final status for the first time. ○ **Inspector Warning**: An error is detected on service instances in the project during the inspection.
Start Time	The time when Apsara Infrastructure Management Framework starts the deployment.
Progress	The proportion of server roles that reach the final status to all the server roles in the current environment.
Deployment Status	The time indicates the deployment duration for the following statuses: **Final**, **Deploying**, **Waiting**, and **Inspector Warning**. The time indicates the duration before the final status is reached for the **Non-final** status. Click the time to view the details.
Deployment Progress	The proportion of clusters, services, and server roles that reach the final status to the total clusters, services, and server roles in the project. Move the pointer over the blank area at the right of the data of roles and then click **Details** to view the deployment statuses of clusters, services, and server roles. The deployment statuses are indicated by icons, which are the same as those used for status statistics.

Item	Description
Resource Application Progress	**Total** indicates the total number of resources related to the project. ○ **Done**: the number of resources that have been successfully applied for. ○ **Doing**: the number of resources that are being applied for and retried. The number of retries (if any) is displayed next to the number of resources. ○ **Block**: the number of resources whose applications are blocked by other resources. ○ **Failed**: the number of resources whose applications failed.
Inspector Error	The number of inspection alerts for the current project.
Monitoring Information	The number of alerts generated for the machine monitor and the machine server role monitor in the current project.
Dependency	Click the icon to view the project services that depend on other services, and the current deployment status of the services that are depended on.

5.4.1.9. Reports

The system allows you to search for and view reports based on your business needs, and add commonly used reports to your favorites.

5.4.1.9.1. View reports

The **Reports** menu allows you to view the statistical data.

Context

You can view the following reports on Apsara Infrastructure Management Framework.

- System reports: default and common reports in the system.
- All reports: includes the system reports and custom reports.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. You can go to the report list in the following three ways:
   - In the top navigation bar, choose **Reports** > **System Reports**.
   - In the top navigation bar, choose **Reports** > **All Reports**.
   - In the left-side navigation pane, click the **R** tab. Move the pointer over ⋮ at the right of **All Reports** and then select **View**.

   See the following table for the report descriptions.

Item	Description

Item	Description
Report	The report name. Move the pointer over ▾ next to **Report** to search for reports by report name.
Group	The group to which the report belongs. Move the pointer over ▾ next to **Group** to filter reports by group name.
Status	Indicates whether the report is published.
Public	Indicates whether the report is public.
Created By	The person who creates the report.
Published At	The published time and created time of the report.
Actions	Click **Add to Favorites** to add this report to your favorites. Then, you can view the report by choosing **Reports > Favorites** in the top navigation bar or moving the pointer over ℹ at the right of **Favorites** on the **R** tab in the left-side navigation pane and then selecting **View**.

3. (Optional)Enter the name of the report that you are about to view in the search box.
4. Click the report name to go to the corresponding report details page. For more information about the reports, see Appendix.

5.4.1.9.2. Add a report to favorites

You can add common reports to favorites. Then, find them quickly on the **Favorites** page.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. You can go to the report list in the following three ways:
   - In the top navigation bar, choose **Reports > System Reports**.
   - In the top navigation bar, choose **Reports > All Reports**.
   - In the left-side navigation pane, click the **R** tab. Move the pointer over ℹ at the right of **All Reports** and then select **View**.
3. (Optional)Enter the name of the report that you are about to add to favorites in the search box.
4. At the right of the report, click **Add to Favorites** in the **Actions** column.
5. In the displayed **Add to Favorites** dialog box, enter tags for the report.
6. Click **Add to Favorites**.

5.4.1.10. Metadata operations

In this version, you can use only command lines to perform metadata operations.

5.4.1.10.1. Common parameters

Common parameters consist of the common request parameters and the common response parameters.

Common request parameters

Common request parameters are request parameters that you must use when you call each API.

Parameter descriptions

Name	Type	Required	Description
Action	String	Yes	The API name. For more information about the valid values, see APIs on the control side and APIs on the deployment side.

Common response parameters

Each time you send a request to call an API, the system returns a unique identifier, regardless of whether the call is successful.

Parameter descriptions

Name	Type	Required	Description
RequestID	String	Yes	The request ID. The request ID is returned, regardless of whether the API call is successful.
Code	String	No	The error code.
Message	String	No	The reason of failure, which appears when the API call fails.
Result	The type varies with the request, which is subject to the returned result of the specific API.	No	The request result, which appears when the API call is successful.

Note

- If the API call is successful, RequestID is returned and the HTTP return code is 200.
- If the API call fails, RequestID, Code, and Message are returned and the HTTP return code is 4xx or 5xx.

Instance types

```
{
  "rds.mys2.small":{
    "cpu":2,
    "memory":4096,
    "disk":51200,
    "max_connections":60
  },
  "rds.mys2.mid":{
    "cpu":4,
    "memory":4096,
    "disk":51200,
    "max_connections":150
  },
  "rds.mys2.standard":{
    "cpu":6,
    "memory":4096,
    "disk":51200,
    "max_connections":300
  },
  "rds.mys2.large":{
    "cpu":8,
    "memory":7200,
    "disk":102400,
    "max_connections":600
  },
  "rds.mys2.xlarge":{
    "cpu":9,
    "memory":12000,
    "disk":204800,
    "max_connections":1500
  },
  "rds.mys2.2xlarge":{
    "cpu":10,
    "memory":20000,
    "disk":512000,
    "max_connections":2000
  }
}
```

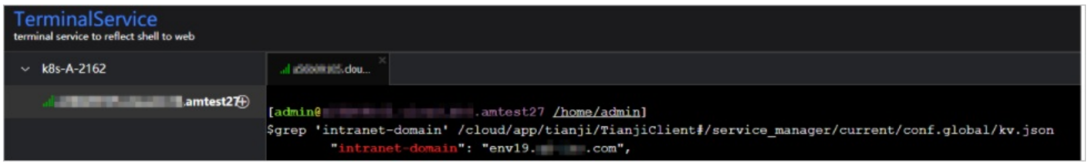
5.4.1.10.2. Access APIs

This topic describes how to connect to control-side and deployment-side API operations.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Operations > Machine Operations**.
3. Select a project from the drop-down list or enter a cluster or machine name to search for the target machine.
4. Connect to API operations.
   - Connect to control-side API operations
     a. Find the target machine and click **Terminal** in the **Actions** column to log on to the machine.
     b. On the command line, enter the following command and press the Enter key to obtain the value of intranet-domain.

        ```
        grep 'intranet-domain' /cloud/app/tianji/TianjiClient#/service_manager/current/conf.global/kv.j
        son
        ```

        ```
        [admin@[redacted].amtest27 /home/admin]
        $grep 'intranet-domain' /cloud/app/tianji/TianjiClient#/service_manager/current/conf.global/kv.json
                "intranet-domain": "env19.[redacted].com",
        ```

     c. Use one of the following methods to connect to control-side API operations. ListInstance is used in the example.
        - GET request

          ```
          curl 'xdb-master.xdb.{intranet-domain}:15678? Action=ListInstance'
          ```

        - POST request

          ```
          curl 'xdb-master.xdb.{intranet-domain}:15678' -X POST -d '{"Action":"ListInstance"}'
          ```

   - Connect to deployment-side API operations
     a. Find the target machine and record the IP address in the Hostname column.
     b. Use one of the following methods to connect to deployment-side API operations. CheckState is used in the example.

        Assume that the IP address of the target machine is 127.0.XX.XX.

        - GET request

          ```
          curl '127.0.XX.XX:18765? Action=CheckState&Port=3606'
          ```

        - POST request

          ```
          curl '127.0.XX.XX:18765' -X POST -d '{"Action":"CheckState","Port":3606}'
          ```

5.4.1.10.3. APIs on the control side

5.4.1.10.4. APIs on the deployment side

5.4.1.11. Appendix

5.4.1.11.1. IP list

This report displays the IP addresses of physical machines and Docker applications.

IP List of Physical Machines

Item	Description
Project	The project name.
Cluster	The cluster name.
Machine Name	The hostname of the machine.
IP	The IP address of the machine.

IP List of Docker Applications

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Machine Name	The hostname of the machine.
Docker Host	The Docker hostname.
Docker IP	The Docker IP address.

5.4.1.11.2. Project component info report

This report displays the name and status for each type of project components, including services, server roles, and machines.

Item	Description
Project	The project name.

Item	Description
Cluster	The name of a cluster in the project.
Service	The name of a service in the cluster.
Server Role	The name of a server role in the service.
Server Role Status	The running status of the server role on the machine.
Server Role Action	The action that the server role performs on the machine. Data is available only when Apsara Infrastructure Management Framework asks the server role to perform certain actions, such as rolling and restart actions.
Machine Name	The hostname of the machine.
IP	The IP address of the machine.
Machine Status	The running status of the machine.
Machine Action	The action that Apsara Infrastructure Management Framework asks the machine to perform, such as the clone action.

5.4.1.11.3. Machine info report

This report displays the statuses of machines and server roles on the machines.

Machine Status

Displays all the machines currently managed by Apsara Infrastructure Management Framework and their corresponding statuses. In the **Global Filter** section at the top of the page, select the project, cluster, and machine from the **project**, **cluster**, and **machine** drop-down lists, and then click **Filter** on the right to filter the data.

Item	Description
Machine Name	The machine name.
IP	The IP address of the machine.
Machine Status	The machine status.
Machine Action	The action currently performed by the machine.
Machine Action Status	The action status.
Status Description	The description about the machine status.

Expected Server Role List

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Server Role	The name of the expected server role on the machine.

Abnormal Monitoring Status

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Monitored Item	The name of the monitored item.
Level	The level of the monitored item.
Description	The description of the monitored item contents.
Updated At	The updated time of the monitored item.

Server Role Version and Status on Machine

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Server Role	The server role name.
Server Role Status	The status of the server role.
Target Version	The expected version of the server role on the machine.
Current Version	The current version of the server role on the machine.
Status Description	The description about the status.
Error Message	The exception message of the server role.

Monitoring Status

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Server Role	The server role name.
Monitored Item	The name of the monitored item.

Item	Description
Level	The level of the monitored item.
Description	The description of the monitored item contents.
Updated At	The updated time of the monitored item.

5.4.1.11.4. Rolling info report

This report displays the running and completed rolling tasks and the task-related status.

Choose a rolling action

This list only displays the running rolling tasks. If no rolling task is running, no data is available in the list.

Item	Description
Cluster	The cluster name.
Git Version	The version of change that triggers the rolling task.
Description	The description about the change entered by a user when the user submits the change.
Start Time	The start time of the rolling task.
End Time	The end time of the rolling task.
Submitted By	The ID of the user who submits the change.
Rolling Task Status	The current status of the rolling task.
Submitted At	The time when the change is submitted.

Server Role in Job

Select a rolling task in the **Choose a rolling action** section to display the rolling status of server roles related to the selected task. If no rolling task is selected, the server role statuses of all historical rolling tasks are displayed.

Item	Description
Server Role	The server role name.
Server Role Status	The rolling status of the server role.
Error Message	The exception message of the rolling task.

Item	Description
Git Version	The version of change to which the rolling task belongs.
Start Time	The start time of the rolling task.
End Time	The end time of the rolling task.
Approve Rate	The proportion of machines that have the rolling task approved by the decider.
Failure Rate	The proportion of machines that have the rolling task failed.
Success Rate	The proportion of machines that have the rolling task succeeded.

Server Role Rolling Build Information

The source version and target version of each application under the server role in the rolling process.

Item	Description
App	The name of the application that requires rolling in the server role.
Server Role	The server role to which the application belongs.
From Build	The version before the upgrade.
To Build	The version after the upgrade.

Server Role Statuses on Machines

Select a server role in the **Server Role in Job** section to display the deployment status of this server role on the machine.

Item	Description
Machine Name	The name of the machine on which the server role is deployed.
Expected Version	The target version of the rolling.
Actual Version	The current version.
State	The status of the server role.
Action Name	The Apsara Infrastructure Management Framework action currently performed by the server role.
Action Status	The action status.

5.4.1.11.5. Machine RMA approval pending list

Some Apsara Infrastructure Management Framework actions (such as restart) on machines and server roles can be triggered by users, but this type of actions must be reviewed and approved. This report is used to process the actions that must be reviewed and approved.

Machine

Displays the basic information of pending approval machines.

Item	Description
Project	The project name.
Cluster	The cluster name.
Hostname	The hostname of the machine.
IP	The IP address of the machine.
State	The running status of the machine.
Action Name	The action on the machine.
Action Status	The status of the action on the machine.
Actions	The approval button.

Machine Serverrole

Displays the information of server roles on the pending approval machines.

Item	Description
Project	The project name.
Cluster	The cluster name.
Hostname	The hostname of the machine.
IP	The IP address of the machine.
Serverrole	The server role name.
State	The running status of the server role.
Action Name	The action on the server role.
Action Status	The status of the action on the server role.
Actions	The approval button.

Machine Component

Displays the hard disk information of pending approval machines.

Item	Description
Project	The project name.
Cluster	The cluster name.
Hostname	The hostname of the machine.
Component	The hard disk on the machine.
State	The running status of the hard disk.
Action Name	The action on the hard disk.
Action Status	The status of the action on the hard disk.
Actions	The approval button.

5.4.1.11.6. Registration vars of services

This report displays values of all service registration variables.

Item	Description
Service	The service name.
Service Registration	The service registration variable.
Cluster	The cluster name.
Update Time	The updated time.

5.4.1.11.7. Virtual machine mappings

Use the global filter to display the virtual machines of a specific cluster.

Displays the information of virtual machines in the cluster. Data is available only when virtual machines are deployed in the cluster.

Item	Description
Project	The project name.
Cluster	The cluster name.
VM	The hostname of the virtual machine.
Currently Deployed On	The hostname of the physical machine on which the virtual machine is currently deployed.

Item	Description
Target Deployed On	The hostname of the physical machine on which the virtual machine is expected to be deployed.

5.4.1.11.8. Service inspector report

Use the global filter to display the service inspection reports of a specific cluster.

Service Inspector: Data is available only for services with inspection configured.

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Description	The contents of the inspection report.
Level	The level of the inspection report.

5.4.1.11.9. Resource application report

In the **Global Filter** section, select the project, cluster, and machine from the **project**, **cluster**, and **machine** drop-down lists and then click **Filter** on the right to display the corresponding resource application data.

Change Mappings

Item	Description
Project	The project name.
Cluster	The cluster name.
Version	The version where the change occurs.
Resource Process Status	The resource application status in the version.
Msg	The exception message.
Begintime	The start time of the change analysis.
Endtime	The end time of the change analysis.

Changed Resource List

Item	Description
Res	The resource ID.
Type	The resource type.
Name	The resource name.
Owner	The application to which the resource belongs.
Parameters	The resource parameters.
Ins	The resource instance name.
Instance ID	The resource instance ID.

Resource Status

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
APP	The application of the server role.
Name	The resource name.
Type	The resource type.
Status	The resource application status.
Parameters	The resource parameters.
Result	The resource application result.
Res	The resource ID.
Reprocess Status	The status of the interaction with Business Foundation System during the VIP resource application.
Reprocess Msg	The error message of the interaction with Business Foundation System during the VIP resource application.
Reprocess Result	The result of the interaction with Business Foundation System during the VIP resource application.
Refer Version List	The version that uses the resource.

Item	Description
Error Msg	The exception message.

5.4.1.11.10. Statuses of project components

This report displays the status of all server roles in an abnormal status on machines of the project, and the monitoring information (alert information reported by the server role to Apsara Infrastructure Management Framework monitor) of server roles and machines.

Error State Component Table

Only displays the information of server roles that are not in GOOD status and server roles to be upgraded.

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Machine Name	The machine name.
Need Upgrade	Whether the current version reaches the final status.
Server Role Status	The current status of the server role.
Machine Status	The current status of the machine.

Server Role Alert Information

Select a row in the **Error State Component Table** section to display the corresponding information in the list.

Item	Description
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Machine Name	The machine name.
Monitored Item	The monitored item name of the server role.
Level	The alert level.

Item	Description
Description	The description about the alert contents.
Updated At	The updated time of the alert information.

Machine Alert Information

Select a row in the **Error State Component Table** section to display the corresponding information in the list.

Item	Description
Cluster	The cluster name.
Machine Name	The machine name.
Monitored Item	The monitored item name of the server role.
Level	The alert level.
Description	The description about the alert contents.
Updated At	The updated time of the alert information.

Service Inspector Information

Select a row in the **Error State Component Table** section to display the corresponding information in the list.

Item	Description
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Monitored Item	The monitored item name of the server role.
Level	The alert level.
Description	The description about the alert contents.
Updated At	The updated time of the alert information.

5.4.1.11.11. Relationship of service dependency

This report displays the dependencies among server roles. Use the global filter to display the data of a specific cluster in the list.

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Dependent Service	The service on which the server role depends.
Dependent Server Role	The server role on which the server role depends.
Dependent Cluster	The cluster to which the dependent server role belongs.
Dependency in Final Status	Whether the dependent server role reaches the final status.

5.4.1.11.12. Check report of network topology

This report checks if network devices and machines have wirecheck alerts.

Check Report of Network Topology

Checks if network devices have wirecheck alerts.

Item	Description
Cluster	The cluster name.
Network Instance	The name of the network device.
Level	The alert level.
Description	The description about the alert information.

Check Report of Server Topology

Checks if servers (machines) have wirecheck alerts.

Item	Description
Cluster	The cluster name.
Machine Name	The server (machine) name.
Level	The alert level.
Description	The description about the alert information.

5.4.1.11.13. Clone report of machines

This report displays the clone progress and status of machines.

Clone Progress of Machines

Item	Description
Project	The project name.
Cluster	The cluster name.
Machine Name	The machine name.
Machine Status	The running status of the machine.
Clone Progress	The progress of the current clone process.

Clone Status of Machines

Item	Description
Project	The project name.
Cluster	The cluster name.
Machine Name	The machine name.
Machine Action	The action performed by the machine, such as the clone action.
Machine Action Status	The status of the action performed by the machine.
Machine Status	The running status of the machine.
Level	Whether the clone action performed by the machine is normal.
Clone Status	The current status of the clone action performed by the machine.

5.4.1.11.14. Auto healing/install approval pending report

The list structure is the same as the machine RMA approval pending list, whereas this view is used for the approval during the installation. For more information, see Machine RMA approval pending list.

5.4.1.11.15. Machine power on or off statuses of clusters

After a cluster starts or shuts down machines, you can view the related information in this report.

Cluster Running Statuses

If a cluster is starting or shutting down machines, the corresponding data is available in this list. No data indicates that no cluster has machines shut down.

Item	Description
Project	The project name.
Cluster	The cluster name.
Action Name	The startup or shutdown action that is being performed by the cluster.
Action Status	The status of the action.

Server Role Power On or Off Statuses

Displays the power on or off statuses of server roles in the cluster selected in the **Cluster Running Statuses** section.

Select a row in the **Cluster Running Statuses** section to display the information of the corresponding cluster in the list.

Item	Description
Cluster	The cluster name.
Server Role	The server role name.
Action Name	The startup or shutdown action that is being performed by the server role.
Action Status	The status of the action.

Statuses on Machines

Displays the running status of the selected server role on machines.

Select a row in the **Server Role Power On or Off Statuses** section to display the information of the corresponding server role in the list.

Item	Description
Cluster	The cluster name.
Server Role	The server role name.
Machine Name	The machine name.
Server Role Status	The running status of the server role.
Server Role Action	The action currently performed by the server role.
Server Role Action Status	The status of the action.
Error Message	The exception message.

Item	Description

Machine Statuses

Displays the running statuses of machines in the selected cluster.

Select a row in the **Statuses on Machines** section to display the information of the corresponding machine in the list.

Item	Description
Cluster	The cluster name.
Machine Name	The machine name.
IP	The IP address of the machine.
Machine Status	The running status of the machine.
Machine Action	The action currently performed by the machine.
Machine Action Status	The action status of the machine.
Error Message	The exception message.

5.4.2. New version

5.4.2.1. What is Apsara Infrastructure Management Framework?

This topic describes what Apsara Infrastructure Management Framework is from the aspects of core functions and basic concepts.

5.4.2.1.1. Introduction

Apsara Infrastructure Management Framework is a distributed data center management system, which manages applications on clusters containing multiple machines and provides the basic functions such as deployment, upgrade, expansion, contraction, and configuration changes.

Overview

Apsara Infrastructure Management Framework also supports monitoring data and analyzing reports, which facilitates users to perform one-stop Operation & Maintenance (O&M) control. Based on the Apsara Infrastructure Management Framework services, automated O&M is implemented in the large-scale distributed environment, which greatly improves the operations efficiency and enhances the system availability.

Apsara Infrastructure Management Framework is mainly composed of TianjiMaster and TianjiClient. Apsara Infrastructure Management Framework installs TianjiClient as the agent on machines it manages. Then, TianjiMaster accepts and issues the upper-layer instructions to TianjiClient for execution. In the upper layer, Apsara Infrastructure Management Framework is divided into different components based on different functions, and then provides API server and portal for external use.

Core functions

- Network initialization in data centers
- Server installation and maintenance process management
- Deployment, expansion, and upgrade of cloud products
- Configuration management of cloud products
- Automatic application for cloud product resources
- Automatic repair of software and hardware faults
- Basic monitoring and business monitoring of software and hardware

5.4.2.1.2. Basic concepts

Before using Apsara Infrastructure Management Framework, you must know the following basic concepts for a better understanding.

project

A collection of clusters, which provides service capabilities for external entities.

cluster

A collection of physical machines, which logically provides services and is used to deploy project software.

- A cluster can only belong to one project.
- Multiple services can be deployed on a cluster.

service

A set of software, which provides relatively independent functions. A service is composed of one or more server roles and can be deployed on multiple clusters to form multiple sets of services and provide the corresponding service capabilities. For example, Apsara Distributed File System, Job Scheduler, and Apsara Name Service and Distributed Lock Synchronization System are all services.

service instance

A service that is deployed on a cluster.

server role

One or more indivisible deployment units into which a service can be divided based on functions. A server role is composed of one or more specific applications. If a service is deployed on a cluster, all the server roles of the service must be deployed to machines of this cluster. Multiple server roles, such as PanguMaster and TianjiClient, can be deployed on the same server.

server role instance

A server role that is deployed on a machine. A server role can be deployed on multiple machines.

application

Applications correspond to each process-level service component in a server role and each application works independently. The application is the minimum unit for deployment and upgrade in Apsara Infrastructure Management Framework, and can be deployed to each machine. Generally, an application is an executable software or Docker container.

If a server role is deployed on a machine, all applications in the server role must be deployed to this machine.

rolling

Each time when a user updates configurations, Apsara Infrastructure Management Framework upgrades services and modifies the cluster configurations based on the updated configurations. This process is called rolling.

service configuration template

Some configurations are the same when services are deployed on clusters. A service configuration template can be created to quickly write the same configurations to different clusters. The service configuration template is basically used for large-scale deployment and upgrade.

associated service template

A template.conf file that exists in the configurations. This file declares the service configuration template and its version, of which the configuration is used by the service instance.

desired state

If a cluster is in this state, all hardware and software on each of its machines are normal and all software are in the target version.

dependency

The dependency between server roles in a service defines that server roles with dependencies run tasks or are upgraded based on the dependency order. For example, if A depends on B, B is upgraded first. A starts to be downloaded after B is downloaded successfully, and upgraded after B is successfully upgraded. (By default, the dependency does not take effect for configuration upgrade.)

upgrade

A way of aligning the current state with the desired state of a service. After a user submits the version change, Apsara Infrastructure Management Framework upgrades the service version to the target version. With the server role as the processing unit, upgrade aims to update the versions of all machines to the target version.

At the beginning, the desired state and current state of the cluster are the same. When a user submits the change, the desired state is changed, whereas the current state is not. A rolling task is generated and has the desired state as the target version. During the upgrade, the current state is continuously approximating to the desired state. Finally, the desired state and the current state are the same when the upgrade is finished.

5.4.2.2. Log on to the Apsara Infrastructure Management Framework console

This topic describes how to log on to the Apsara Infrastructure Management Framework console.

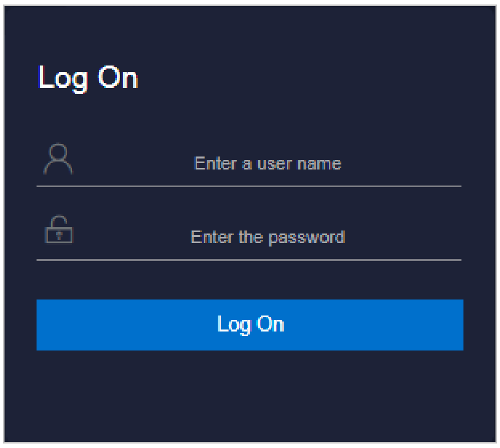
Prerequisites

- The URL of the ASO console, and the username and password used for logging on to the console are obtained from the deployment personnel or an administrator.

  The URL of the ASO console is in the following format: *region-id*.aso.*intranet-domain-id*.com.
- A browser is available. We recommend that you use the Google Chrome browser.

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.

   Note You can select a language from the drop-down list in the upper-right corner of the page.
3. Enter your username and password.

   Note Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

   When you log on to the ASO console for the first time, you must change the password of your username as prompted.

   To enhance security, a password must meet the following requirements:

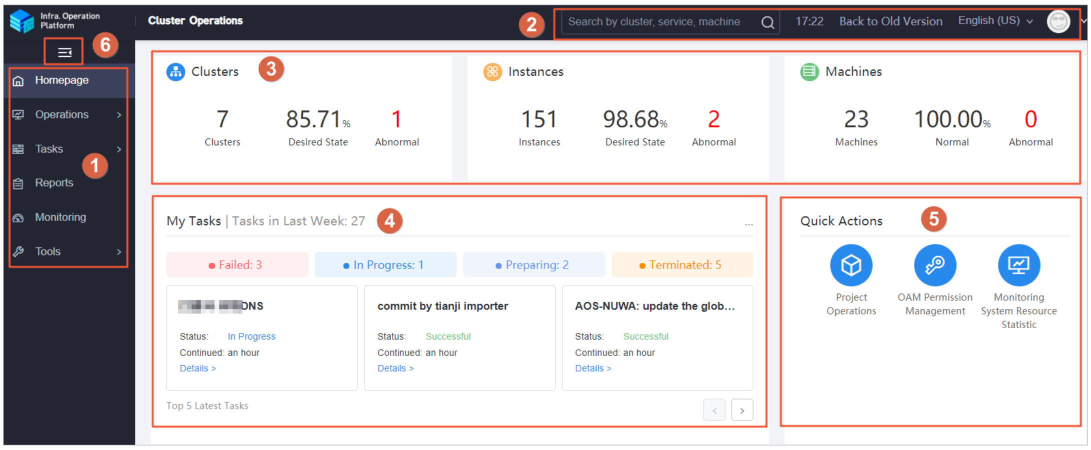
   - It must contain uppercase and lowercase letters.
   - It must contain digits.
   - It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
   - It must be 10 to 20 characters in length.
4. Click **Log On** to go to the **ASO** console.
5. In the left-side navigation pane, choose **Products** > **Product List**.
6. In the Apsara Stack O&M section, choose **Basic O&M** > **Apsara Infrastructure Management Framework**.

5.4.2.3. Instructions for the homepage

After you log on to the Apsara Infrastructure Management Framework console, the homepage appears. This topic describes the basic operations and functions on the homepage.

Log on to Apsara Infrastructure Management Framework. The homepage appears, as shown in the following figure.

Homepage of the Apsara Infrastructure Management Framework console



The following table describes the functional sections on the homepage.

Description of functional sections

Section	Description

Section		Description
①	Left-side navigation pane	• **Operations**: the quick entrance to operations & maintenance (O&M) operations, which allows you to find operations and their objects. This menu consists of the following submenus: ◦ **Project Operations**: allows you to use the project permissions to manage projects. ◦ **Cluster Operations**: allows you to use the project permissions to perform O&M and management operations on clusters. For example, you can view the cluster status. ◦ **Service Operations**: allows you to use the service permissions to manage services. For example, you can view the service list. ◦ **Machine Operations**: allows you to perform O&M and management operations on machines. For example, you can view the machine status. • **Tasks**: Rolling tasks are generated after you modify the configurations in the system. This menu allows you to view the running tasks, task history, and deployment of clusters, services, and server roles in all projects. • **Reports**: allows you to view monitoring data in tables and find specific reports by using fuzzy search. • **Monitoring**: monitors metrics during system operations and sends alert notifications for abnormal conditions. This menu allows you to view the alert status, modify alert rules, and search alert history. • **Tools**: provides tools such as machine O&M, IDC shutdown, and clone progress.
②	Top navigation bar	• Search box: supports global search. You can enter a keyword in the search box to search for clusters, services, and machines. • The following information is displayed when you move the pointer over the time: ◦ **TJDB Sync Time**: the time when the data on the current page is generated. ◦ **Desired State Calc Time**: the time when the desired-state data on the current page is calculated. The system processes data as fast as it can after the data is generated. Latency exists because Apsara Infrastructure Management Framework is an asynchronous system. Time information helps explain why data on the current page is generated and determine whether the system is faulty. • **Back to Old Version**: allows you to return to the old version of the Apsara Infrastructure Management Framework console. • **English (US)**: the current display language of the console. You can select another language from the drop-down list. • Profile picture: allows you to select **Exit** from the drop-down list to log out of your account.

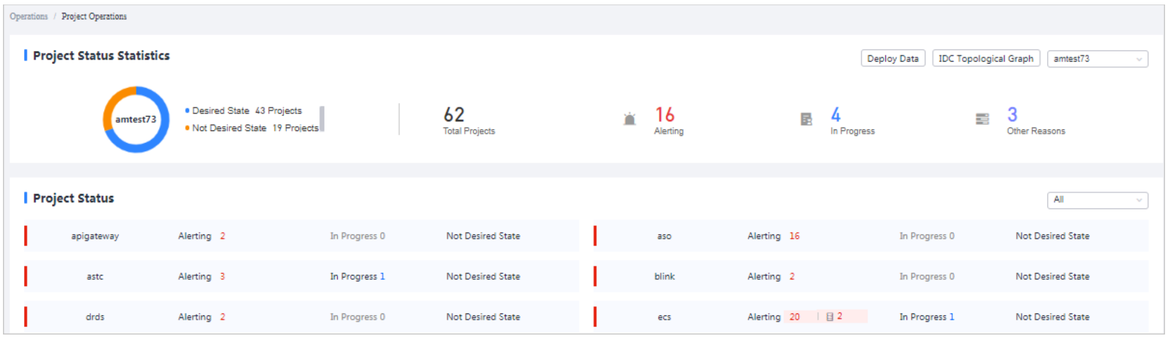
Section		Description
③	Status bar of global resources	Displays the overview of global resources. ● **Clusters**: displays the total number of clusters, the percentage of clusters that have reached the desired state, and the number of abnormal clusters. ● **Instances**: displays the total number of instances, the percentage of instances that have reached the desired state, and the number of abnormal instances. ● **Machines**: displays the total number of machines, the percentage of machines in the **Normal** state, and the number of abnormal machines. You can move the pointer over each section and then click Details to go to the Cluster Operations, Service Operations, or Machine Operations page.
④	Task status bar	Displays the information of tasks submitted in the last week. You can click the number next to a task state to go to the My Tasks page and view the task details. The top 5 latest tasks are displayed in the lower part of the section. You can click **Details** corresponding to each task to view the task details.
⑤	Quick actions	Displays links of the following common quick actions: ● **Project Operations**: allows you to go to the Project Operation page. ● **OAM Permission Management**: allows you to go to the Operation Administrator Manager (OAM) console. OAM is a centralized permission management platform in the ASO console. ● **Monitoring System Resource Statistic**: allows you to go to the Grafana console of Monitoring System. The Grafana console displays the running data of Monitoring System and facilitates your O&M operations. Note **Monitoring System Resource Statistic** is displayed only when Monitoring System is deployed in the environment.
⑥	Show/hide button	If you do not need to use the left-side navigation pane, click this button to hide the pane and enlarge the workspace.

5.4.2.4. Project operations

The Project Operations module allows you to search for and view details of a project.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Operations > Project Operations**.



Operations / Project Operations

Project Status Statistics

Deploy Data | IDC Topological Graph | amtest73

amtest73 · Desired State 43 Projects · Not Desired State 19 Projects

62 Total Projects | 16 Alerting | 4 In Progress | 3 Other Reasons

Project Status

All

apigateway	Alerting 2	In Progress 0	Not Desired State	aso	Alerting 16	In Progress 0	Not Desired State
astc	Alerting 3	In Progress 1	Not Desired State	blink	Alerting 2	In Progress 0	Not Desired State
drds	Alerting 2	In Progress 0	Not Desired State	ecs	Alerting 20 | 2	In Progress 1	Not Desired State

3. On this page, you can:
   - Search for a project

     Click the drop-down list in the upper-right corner of the **Project Status** section. Enter a project name in the search box, and then select the name to search for the project. You can view the numbers of alerts and running tasks for the project and whether the project reaches the desired state.

   - View the details of a project
     - Find the project whose details you are about to view. Click the number at the right of **Alerting**. In the displayed Alert Information dialog box, view the specific monitoring metrics, monitoring types, and alert sources. Click the value in the Alert Source column to view the service details.
     - Find the project whose details you are about to view. Click the number at the right of **In Progress**. In the displayed Tasks dialog box, view the details of Upgrade Service and Machine Change.

5.4.2.5. Cluster operations

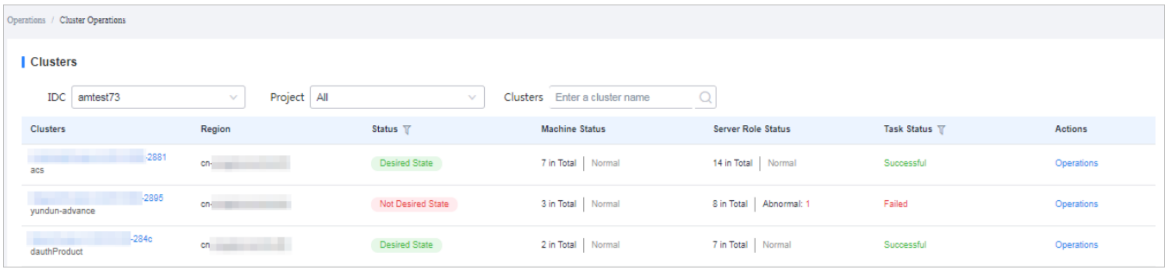
This topic describes the actions about cluster operations.

5.4.2.5.1. View the cluster list

This topic describes how to view all clusters and their information.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. Use one of the following methods to go to the cluster list:
   - On the **Homepage** page, move the pointer over the **Clusters** section and click Details in the upper-right corner.
   - In the left-side navigation pane, choose **Operations > Cluster Operations**.



Operations / Cluster Operations

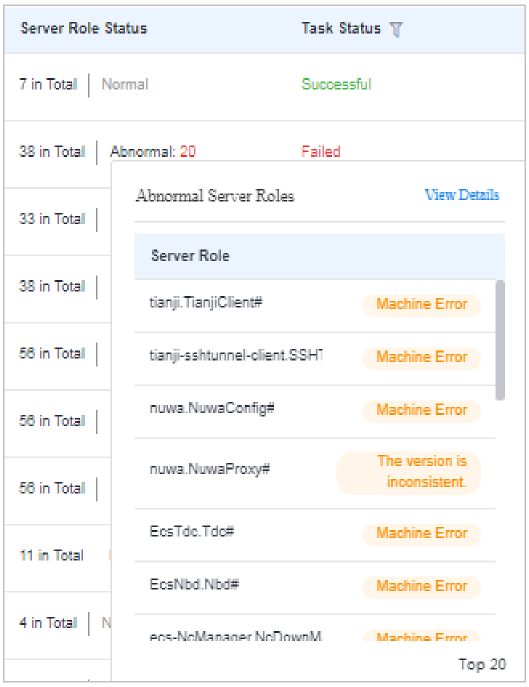
Clusters

IDC: amtest73 | Project: All | Clusters: Enter a cluster name

Clusters	Region	Status	Machine Status	Server Role Status	Task Status	Actions
[redacted]-2881 acs	cn-[redacted]	Desired State	7 in Total | Normal	14 in Total | Normal	Successful	Operations
[redacted]-2895 yundun-advance	cn-[redacted]	Not Desired State	3 in Total | Normal	8 in Total | Abnormal: 1	Failed	Operations
[redacted]-284c dauthProduct	cn[redacted]	Desired State	2 in Total | Normal	7 in Total | Normal	Successful	Operations

The following table describes the information displayed in the cluster list.

Parameter	Description
Clusters	The name of the cluster. Click the cluster name to view the cluster details.
Region	The region where the cluster is deployed.
Status	Specifies whether the cluster reaches the desired state. Click the ▽ icon to filter clusters. ○ Desired State: The cluster has reached the desired state. ○ Not Desired State: The cluster has reached the desired state for the first time but a server role has not reached the desired state due to undefined reasons.
Machine Status	The number of machines within the cluster and the machine status. Click the machine status to go to the Machines tab of the Cluster Details page.

Parameter	Description
Server Role Status	The number of server roles within the cluster and the server role status. Click a server role status to go to the Services tab of the Cluster Details page. Click **Abnormal** in the Server Role Status column to view all the abnormal server roles in the cluster in the displayed dialog box. Click **View Details** in the upper-right corner of the dialog box to go to the Services tab of the Cluster Details page.  Server Role Status Task Status 7 in Total Normal Successful 38 in Total Abnormal: 20 Failed 33 in Total 38 in Total 56 in Total 56 in Total 56 in Total 11 in Total 4 in Total N Abnormal Server Roles View Details Server Role tianji.TianjiClient# Machine Error tianji-sshtunnel-client.SSHT Machine Error nuwa.NuwaConfig# Machine Error nuwa.NuwaProxy# The version is inconsistent. EcsTdc.Tdc# Machine Error EcsNbd.Nbd# Machine Error ecs-NcManager.NcDownM Machine Error Top 20
Task Status	The status of the task related to the cluster. Click the ▽ icon to filter clusters. Click the task status to view the task details.

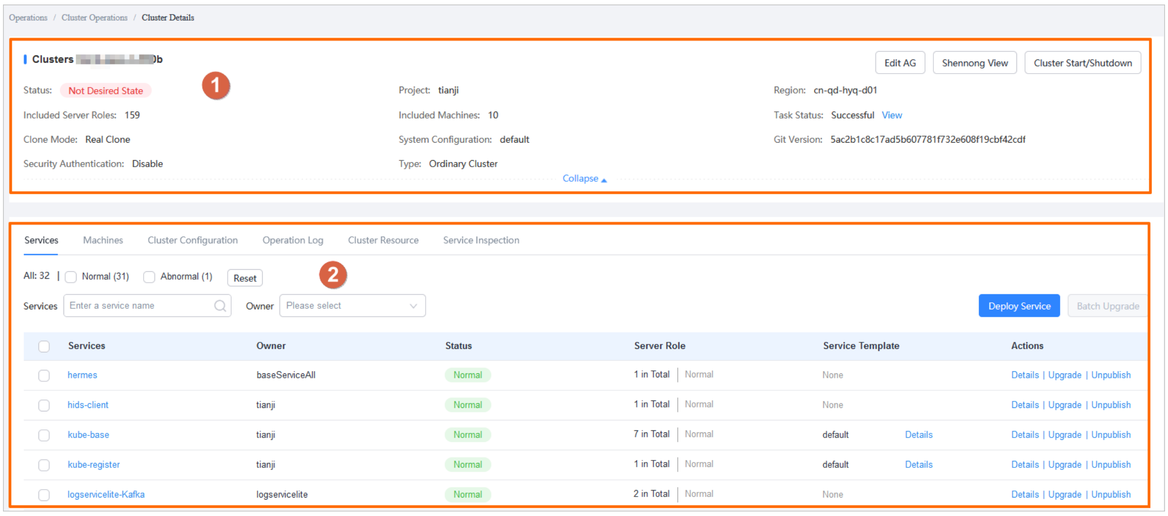
5.4.2.5.2. View details of a cluster

This topic describes how to view details of a cluster.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Operations > Cluster Operations**.
3. (Optional)Select a project from the drop-down list or enter a cluster name to search for the cluster.

4. Click the cluster name or click **Operations** in the **Actions** column to go to the **Cluster Details** page.



Operations / Cluster Operations / Cluster Details

Clusters [redacted]b

Edit AG | Shennong View | Cluster Start/Shutdown

Status: Not Desired State

Project: tianji

Region: cn-qd-hyq-d01

Included Server Roles: 159

Included Machines: 10

Task Status: Successful View

Clone Mode: Real Clone

System Configuration: default

Git Version: 5ac2b1c8c17ad5b607781f732e608f19cbf42cdf

Security Authentication: Disable

Type: Ordinary Cluster

Collapse ▲

Services | Machines | Cluster Configuration | Operation Log | Cluster Resource | Service Inspection

All: 32 | □ Normal (31) □ Abnormal (1) Reset

Services: Enter a service name Owner: Please select

Deploy Service | Batch Upgrade

□	Services	Owner	Status	Server Role	Service Template	Actions
□	hermes	baseServiceAll	Normal	1 in Total | Normal	None	Details | Upgrade | Unpublish
□	hids-client	tianji	Normal	1 in Total | Normal	None	Details | Upgrade | Unpublish
□	kube-base	tianji	Normal	7 in Total | Normal	default Details	Details | Upgrade | Unpublish
□	kube-register	tianji	Normal	1 in Total | Normal	default Details	Details | Upgrade | Unpublish
□	logservicelite-Kafka	logservicelite	Normal	2 in Total | Normal	None	Details | Upgrade | Unpublish

Section	Parameter	Description
①	**Status**	◦ **Desired State**: All clusters in a project have reached the desired state. ◦ **Not Desired State**: A project has reached the desired state for the first time but a server role has not reached the desired state due to undefined reasons.
	Project	The project to which the cluster belongs.
	Region	The region where the cluster is deployed.
	Included Server Roles	The number of server roles included in the cluster.
	Included Machines	The number of machines included in the cluster.
	Task Status	The status of the task. Click **View** to view the task details. ◦ **Successful**: The task is successful. ◦ **Preparing**: Data is being synchronized and the task is not started. ◦ **In Progress**: The cluster has a changing task. ◦ **Paused**: The task is paused. ◦ **Failed**: This task failed. ◦ **Terminated**: The task is manually terminated.
	Clone Mode	◦ **Pseudo-clone**: The system is not cloned when a machine is added to the cluster. ◦ **Real Clone**: The system is cloned when a machine is added to the cluster.

Section	Parameter	Description
	System Configuration	The name of the system service template used by the cluster.
	Git Version	The change version to which the cluster belongs.
	Security Authentication	The access control among processes. By default, security authentication is disabled in non-production environments. You can enable or disable security authentication based on your business requirements.
	Type	○ **Ordinary Cluster**: an operations unit of machine groups, where multiple services can be deployed. ○ **Virtual Cluster**: an operations unit of services, which can manage versions of software on machines within several physical clusters in a centralized manner. ○ **RDS**: a type of cluster that renders special cgroup configurations based on certain rules. ○ **NETFRAME**: a type of cluster that renders special configurations for special scenarios of Server Load Balancer (SLB). ○ **T4**: a type of cluster that renders special configurations for the mixed deployment of e-commerce. Apsara Stack provides only ordinary clusters.
②	**Services**	The status of each service in the cluster. You can also upgrade or unpublish a service. ○ **Normal**: The service works normally. ○ **Not Deployed**: No machine is deployed on the service. ○ **Changing**: Some server roles in the service are changing. ○ **Operating**: No server role is changing, but a server role is performing operations and maintenance (O&M) operations. ○ **Abnormal**: No server role is changing or the machines where server roles are deployed are not performing O&M operations. However, the server role status is **not good** or the version that the service runs on the machines is different from the desired state configuration.
	Machines	The running status and monitoring status of each machine in the cluster. You can also view details of server roles that are deployed on each machine.
	Cluster Configuration	The configuration file used in the cluster.
	Operation Log	The operation logs. You can also view the version differences.

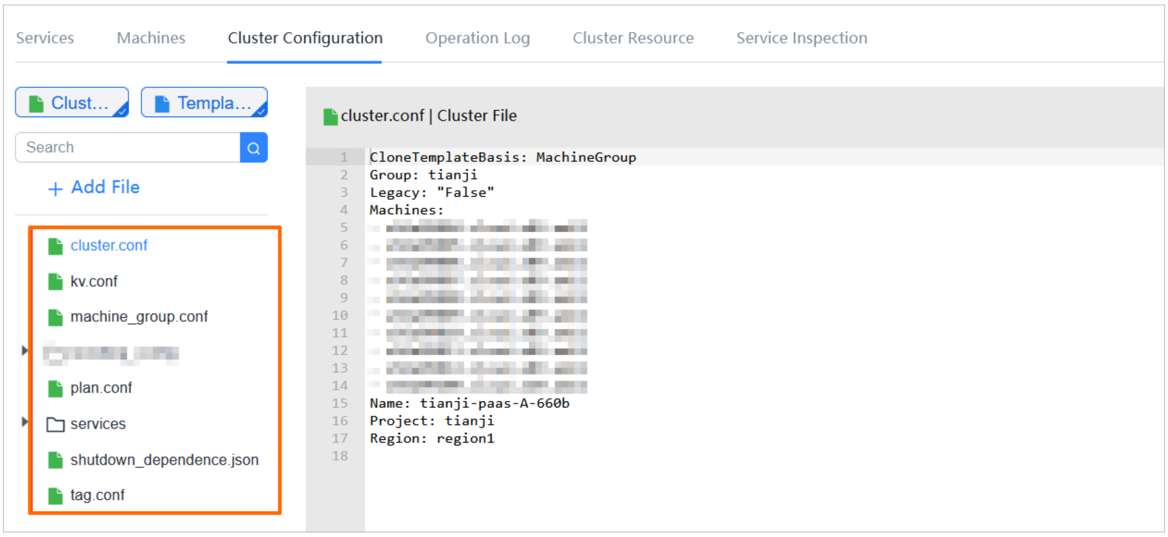
Section	Parameter	Description
	Cluster Resource	The details of resources that can be filtered.
	Service Inspection	The inspection information of each service in the cluster.

5.4.2.5.3. View configuration information of a cluster

This topic describes how to view configuration files and folders of a cluster.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. Use one of the following methods to go to the **Cluster Configuration** tab to view configuration files and folders.
   - Enter a cluster name in the search box in the upper-right corner of the page. Click **Operations** next to the found cluster. On the Cluster Details page, click the **Cluster Configuration** tab.
   - In the left-side navigation pane, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, find a cluster and click **Operations** in the **Actions** column. On the Cluster Details page, click the **Cluster Configuration** tab.



```
CloneTemplateBasis: MachineGroup
Group: tianji
Legacy: "False"
Machines:
[redacted]
Name: tianji-paas-A-660b
Project: tianji
Region: region1
```

The following table describes configuration files and folders of a cluster.

Parameter	Description
cluster.conf	The configuration file of the cluster, including the cluster name, cluster type, and machines.
kv.conf	The file that stores the values used to replace template placeholders when configurations are rendered.
machine_group.conf	The file that stores information of machine groups in a cluster.

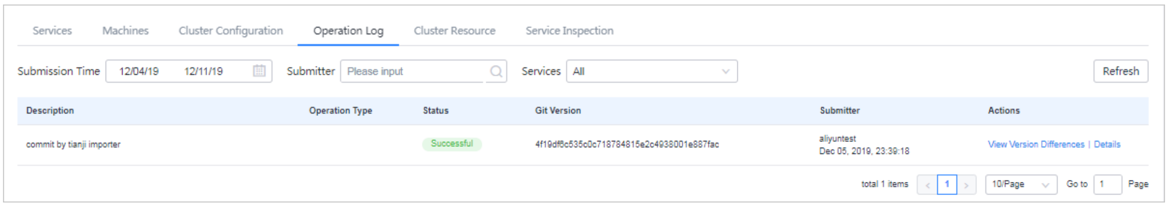
Parameter	Description
plan.conf	The file that defines dependencies between services and configuration upgrade parameters.
services	The folder that stores configurations of each service.
shutdown_dependence.json	The shutdown dependency file.
tag.conf	The file that stores the tags used to calculate tag expressions when configurations are rendered.

5.4.2.5.4. View operations logs

This topic describes how to view differences between Git versions from operation logs.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. Use one of the following methods to go to the operation logs of a cluster:
   - Enter a cluster name in the search box in the upper-right corner of the page. Click **Operations** next to the found cluster. On the Cluster Details page, click the **Operation Log** tab.
   - In the left-side navigation pane, choose **Operations > Cluster Operations**. On the **Cluster Operations** page, find a cluster and click **Operations** in the **Actions** column. On the Cluster Details page, click the **Operation Log** tab.



Submission Time 12/04/19 12/11/19 Submitter Please input Services All

Description	Operation Type	Status	Git Version	Submitter	Actions
commit by tianji importer		Successful	4f19df6c535c0c718784815e2c4938001e887fac	aliyuntest Dec 05, 2019, 23:39:18	View Version Differences | Details

total 1 items 1 10/Page Go to 1 Page

3. View the version differences on the **Operation Log** tab.
   i. Find the operation log that you want to view and click **View Version Differences** in the **Actions** column.
   ii. On the **Version Differences** page, set **Configuration Type** to **Extend Configuration** or **Cluster Configuration**.
      - **Extend Configuration**: displays the cluster configuration merged with the template configuration.
      - **Cluster Configuration**: displays the cluster configuration.
         - Cluster configuration description: Each cluster contains its dedicated configurations, such as the list of machines.
         - Template configuration description: A template that has the same configurations can be used to deploy a service to multiple clusters.
   iii. Select a basic version below **Configuration Type**. Then, a difference file is displayed in the lower part of the page.

iv. Select a difference file from the **Different File** drop-down list to view the content of each difference file.

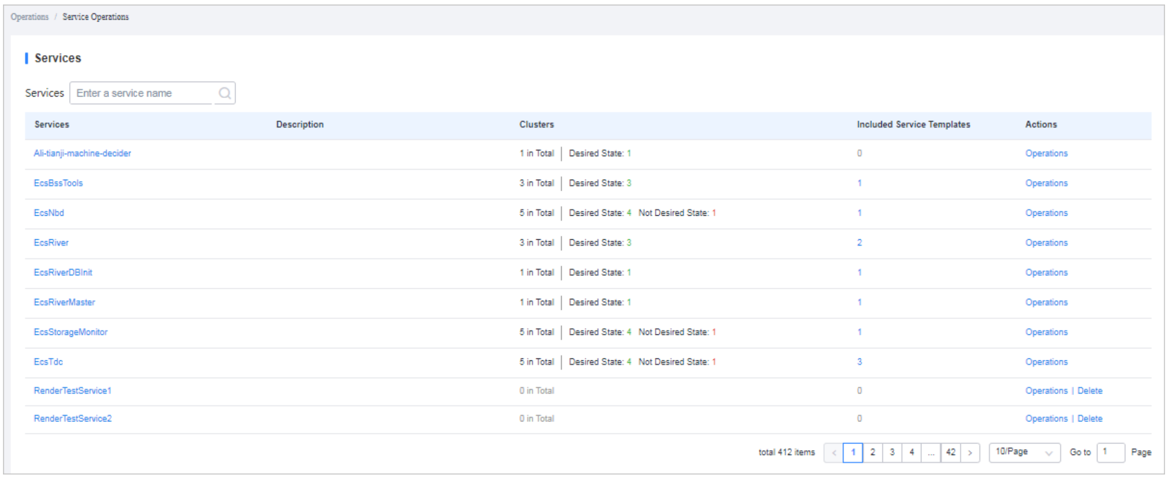
5.4.2.6. Service operations

5.4.2.6.1. View the service list

This topic describes how to view all services and their information.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. Use one of the following methods to go to the service list:
   - On the **Homepage** page, move the pointer over the **Instances** section and click Details in the upper-right corner.
   - In the left-side navigation pane, choose **Operations > Service Operations**.



Services	Description	Clusters	Included Service Templates	Actions
Ali-tianji-machine-decider		1 in Total | Desired State: 1	0	Operations
EcsBssTools		3 in Total | Desired State: 3	1	Operations
EcsNbd		5 in Total | Desired State: 4 Not Desired State: 1	1	Operations
EcsRiver		3 in Total | Desired State: 3	2	Operations
EcsRiverDBInit		1 in Total | Desired State: 1	1	Operations
EcsRiverMaster		1 in Total | Desired State: 1	1	Operations
EcsStorageMonitor		5 in Total | Desired State: 4 Not Desired State: 1	1	Operations
EcsTdc		5 in Total | Desired State: 4 Not Desired State: 1	3	Operations
RenderTestService1		0 in Total	0	Operations | Delete
RenderTestService2		0 in Total	0	Operations | Delete

The following table describes the information displayed in the service list.

Parameter	Description
Services	The name of the service. Click the service name to view the service details.
Clusters	The number of clusters where the service is deployed and the cluster status.
Included Service Templates	The number of service templates that are included in the service.
Actions	Click **Operations** to go to the Service Details page.

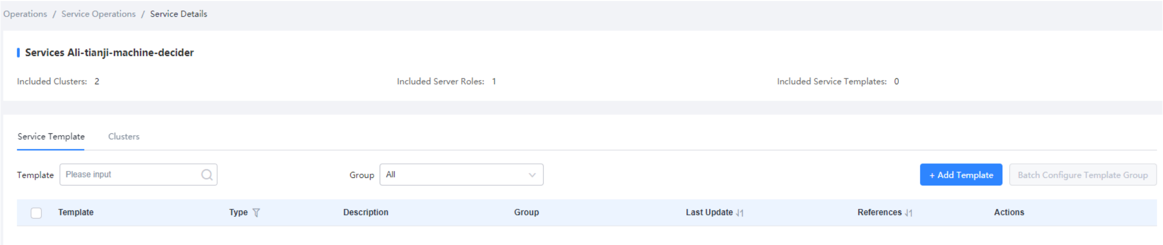
3. (Optional)Enter a service name in the search box to search for the service.

5.4.2.6.2. View details of a server role

This topic describes how to view details of a server role.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Operations > Service Operations**.
3. (Optional)Enter a service name in the search box to search for the service.
4. Click the service name or click **Operations** in the **Actions** column.



Operations / Service Operations / Service Details

Services Ali-tianji-machine-decider

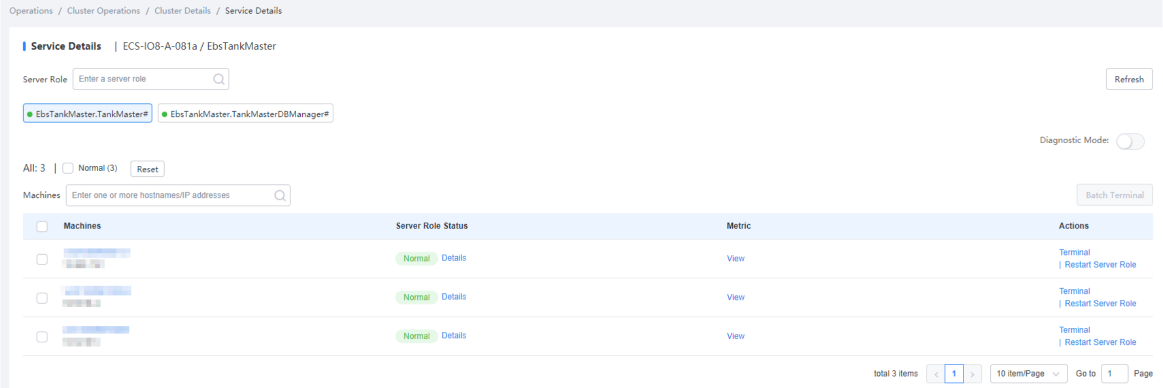
Included Clusters: 2 | Included Server Roles: 1 | Included Service Templates: 0

Service Template | Clusters

Template: Please input | Group: All | + Add Template | Batch Configure Template Group

□	Template	Type	Description	Group	Last Update	References	Actions

5. On the **Clusters** tab, click a status in the **Server Role Status** column to view the server roles included in a cluster.



Operations / Cluster Operations / Cluster Details / Service Details

Service Details | ECS-IO8-A-081a / EbsTankMaster

Server Role: Enter a server role | Refresh

● EbsTankMaster.TankMaster# | ● EbsTankMaster.TankMasterDBManager#

Diagnostic Mode:

All: 3 | □ Normal (3) | Reset

Machines: Enter one or more hostnames/IP addresses | Batch Terminal

□	Machines	Server Role Status	Metric	Actions
□	[redacted]	Normal Details	View	Terminal | Restart Server Role
□	[redacted]	Normal Details	View	Terminal | Restart Server Role
□	[redacted]	Normal Details	View	Terminal | Restart Server Role

total 3 items | < 1 > | 10 item/Page | Go to 1 Page

6. Enter a keyword in the search box to search for a server role. Then, the details of the server role are displayed in the list.

Parameter	Description
Machines	The machine to which the server role belongs. Click the machine name to view the machine details.
Server Role Status	The status of the server role. Click **Details** to view the basic information, application version information, application process information, and resources of the server role.
Metric	Click **View** to view the server role and machine metrics.
Actions	○ Click **Terminal** to log on to the machine and perform operations. ○ Click **Restart Server Role** to restart the server role.

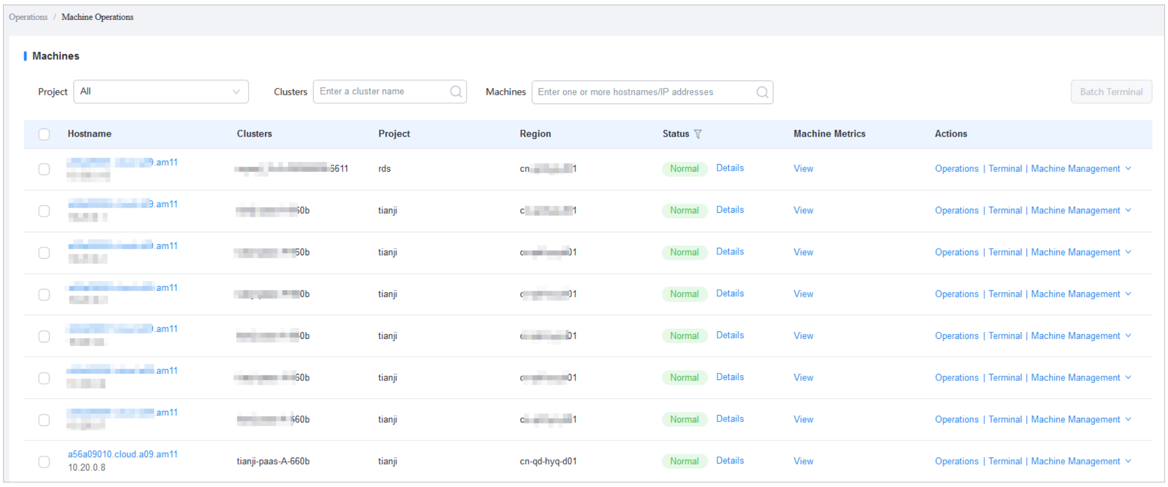
5.4.2.7. Machine Operations

This topic describes how to view the statistics of all machines.

Procedure

1. Log on to Apsara Infrastructure Management Framework.

2. Use one of the following methods to go to the machine list:
   - On the **Homepage** page, move the pointer over the **Machines** section and click Details in the upper-right corner.
   - In the left-side navigation pane, choose **Operations > Machine Operations**.



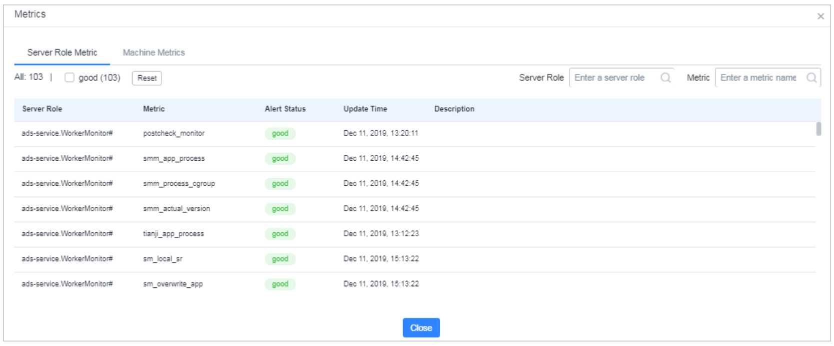
Operations / Machine Operations

Machines

Project: All — Clusters: Enter a cluster name — Machines: Enter one or more hostnames/IP addresses — Batch Terminal

☐	Hostname	Clusters	Project	Region	Status		Machine Metrics	Actions
☐	[redacted].am11 [redacted]	[redacted]611	rds	cn[redacted]1	Normal	Details	View	Operations | Terminal | Machine Management
☐	[redacted].am11 [redacted]	[redacted]0b	tianji	c[redacted]1	Normal	Details	View	Operations | Terminal | Machine Management
☐	[redacted].am11 [redacted]	[redacted]0b	tianji	c[redacted]01	Normal	Details	View	Operations | Terminal | Machine Management
☐	[redacted]am11 [redacted]	[redacted]0b	tianji	c[redacted]01	Normal	Details	View	Operations | Terminal | Machine Management
☐	[redacted].am11 [redacted]	[redacted]0b	tianji	c[redacted]01	Normal	Details	View	Operations | Terminal | Machine Management
☐	[redacted].am11 [redacted]	[redacted]0b	tianji	c[redacted]01	Normal	Details	View	Operations | Terminal | Machine Management
☐	[redacted].am11 [redacted]	[redacted]0b	tianji	c[redacted]1	Normal	Details	View	Operations | Terminal | Machine Management
☐	a56a09010.cloud.a09.am11 10.20.0.8	tianji-paas-A-660b	tianji	cn-qd-hyq-d01	Normal	Details	View	Operations | Terminal | Machine Management

3. (Optional)Select a project from the drop-down list or enter a cluster or machine name to search for the machine.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td><b>Hostname</b></td><td>Click a hostname to go to the Machine Details page.</td></tr>
<tr><td><b>Status</b></td><td>The status of a machine. Click the ▽ icon to filter machines. Click <b>Details</b>.
Then, the <b>Status Details of Machine</b> dialog box appears.</td></tr>
<tr><td><b>Machine Metrics</b></td><td>Click <b>View</b>. Then, the <b>Metrics</b> dialog box appears.

Metrics
Server Role Metric | Machine Metrics
All: 103 | ☐ good (103) Reset — Server Role: Enter a server role — Metric: Enter a metric name
<table>
<tr><th>Server Role</th><th>Metric</th><th>Alert Status</th><th>Update Time</th><th>Description</th></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>postcheck_monitor</td><td>good</td><td>Dec 11, 2019, 13:20:11</td><td></td></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>smm_app_process</td><td>good</td><td>Dec 11, 2019, 14:42:45</td><td></td></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>smm_process_cgroup</td><td>good</td><td>Dec 11, 2019, 14:42:45</td><td></td></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>smm_actual_version</td><td>good</td><td>Dec 11, 2019, 14:42:45</td><td></td></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>tianji_app_process</td><td>good</td><td>Dec 11, 2019, 13:12:23</td><td></td></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>sm_local_sr</td><td>good</td><td>Dec 11, 2019, 15:13:22</td><td></td></tr>
<tr><td>ads-service.WorkerMonitor#</td><td>sm_overwrite_app</td><td>good</td><td>Dec 11, 2019, 15:13:22</td><td></td></tr>
</table>
Close
Metrics are displayed on the <b>Server Role Metric</b> and <b>Machine Metrics</b> tabs. You can view the status and update time of each metric.
Enter a keyword in one of the search boxes in the upper-right corner to search for a server role or metric. You can also select the status in the upper-left corner to filter metrics.</td></tr>
</table>

Parameter	Description
Actions	○ Click **Operations** to go to the Machine Details page. ○ Click **Terminal** to log on to the machine and perform operations. You can select multiple machines and then click **Batch Terminal** in the upper-right corner to log on to multiple machines at a time. ○ Click **Machine Management** to perform an out-of-band restart operation on the machine.

5.4.2.8. Monitoring center

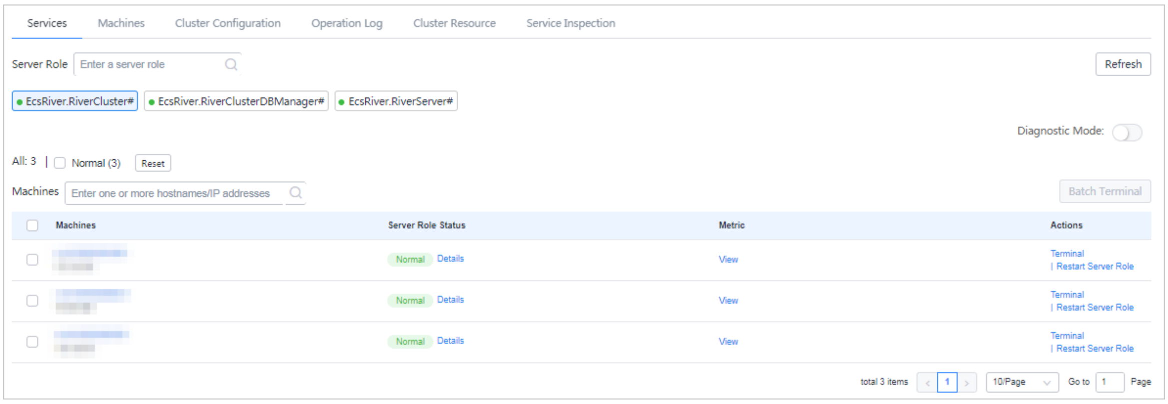
You can view the alert status, alert rules, and alert history in the monitoring center.

5.4.2.8.1. View the status of a metric

This topic describes how to view the status of a metric.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Operations > Service Operations**.
3. (Optional)Enter a service name in the search box to search for the service.
4. Click **Operations** in the **Actions** column.
5. On the **Clusters** tab, use filter conditions to find a cluster. Click **Operations** in the **Actions** column corresponding to the cluster.
6. On the **Cluster Details** page, select a server role and click **View** in the **Metric** column corresponding to a machine to view the server role and machine metrics.



□	Machines	Server Role Status	Metric	Actions
□	[redacted]	Normal Details	View	Terminal | Restart Server Role
□	[redacted]	Normal Details	View	Terminal | Restart Server Role
□	[redacted]	Normal Details	View	Terminal | Restart Server Role

5.4.2.8.2. View the alert status

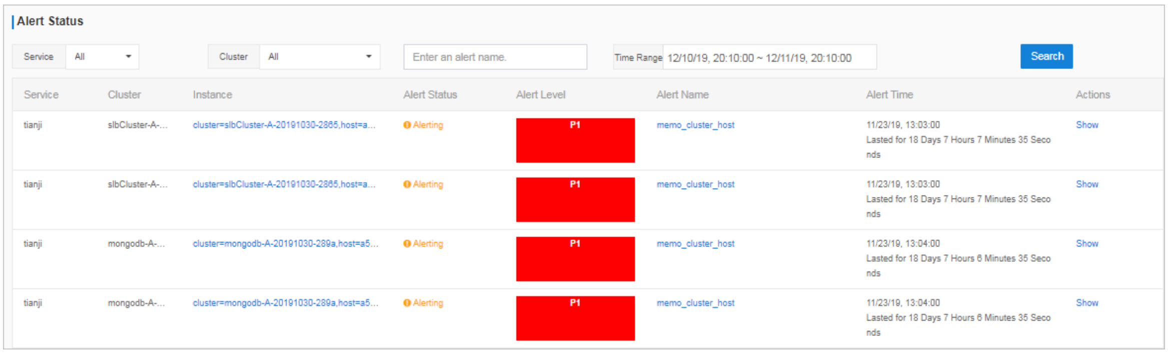
This topic describes how to view the alerts related to different services and the alert details.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click **Monitoring**. On the Monitoring page, click **Go** to go to the

Alert Status page.

3. In the top navigation bar, choose **Monitoring > Alert Status**.



Alert Status

Service: All | Cluster: All | Enter an alert name. | Time Range 12/10/19, 20:10:00 ~ 12/11/19, 20:10:00 | Search

Service	Cluster	Instance	Alert Status	Alert Level	Alert Name	Alert Time	Actions
tianji	slbCluster-A-...	cluster=slbCluster-A-20191030-2865,host=a...	Alerting	P1	memo_cluster_host	11/23/19, 13:03:00 Lasted for 18 Days 7 Hours 7 Minutes 35 Seconds	Show
tianji	slbCluster-A-...	cluster=slbCluster-A-20191030-2865,host=a...	Alerting	P1	memo_cluster_host	11/23/19, 13:03:00 Lasted for 18 Days 7 Hours 7 Minutes 35 Seconds	Show
tianji	mongodb-A-...	cluster=mongodb-A-20191030-289a,host=a5...	Alerting	P1	memo_cluster_host	11/23/19, 13:04:00 Lasted for 18 Days 7 Hours 6 Minutes 35 Seconds	Show
tianji	mongodb-A-...	cluster=mongodb-A-20191030-289a,host=a5...	Alerting	P1	memo_cluster_host	11/23/19, 13:04:00 Lasted for 18 Days 7 Hours 6 Minutes 35 Seconds	Show

4. (Optional)Search for an alert by service name, cluster name, alert name, or alert time range.

5. View alert details on the **Alert Status** page. The following table describes the related parameters.

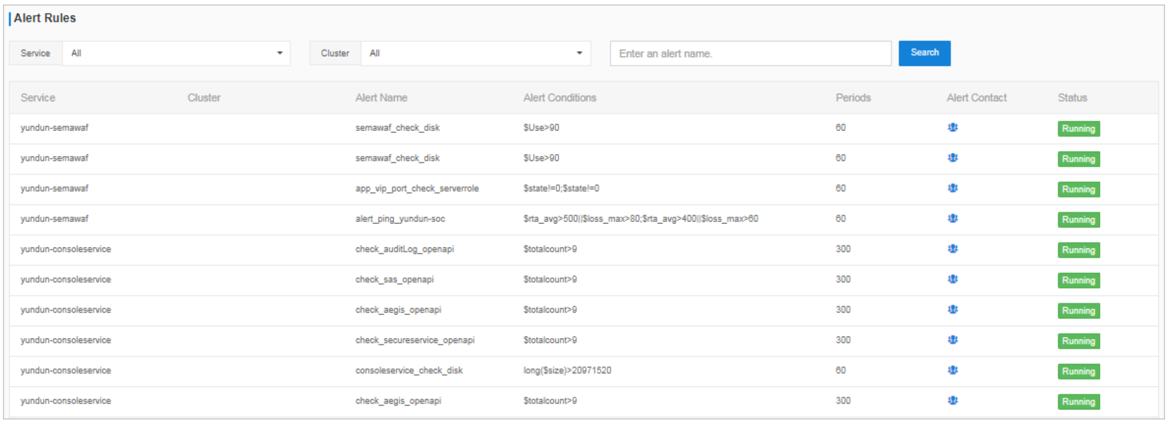
Parameter	Description
Service	The name of the service.
Cluster	The name of the cluster where the service is deployed.
Instance	The name of the monitored instance. Click the name of an instance to view the alert history of the instance.
Alert Status	Two alert states are available, which are **Normal** and **Alerting**.
Alert Level	Alerts are divided into five levels in descending order of severity: ○ P0: an alert that has been cleared ○ P1: an urgent alert ○ P2: a major alert ○ P3: a minor alert ○ P4: a reminder alert
Alert Name	The name of the alert. Click the name of an alert to view alert rule details.
Alert Time	The time when the alert is triggered and how long the alert lasts.
Actions	Click **Show** to view the data before and after the alert time.

5.4.2.8.3. View alert rules

This topic describes how to view alert rules.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click **Monitoring**. On the Monitoring page, click **Go** to go to the Alert Status page.
3. In the top navigation bar, choose **Monitoring > Alert Rules**.



Alert Rules

Service	Cluster	Alert Name	Alert Conditions	Periods	Alert Contact	Status
yundun-semawaf		semawaf_check_disk	$Use>90	60	👥	Running
yundun-semawaf		semawaf_check_disk	$Use>90	60	👥	Running
yundun-semawaf		app_vip_port_check_serverrole	$state!=0;$state!=0	60	👥	Running
yundun-semawaf		alert_ping_yundun-soc	$rta_avg>500\|\|$loss_max>80;$rta_avg>400\|\|$loss_max>60	60	👥	Running
yundun-consoleservice		check_auditLog_openapi	$totalcount>9	300	👥	Running
yundun-consoleservice		check_sas_openapi	$totalcount>9	300	👥	Running
yundun-consoleservice		check_aegis_openapi	$totalcount>9	300	👥	Running
yundun-consoleservice		check_secureservice_openapi	$totalcount>9	300	👥	Running
yundun-consoleservice		consoleservice_check_disk	long($size)>20971520	60	👥	Running
yundun-consoleservice		check_aegis_openapi	$totalcount>9	300	👥	Running

4. (Optional)Search for alert rules by service name, cluster name, or alert name.
5. View alert rules on the **Alert Rules** page. The following table describes the related parameters.

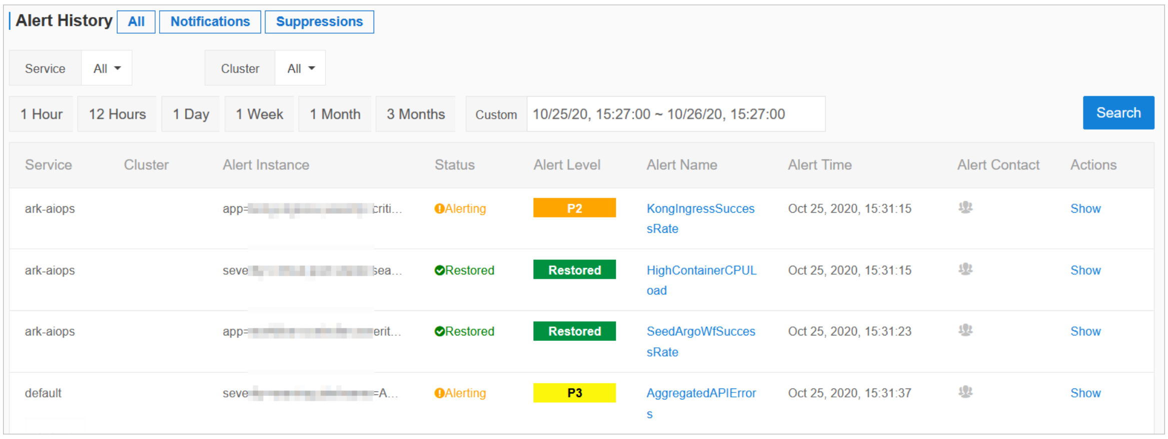
Parameter	Description
Service	The name of the service.
Cluster	The name of the cluster where the service is deployed.
Alert Name	The name of the alert.
Alert Conditions	The conditions that trigger the alert.
Periods	The frequency at which the alert rule is executed.
Alert Contact	The groups and members to notify when the alert is triggered.
Status	The status of the alert rule. ○ **Running**: Click it to stop the alert rule. ○ **Stopped**: Click it to execute the alert rule.

5.4.2.8.4. View the alert history

This topic describes how to view the historical alerts related to different services and the alert details.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click **Monitoring**. On the Monitoring page, click **Go** to go to the Alert Status page.
3. In the top navigation bar, choose **Monitoring > Alert History**.



Service: All ▾ Cluster: All ▾

1 Hour | 12 Hours | 1 Day | 1 Week | 1 Month | 3 Months | Custom 10/25/20, 15:27:00 ~ 10/26/20, 15:27:00

Service	Cluster	Alert Instance	Status	Alert Level	Alert Name	Alert Time	Alert Contact	Actions
ark-aiops		app=[redacted]criti...	Alerting	P2	KongIngressSuccessRate	Oct 25, 2020, 15:31:15		Show
ark-aiops		seve[redacted]sea...	Restored	Restored	HighContainerCPULoad	Oct 25, 2020, 15:31:15		Show
ark-aiops		app=[redacted]erit...	Restored	Restored	SeedArgoWfSuccessRate	Oct 25, 2020, 15:31:23		Show
default		seve[redacted]=A...	Alerting	P3	AggregatedAPIErrors	Oct 25, 2020, 15:31:37		Show

4. (Optional)Search for an alert by service name, cluster name, or alert time range.
5. View the alert history on the **Alert History** page. The following table describes the related parameters.

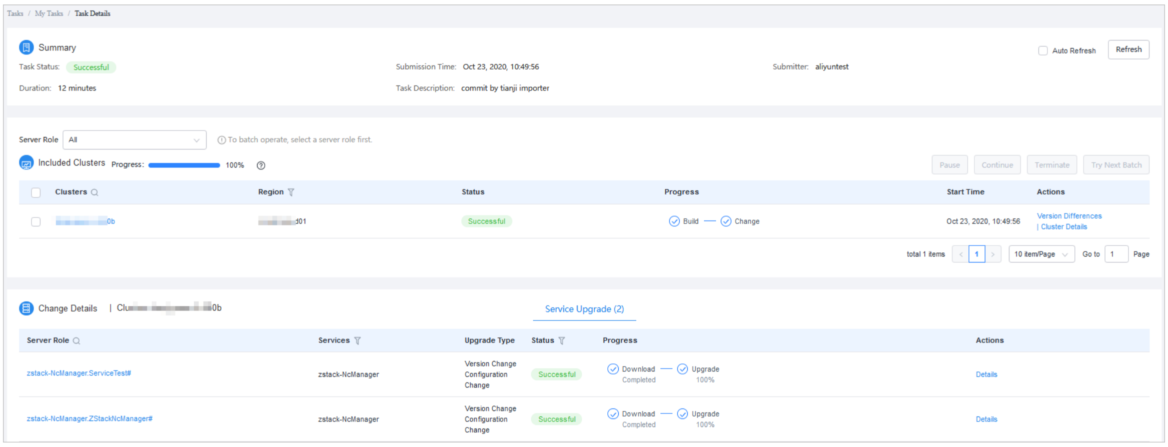
Parameter	Description
Service	The name of the service to which the alert belongs.
Cluster	The name of the cluster where the service is deployed.
Alert Instance	The name of the instance where the alert is triggered.
Status	Two alert states are available, which are **Normal** and **Alerting**.
Alert Level	Alerts are divided into five levels in descending order of severity: ○ P0: an alert that has been cleared ○ P1: an urgent alert ○ P2: a major alert ○ P3: a minor alert ○ P4: a reminder alert
Alert Name	The name of the alert. Click the name of an alert to view alert rule details.
Alert Time	The time when the alert is triggered.
Alert Contact	The groups and members to notify when the alert is triggered.
Actions	Click **Show** to view the data before and after the alert time.

5.4.2.9. View tasks

This topic describes how to view the submitted tasks and their status.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. Use one of the following methods to go to the task list:
    - In the left-side navigation pane, choose **Tasks > My Tasks**.
    - In the left-side navigation pane, choose **Tasks > Related Tasks**.
3. Click the icon in the **Status** column to filter tasks.
4. Find the task that you want to view and click the task name or **Details** in the **Actions** column.
5. View the status and progress of each cluster and server role on the **Task Details** page.



Tasks / My Tasks / Task Details

Summary

Task Status: Successful   Submission Time: Oct 23, 2020, 10:49:56   Submitter: aliyuntest   □ Auto Refresh   Refresh

Duration: 12 minutes   Task Description: commit by tianji importer

Server Role: All   To batch operate, select a server role first.

Included Clusters   Progress: 100%   Pause   Continue   Terminate   Try Next Batch

	Clusters	Region	Status	Progress	Start Time	Actions
□	[redacted]0b	[redacted]d01	Successful	Build — Change	Oct 23, 2020, 10:49:56	Version Differences | Cluster Details

total 1 items   < 1 >   10 item/Page   Go to 1 Page

Change Details | Clu[redacted]0b   Service Upgrade (2)

Server Role	Services	Upgrade Type	Status	Progress	Actions
zstack-NcManager.ServiceTest#	zstack-NcManager	Version Change Configuration Change	Successful	Download Completed — Upgrade 100%	Details
zstack-NcManager.ZStackNcManager#	zstack-NcManager	Version Change Configuration Change	Successful	Download Completed — Upgrade 100%	Details

5.4.2.10. Reports

5.4.2.10.1. View reports

This topic describes how to view report data.

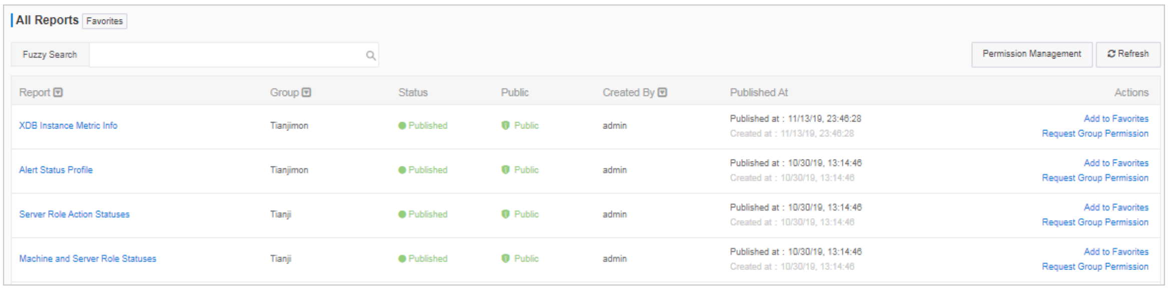
Context

The following reports are available in the Apsara Infrastructure Management Framework console:

- System reports: default and common reports in the system.
- All reports: includes system reports and custom reports.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click **Reports**. On the Reports page, click **Go** to go to the All Reports page.



All Reports   Favorites

Fuzzy Search   Permission Management   Refresh

Report	Group	Status	Public	Created By	Published At	Actions
XDB Instance Metric Info	Tianjimon	Published	Public	admin	Published at : 11/13/19, 23:46:28 Created at : 11/13/19, 23:46:28	Add to Favorites Request Group Permission
Alert Status Profile	Tianjimon	Published	Public	admin	Published at : 10/30/19, 13:14:46 Created at : 10/30/19, 13:14:46	Add to Favorites Request Group Permission
Server Role Action Statuses	Tianji	Published	Public	admin	Published at : 10/30/19, 13:14:46 Created at : 10/30/19, 13:14:46	Add to Favorites Request Group Permission
Machine and Server Role Statuses	Tianji	Published	Public	admin	Published at : 10/30/19, 13:14:46 Created at : 10/30/19, 13:14:46	Add to Favorites Request Group Permission

The following table describes information about reports.

Parameter	Description
Report	The name of the report. Move the pointer over the down arrow next to Report and search by report name.
Group	The group to which the report belongs. Move the pointer over the down arrow next to Group and search by group name.
Status	Specifies whether the report is published. ○ Published ○ Not Published
Public	Specifies whether the report is public. ○ Public: visible to all logon users. ○ Private: visible only to the current logon user.
Created By	The person who creates the report.
Published At	The time when the report is created and published.
Actions	Click **Add to Favorites** to add the report to your favorites. Then, you can view the report by choosing **Reports > Favorites** in the top navigation bar.

3. (Optional)Enter a report name in the search box to search for the report.
4. Click the report name to go to the corresponding report details page. For more information about reports, see Appendix.

5.4.2.10.2. Add a report to favorites

This topic describes how to add frequently used reports to favorites. Then, you can find them on the Home or Favorites page.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, click **Reports**. On the Reports page, click **Go** to go to the All Reports page.
3. (Optional)Search for a report in the search box.
4. Click **Add to Favorites** in the **Actions** column corresponding to the report.
5. In the **Add to Favorites** dialog box, enter tags for the report.
6. Click **Add to Favorites**.

5.4.2.11. Tools

5.4.2.11.1. Machine tools

The Machine Tools module guides operations personnel to perform Operation & Maintenance (O&M) operations in common scenarios.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Tools > Operation Tools > Machine Tools**. On the Machine Tools page, click **Go** to open the target page.
3. Select the operation scene according to actual situations.

Operation scene	Description	Action
Scene 1: NC Scale-out (with existing machines)	Scales out an SRG of the worker type.	Select a target cluster and a target SRG. Select the machines to be scaled out in the left-side section and then click Select> to add them to the right-side section. Click **Submit** and then click **Confirm** in the displayed dialog box.
Scene 2: Host Scale-out (with existing machines)	Scales out the DockerHost#Buffer of an Apsara Infrastructure Management Framework cluster.	Select a target cluster. Select the machines to be scaled out in the left-side section and then click Select> to add them to the right-side section. Click **Submit** and then click **Confirm** in the displayed dialog box.
Scene 3: NC Scale-in	Scales in an SRG of the worker type.	Select a target cluster and a target SRG. Select the machines to be scaled in in the left-side section and then click Select> to add them to the right-side section. Click **Submit** and then click **Confirm** in the displayed dialog box.
Scene 4: Host Scale-in	Scales in the DockerHost#Buffer of an Apsara Infrastructure Management Framework cluster.	Select a target cluster. Select the machines to be scaled in in the left-side section and then click Select> to add them to the right-side section. Click **Submit** and then click **Confirm** in the displayed dialog box.

Operation scene	Description	Action
Scene 5: VM Migration	Migrates virtual machines (VMs) from a host to another host.	Select a source host and a destination host. Select the VMs to be migrated in the left-side section and then click Select> to add them to the right-side section. Click **Submit** and then click **Confirm** in the displayed dialog box.
Scene 6: Host Switching	Switches from a standby host to a primary host.	Select a source host and a destination host. Click **Submit** and then click **Confirm** in the displayed dialog box.

5.4.2.11.2. IDC shutdown

In some scenarios such as vehicle-mounted ones, you can shut down all machines of all clusters within an IDC with one click.

Prerequisites

The total number of machines of all clusters within an IDC is not more than 25.

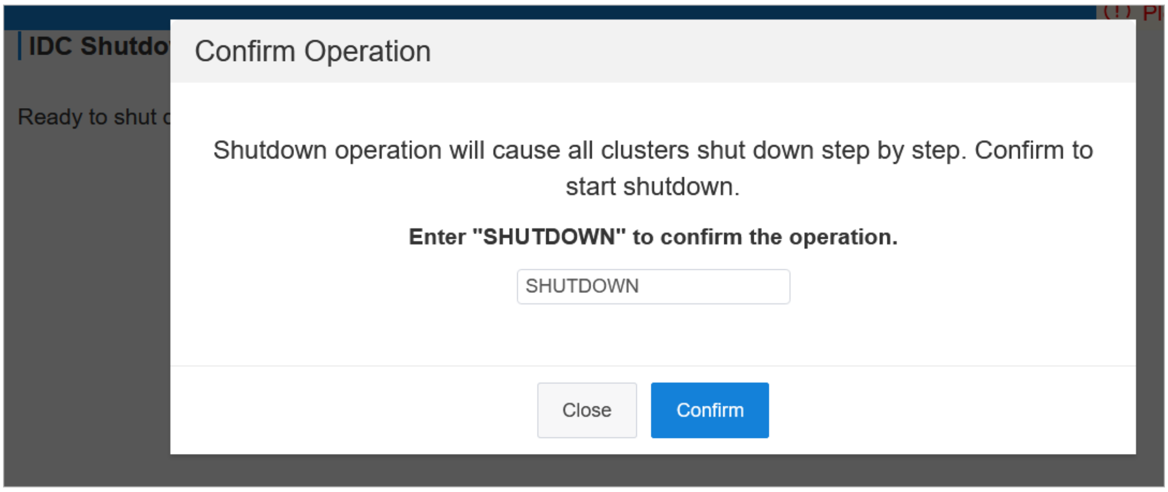
Context

When you perform IDC shutdown, business clusters are shut down first, and then the base cluster is shut down.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Tools > IDC Shutdown**. In the right-side workspace, click **Go**.
3. On the **IDC Shutdown** page, click **Start Shutdown**. In the **Confirm Operation** message, enter *SH UTDOWN*.

> **Warning** The IDC shutdown operation will shut down all services and machines and thus cause business interruption.



Confirm Operation

Shutdown operation will cause all clusters shut down step by step. Confirm to start shutdown.

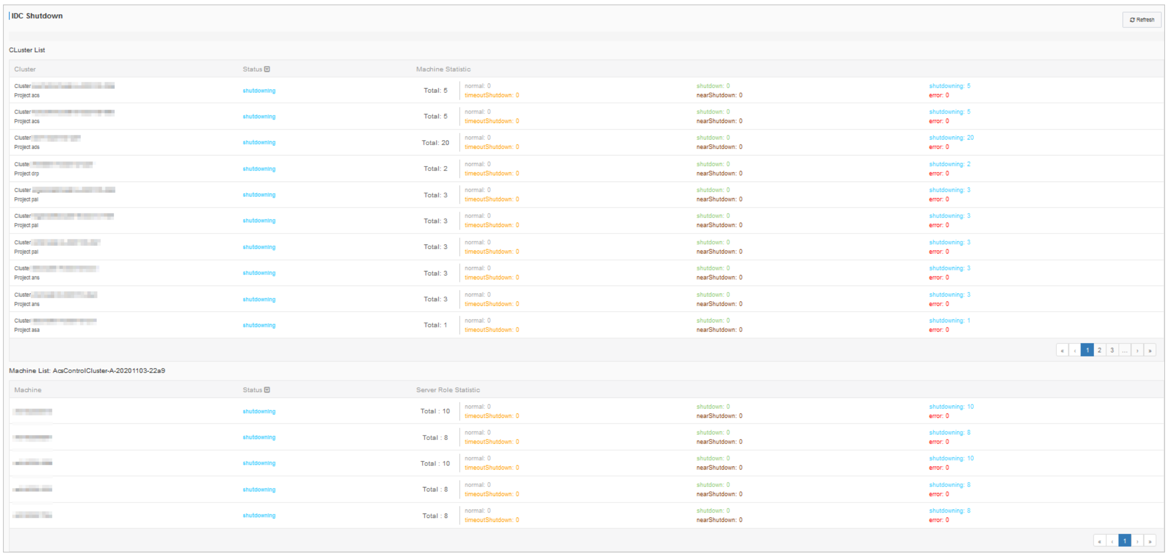
Enter "SHUTDOWN" to confirm the operation.

SHUTDOWN

4. If you are sure that you want to perform IDC shutdown, click **Confirm**.

> **Warning** Backend services need to communicate with the frontend shutdown page during the IDC shutdown process. Do not close the shutdown page until the shutdown is complete.

5. View the IDC shutdown progress and the status of clusters, machines, and server roles.



IDC Shutdown

CLuster List

Cluster	Status	Machine Statistic			
Cluster [redacted] Project acs	shutdowning	Total: 5	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 5 error: 0
Cluster [redacted] Project acs	shutdowning	Total: 5	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 5 error: 0
Cluster [redacted] Project ads	shutdowning	Total: 20	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 20 error: 0
Cluste [redacted] Project drp	shutdowning	Total: 2	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 2 error: 0
Cluster [redacted] Project pai	shutdowning	Total: 3	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 3 error: 0
Cluster [redacted] Project pai	shutdowning	Total: 3	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 3 error: 0
Cluster [redacted] Project pai	shutdowning	Total: 3	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 3 error: 0
Cluste [redacted] Project ans	shutdowning	Total: 3	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 3 error: 0
Cluster [redacted] Project ans	shutdowning	Total: 3	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 3 error: 0
Cluster [redacted] Project asa	shutdowning	Total: 1	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 1 error: 0

Machine List: AcsControlCluster-A-20201103-22a9

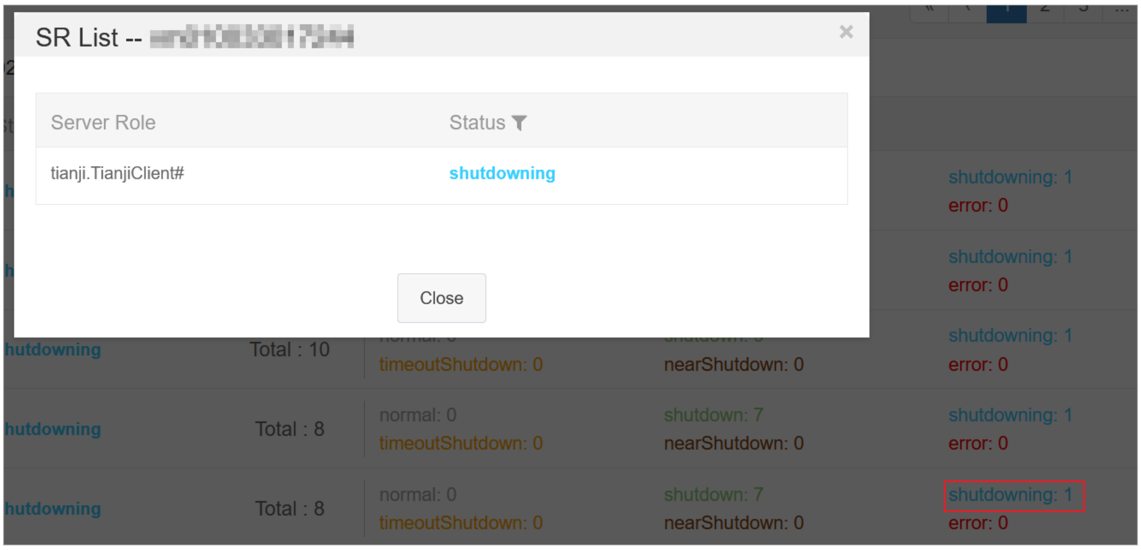
Machine	Status	Server Role Statistic			
[redacted]	shutdowning	Total : 10	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 10 error: 0
[redacted]	shutdowning	Total : 8	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 8 error: 0
[redacted]	shutdowning	Total : 10	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 10 error: 0
[redacted]	shutdowning	Total : 8	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 8 error: 0
[redacted]	shutdowning	Total : 8	normal: 0 timeoutShutdown: 0	shutdown: 0 nearShutdown: 0	shutdowning: 8 error: 0

It takes a long time to shut down all clusters and machines within an environment. You can view the shutdown progress on the **IDC Shutdown** page. The following states are available for clusters, machines, and server roles:

- **normal**: A cluster, machine, or server role is running normally.
- **shutdown**: A cluster, machine, or server role is shut down.
- **shutdowning**: A cluster, machine, or server role is being shut down.
- **timeoutShutdown**: The shutdown of a cluster, machine, or server role timed out.
- **nearShutdown**: A cluster, machine, or server role is about to be shut down.
- **error**: An error occurred during the shutdown of a cluster, machine, or server role.

You can perform the following operations:

- View the IDC shutdown progress: In the upper part of the **IDC Shutdown** page, view the IDC shutdown progress.
- View the cluster status: In the **Cluster List** section, view the status of each cluster, the total number of machines in each cluster, and the number of machines in each state.
- View the machine status: In the **Cluster List** section, click a status corresponding to a cluster. In the **Machine List** section, view all machines in the corresponding state in the cluster, the total number of server roles on each machine, and the number of server roles in each state.
- View the server role status: In the **Machine List** section, click a status corresponding to a machine. In the **SR List--xxx** message, view all server roles in the corresponding state on the machine.



SR List -- [redacted]

Server Role	Status
tianji.TianjiClient#	shutdowning

				shutdowning: 1 error: 0
				shutdowning: 1 error: 0
hutdowning	Total : 10	timeoutShutdown: 0	nearShutdown: 0	shutdowning: 1 error: 0
hutdowning	Total : 8	normal: 0 timeoutShutdown: 0	shutdown: 7 nearShutdown: 0	shutdowning: 1 error: 0
hutdowning	Total : 8	normal: 0 timeoutShutdown: 0	shutdown: 7 nearShutdown: 0	shutdowning: 1 error: 0

> Note
>
> In the left-side navigation pane, click **Go**. On the **All Reports** page, enter the entire or a part of **Machine Power On or Off Statuses of Clusters** in the **Fuzzy Search** search box. In the search results, click **Machine Power On or Off Statuses of Clusters** to view the status of each server role.

- Filter clusters or machines: In the **Cluster List** or **Machine List** section, click the filter icon in the **Status** column and select a status to filter all clusters or machines in the corresponding state.
- Refresh data: Click **Refresh** in the upper-right corner to refresh data.

If the status of all clusters in the **Cluster List** section is **shutdown**, the IDC shutdown operation succeeds. After the base cluster is shut down, the OPS1 server is also shut down. Then, the Apsara Infrastructure Management Framework console is inaccessible.

6. After all base machines are shut down and become inaccessible, go to the IDC and confirm that all machines are powered off.

What's next

If you want to use the machines in the future, power on all machines one by one in the IDC and wait until all services reach the desired state.

5.4.2.11.3. View the clone progress

This topic describes how to go to the OS Provision console (Corner Stone) by using Apsara Infrastructure Management Framework, which allows you to know the progress, status, and errors of the machine installation.

Prerequisites

You have obtained the username and password of the OS Provision console from the delivery personnel.

Context

Apsara Infrastructure Management Framework provides a quick entry of the OS Provision console, which allows you to view the machine installation details. The OS Provision console allows you to view the machine clone details and then you can know the progress and status of the machine installation and locate the installation faults.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Tools > Clone Progress**.
3. On the logon page of the Corner Stone, enter the **Username** and **Password**, and then click **Submit**.

5.4.2.12. Metadata operations

In this version, you can use only command lines to perform metadata operations.

5.4.2.12.1. Common parameters

Common parameters consist of the common request parameters and the common response parameters.

Common request parameters

Common request parameters are request parameters that you must use when you call each API.

Parameter descriptions

Name	Type	Required	Description
Action	String	Yes	The API name. For more information about the valid values, see APIs on the control side and APIs on the deployment side.

Common response parameters

Each time you send a request to call an API, the system returns a unique identifier, regardless of whether the call is successful.

Parameter descriptions

Name	Type	Required	Description
RequestID	String	Yes	The request ID. The request ID is returned, regardless of whether the API call is successful.
Code	String	No	The error code.
Message	String	No	The reason of failure, which appears when the API call fails.
Result	The type varies with the request, which is subject to the returned result of the specific API.	No	The request result, which appears when the API call is successful.

Note

- If the API call is successful, RequestID is returned and the HTTP return code is 200.
- If the API call fails, RequestID, Code, and Message are returned and the HTTP return code is 4xx or 5xx.

Instance types

```
{
  "rds.mys2.small":{
    "cpu":2,
    "memory":4096,
    "disk":51200,
    "max_connections":60
  },
  "rds.mys2.mid":{
    "cpu":4,
    "memory":4096,
    "disk":51200,
    "max_connections":150
  },
  "rds.mys2.standard":{
    "cpu":6,
    "memory":4096,
    "disk":51200,
    "max_connections":300
  },
  "rds.mys2.large":{
    "cpu":8,
    "memory":7200,
    "disk":102400,
    "max_connections":600
  },
  "rds.mys2.xlarge":{
    "cpu":9,
    "memory":12000,
    "disk":204800,
    "max_connections":1500
  },
  "rds.mys2.2xlarge":{
    "cpu":10,
    "memory":20000,
    "disk":512000,
    "max_connections":2000
  }
}
```

5.4.2.12.2. Connect to API operations

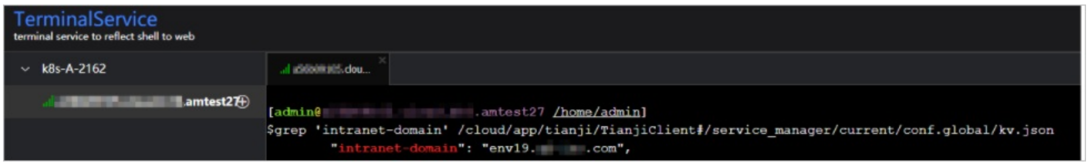
This topic describes how to connect to control-side and deployment-side API operations.

Procedure

1. Log on to Apsara Infrastructure Management Framework.
2. In the left-side navigation pane, choose **Operations > Machine Operations**.
3. Select a project from the drop-down list or enter a cluster or machine name to search for the target machine.
4. Connect to API operations.
    - Connect to control-side API operations
        a. Find the target machine and click **Terminal** in the **Actions** column to log on to the machine.

        b. On the command line, enter the following command and press the Enter key to obtain the value of intranet-domain.

        ```
        grep 'intranet-domain' /cloud/app/tianji/TianjiClient#/service_manager/current/conf.global/kv.json
        ```

        ```
        [admin@[redacted].amtest27 /home/admin]
        $grep 'intranet-domain' /cloud/app/tianji/TianjiClient#/service_manager/current/conf.global/kv.json
                "intranet-domain": "env19.[redacted].com",
        ```

        c. Use one of the following methods to connect to control-side API operations. ListInstance is used in the example.

        - GET request

        ```
        curl 'xdb-master.xdb.{intranet-domain}:15678? Action=ListInstance'
        ```

        - POST request

        ```
        curl 'xdb-master.xdb.{intranet-domain}:15678' -X POST -d '{"Action":"ListInstance"}'
        ```

    - Connect to deployment-side API operations
        a. Find the target machine and record the IP address in the Hostname column.

        b. Use one of the following methods to connect to deployment-side API operations. CheckState is used in the example.

        Assume that the IP address of the target machine is 127.0.XX.XX.

        - GET request

        ```
        curl '127.0.XX.XX:18765? Action=CheckState&Port=3606'
        ```

        - POST request

        ```
        curl '127.0.XX.XX:18765' -X POST -d '{"Action":"CheckState","Port":3606}'
        ```

5.4.2.12.3. APIs on the control side

5.4.2.12.4. APIs on the deployment side

5.4.2.13. Appendix

5.4.2.13.1. Project component info report

This report displays the name and status for each type of project components, including services, server roles, and machines.

Item	Description
Project	The project name.
Cluster	The name of a cluster in the project.
Service	The name of a service in the cluster.
Server Role	The name of a server role in the service.
Server Role Status	The running status of the server role on the machine.
Server Role Action	The action that the server role performs on the machine. Data is available only when Apsara Infrastructure Management Framework asks the server role to perform certain actions, such as rolling and restart actions.
Machine Name	The hostname of the machine.
IP	The IP address of the machine.
Machine Status	The running status of the machine.
Machine Action	The action that Apsara Infrastructure Management Framework asks the machine to perform, such as the clone action.

5.4.2.13.2. IP list

This report displays the IP addresses of physical machines and Docker applications.

IP List of Physical Machines

Item	Description
Project	The project name.
Cluster	The cluster name.

Item	Description
Machine Name	The hostname of the machine.
IP	The IP address of the machine.

IP List of Docker Applications

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Machine Name	The hostname of the machine.
Docker Host	The Docker hostname.
Docker IP	The Docker IP address.

5.4.2.13.3. Machine info report

This report displays the statuses of machines and server roles on the machines.

Machine Status

Displays all the machines currently managed by Apsara Infrastructure Management Framework and their corresponding statuses. In the **Global Filter** section at the top of the page, select the project, cluster, and machine from the **project**, **cluster**, and **machine** drop-down lists, and then click **Filter** on the right to filter the data.

Item	Description
Machine Name	The machine name.
IP	The IP address of the machine.
Machine Status	The machine status.
Machine Action	The action currently performed by the machine.
Machine Action Status	The action status.
Status Description	The description about the machine status.

Expected Server Role List

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Server Role	The name of the expected server role on the machine.

Abnormal Monitoring Status

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Monitored Item	The name of the monitored item.
Level	The level of the monitored item.
Description	The description of the monitored item contents.
Updated At	The updated time of the monitored item.

Server Role Version and Status on Machine

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Server Role	The server role name.
Server Role Status	The status of the server role.
Target Version	The expected version of the server role on the machine.
Current Version	The current version of the server role on the machine.
Status Description	The description about the status.
Error Message	The exception message of the server role.

Monitoring Status

Select a row in the **Machine Status** section to display the corresponding information in this list.

Item	Description
Machine Name	The machine name.
Server Role	The server role name.

Item	Description
Monitored Item	The name of the monitored item.
Level	The level of the monitored item.
Description	The description of the monitored item contents.
Updated At	The updated time of the monitored item.

5.4.2.13.4. Rolling info report

This report displays the running and completed rolling tasks and the task-related status.

Choose a rolling action

This list only displays the running rolling tasks. If no rolling task is running, no data is available in the list.

Item	Description
Cluster	The cluster name.
Git Version	The version of change that triggers the rolling task.
Description	The description about the change entered by a user when the user submits the change.
Start Time	The start time of the rolling task.
End Time	The end time of the rolling task.
Submitted By	The ID of the user who submits the change.
Rolling Task Status	The current status of the rolling task.
Submitted At	The time when the change is submitted.

Server Role in Job

Select a rolling task in the **Choose a rolling action** section to display the rolling status of server roles related to the selected task. If no rolling task is selected, the server role statuses of all historical rolling tasks are displayed.

Item	Description
Server Role	The server role name.
Server Role Status	The rolling status of the server role.

Item	Description
Error Message	The exception message of the rolling task.
Git Version	The version of change to which the rolling task belongs.
Start Time	The start time of the rolling task.
End Time	The end time of the rolling task.
Approve Rate	The proportion of machines that have the rolling task approved by the decider.
Failure Rate	The proportion of machines that have the rolling task failed.
Success Rate	The proportion of machines that have the rolling task succeeded.

Server Role Rolling Build Information

The source version and target version of each application under the server role in the rolling process.

Item	Description
App	The name of the application that requires rolling in the server role.
Server Role	The server role to which the application belongs.
From Build	The version before the upgrade.
To Build	The version after the upgrade.

Server Role Statuses on Machines

Select a server role in the **Server Role in Job** section to display the deployment status of this server role on the machine.

Item	Description
Machine Name	The name of the machine on which the server role is deployed.
Expected Version	The target version of the rolling.
Actual Version	The current version.
State	The status of the server role.
Action Name	The Apsara Infrastructure Management Framework action currently performed by the server role.

Item	Description
Action Status	The action status.

5.4.2.13.5. Machine RMA approval pending list

Some Apsara Infrastructure Management Framework actions (such as restart) on machines and server roles can be triggered by users, but this type of actions must be reviewed and approved. This report is used to process the actions that must be reviewed and approved.

Machine

Displays the basic information of pending approval machines.

Item	Description
Project	The project name.
Cluster	The cluster name.
Hostname	The hostname of the machine.
IP	The IP address of the machine.
State	The running status of the machine.
Action Name	The action on the machine.
Action Status	The status of the action on the machine.
Actions	The approval button.

Machine Serverrole

Displays the information of server roles on the pending approval machines.

Item	Description
Project	The project name.
Cluster	The cluster name.
Hostname	The hostname of the machine.
IP	The IP address of the machine.
Serverrole	The server role name.
State	The running status of the server role.
Action Name	The action on the server role.

Item	Description
Action Status	The status of the action on the server role.
Actions	The approval button.

Machine Component

Displays the hard disk information of pending approval machines.

Item	Description
Project	The project name.
Cluster	The cluster name.
Hostname	The hostname of the machine.
Component	The hard disk on the machine.
State	The running status of the hard disk.
Action Name	The action on the hard disk.
Action Status	The status of the action on the hard disk.
Actions	The approval button.

5.4.2.13.6. Registration vars of services

This report displays values of all service registration variables.

Item	Description
Service	The service name.
Service Registration	The service registration variable.
Cluster	The cluster name.
Update Time	The updated time.

5.4.2.13.7. Virtual machine mappings

Use the global filter to display the virtual machines of a specific cluster.

Displays the information of virtual machines in the cluster. Data is available only when virtual machines are deployed in the cluster.

Item	Description
Project	The project name.
Cluster	The cluster name.
VM	The hostname of the virtual machine.
Currently Deployed On	The hostname of the physical machine on which the virtual machine is currently deployed.
Target Deployed On	The hostname of the physical machine on which the virtual machine is expected to be deployed.

5.4.2.13.8. Service inspector report

Use the global filter to display the service inspection reports of a specific cluster.

Service Inspector: Data is available only for services with inspection configured.

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Description	The contents of the inspection report.
Level	The level of the inspection report.

5.4.2.13.9. Resource application report

In the **Global Filter** section, select the project, cluster, and machine from the **project**, **cluster**, and **machine** drop-down lists and then click **Filter** on the right to display the corresponding resource application data.

Change Mappings

Item	Description
Project	The project name.
Cluster	The cluster name.
Version	The version where the change occurs.
Resource Process Status	The resource application status in the version.
Msg	The exception message.

Item	Description
Begintime	The start time of the change analysis.
Endtime	The end time of the change analysis.

Changed Resource List

Item	Description
Res	The resource ID.
Type	The resource type.
Name	The resource name.
Owner	The application to which the resource belongs.
Parameters	The resource parameters.
Ins	The resource instance name.
Instance ID	The resource instance ID.

Resource Status

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
APP	The application of the server role.
Name	The resource name.
Type	The resource type.
Status	The resource application status.
Parameters	The resource parameters.
Result	The resource application result.
Res	The resource ID.
Reprocess Status	The status of the interaction with Business Foundation System during the VIP resource application.

Item	Description
Reprocess Msg	The error message of the interaction with Business Foundation System during the VIP resource application.
Reprocess Result	The result of the interaction with Business Foundation System during the VIP resource application.
Refer Version List	The version that uses the resource.
Error Msg	The exception message.

5.4.2.13.10. Statuses of project components

This report displays the status of all server roles in an abnormal status on machines of the project, and the monitoring information (alert information reported by the server role to Apsara Infrastructure Management Framework monitor) of server roles and machines.

Error State Component Table

Only displays the information of server roles that are not in GOOD status and server roles to be upgraded.

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Machine Name	The machine name.
Need Upgrade	Whether the current version reaches the final status.
Server Role Status	The current status of the server role.
Machine Status	The current status of the machine.

Server Role Alert Information

Select a row in the **Error State Component Table** section to display the corresponding information in the list.

Item	Description
Cluster	The cluster name.
Service	The service name.

Item	Description
Server Role	The server role name.
Machine Name	The machine name.
Monitored Item	The monitored item name of the server role.
Level	The alert level.
Description	The description about the alert contents.
Updated At	The updated time of the alert information.

Machine Alert Information

Select a row in the **Error State Component Table** section to display the corresponding information in the list.

Item	Description
Cluster	The cluster name.
Machine Name	The machine name.
Monitored Item	The monitored item name of the server role.
Level	The alert level.
Description	The description about the alert contents.
Updated At	The updated time of the alert information.

Service Inspector Information

Select a row in the **Error State Component Table** section to display the corresponding information in the list.

Item	Description
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Monitored Item	The monitored item name of the server role.
Level	The alert level.
Description	The description about the alert contents.
Updated At	The updated time of the alert information.

5.4.2.13.11. Relationship of service dependency

This report displays the dependencies among server roles. Use the global filter to display the data of a specific cluster in the list.

Item	Description
Project	The project name.
Cluster	The cluster name.
Service	The service name.
Server Role	The server role name.
Dependent Service	The service on which the server role depends.
Dependent Server Role	The server role on which the server role depends.
Dependent Cluster	The cluster to which the dependent server role belongs.
Dependency in Final Status	Whether the dependent server role reaches the final status.

5.4.2.13.12. Check report of network topology

This report checks if network devices and machines have wirecheck alerts.

Check Report of Network Topology

Checks if network devices have wirecheck alerts.

Item	Description
Cluster	The cluster name.
Network Instance	The name of the network device.
Level	The alert level.
Description	The description about the alert information.

Check Report of Server Topology

Checks if servers (machines) have wirecheck alerts.

Item	Description
Cluster	The cluster name.

Item	Description
Machine Name	The server (machine) name.
Level	The alert level.
Description	The description about the alert information.

5.4.2.13.13. Clone report of machines

This report displays the clone progress and status of machines.

Clone Progress of Machines

Item	Description
Project	The project name.
Cluster	The cluster name.
Machine Name	The machine name.
Machine Status	The running status of the machine.
Clone Progress	The progress of the current clone process.

Clone Status of Machines

Item	Description
Project	The project name.
Cluster	The cluster name.
Machine Name	The machine name.
Machine Action	The action performed by the machine, such as the clone action.
Machine Action Status	The status of the action performed by the machine.
Machine Status	The running status of the machine.
Level	Whether the clone action performed by the machine is normal.
Clone Status	The current status of the clone action performed by the machine.

5.4.2.13.14. Auto healing/install approval pending report

The list structure is the same as the machine RMA approval pending list, whereas this view is used for the approval during the installation. For more information, see Machine RMA approval pending list.

5.4.2.13.15. Machine power on or off statuses of clusters

After a cluster starts or shuts down machines, you can view the related information in this report.

Cluster Running Statuses

If a cluster is starting or shutting down machines, the corresponding data is available in this list. No data indicates that no cluster has machines shut down.

Item	Description
Project	The project name.
Cluster	The cluster name.
Action Name	The startup or shutdown action that is being performed by the cluster.
Action Status	The status of the action.

Server Role Power On or Off Statuses

Displays the power on or off statuses of server roles in the cluster selected in the **Cluster Running Statuses** section.

Select a row in the **Cluster Running Statuses** section to display the information of the corresponding cluster in the list.

Item	Description
Cluster	The cluster name.
Server Role	The server role name.
Action Name	The startup or shutdown action that is being performed by the server role.
Action Status	The status of the action.

Statuses on Machines

Displays the running status of the selected server role on machines.

Select a row in the **Server Role Power On or Off Statuses** section to display the information of the corresponding server role in the list.

Item	Description
Cluster	The cluster name.
Server Role	The server role name.

Item	Description
Machine Name	The machine name.
Server Role Status	The running status of the server role.
Server Role Action	The action currently performed by the server role.
Server Role Action Status	The status of the action.
Error Message	The exception message.

Machine Statuses

Displays the running statuses of machines in the selected cluster.

Select a row in the **Statuses on Machines** section to display the information of the corresponding machine in the list.

Item	Description
Cluster	The cluster name.
Machine Name	The machine name.
IP	The IP address of the machine.
Machine Status	The running status of the machine.
Machine Action	The action currently performed by the machine.
Machine Action Status	The action status of the machine.
Error Message	The exception message.

6.Log O&M

6.1. Overview of the Kibana log O&M platform

Kibana is an open source analytics and visualization platform. Logs for Apsara Stack Agility services such as ApsaraDB RDS, Xnet2, Asapi, and POP are accessible to Elasticsearch, Logstash, and Kibana (ELK). You can use Kibana to view and retrieve related logs.

For more information about how to use Kibana 7.2, see Kibana Guide.

6.2. Log on to the Kibana log O&M platform

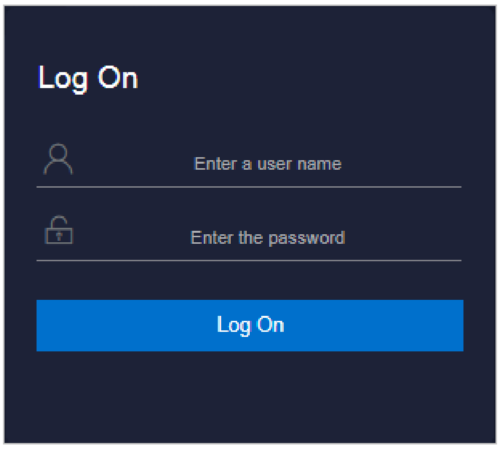
This topic describes how to log on to the Kibana log O&M platform.

Prerequisites

- ASO access address in the format of http:// *region-id*.aso.*intranet-domain-id*.com.
- Google Chrome browser (recommended).

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.



Note You can select a language from the drop-down list in the upper-right corner of the page.

3. Enter your username and password.

Note Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

When you log on to the ASO console for the first time, you must change the password of your username as prompted.

To enhance security, a password must meet the following requirements:

- It must contain uppercase and lowercase letters.
- It must contain digits.
- It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
- It must be 10 to 20 characters in length.

4. Click **Log On** to go to the **ASO** console.
5. In the left-side navigation pane, choose **Product Management > Products**.
6. In the **Apsara Stack > Basic O&M** section, click **Kibana Log Management**.
7. In the dialog box that appears, enter the username and password for the Kibana log O&M platform, and then click **LOG IN**.

> **Note** If you log on to the Kibana log O&M platform for the first time, you must enter the username and password.

7.PaaS operations and maintenance

7.1. PaaS console

7.1.1. PaaS console overview

The PaaS console is designed based on the platform and products. The console is mainly used to view, manage, and upgrade the products deployed in the PaaS console. The PaaS console also provides task management capabilities to support orchestration, O&M, and custom extension.

7.1.2. Log on to the PaaS console

This topic describes how to log on to the PaaS console.

Prerequisites

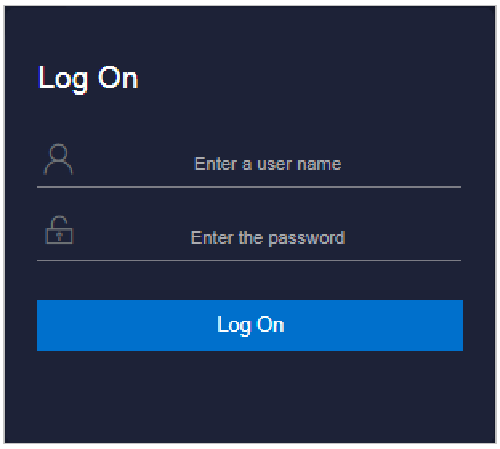
- The URL of the ASO console, and the username and password used for logging on to the console are obtained from the deployment personnel or an administrator.

  The URL of the ASO console is in the following format: *region-id*.aso.*intranet-domain-id*.com.

- A browser is available. We recommend that you use the Google Chrome browser.

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.



> ⓘ **Note** You can select a language from the drop-down list in the upper-right corner of the page.

3. Enter your username and password.

> ⓘ **Note** Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

When you log on to the ASO console for the first time, you must change the password of your username as prompted.

To enhance security, a password must meet the following requirements:

- It must contain uppercase and lowercase letters.
- It must contain digits.
- It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
- It must be 10 to 20 characters in length.

4. Click **Log On** to go to the **ASO** console.
5. In the left-side navigation pane, choose **Products** > **Product List**.
6. In the **Apsara Stack O&M** > **Basic O&M** section, click **PaaS Console**.

7.1.3. Overview

The Overview module provides you with brief information about the health status of Apsara Stack Agility PaaS OM Platform.

7.1.3.1. Health Panorama

The Health Panorama module provides the overall system health status, including cluster health, product health, and release link health. O&M engineers can identify issues by analyzing the system health status.

7.1.3.1.1. View cluster health

The Cluster Health tab provides the health status of nodes in a cluster. You can go to the homepage of the Grafana service from this tab.

Procedure

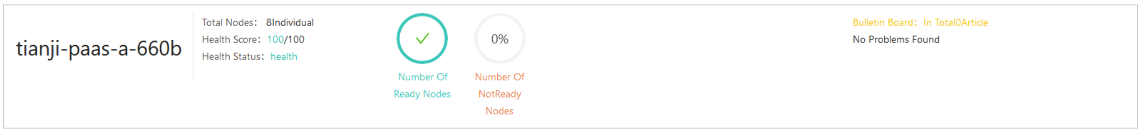
1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Overview** > **Health Panorama**.

   The **Cluster Health** tab is displayed.

2. On the **Cluster Health** tab, view details of cluster health, node health, and cluster events.

   - Cluster health details

     You can view cluster health details such as the total nodes, health score, and health status.

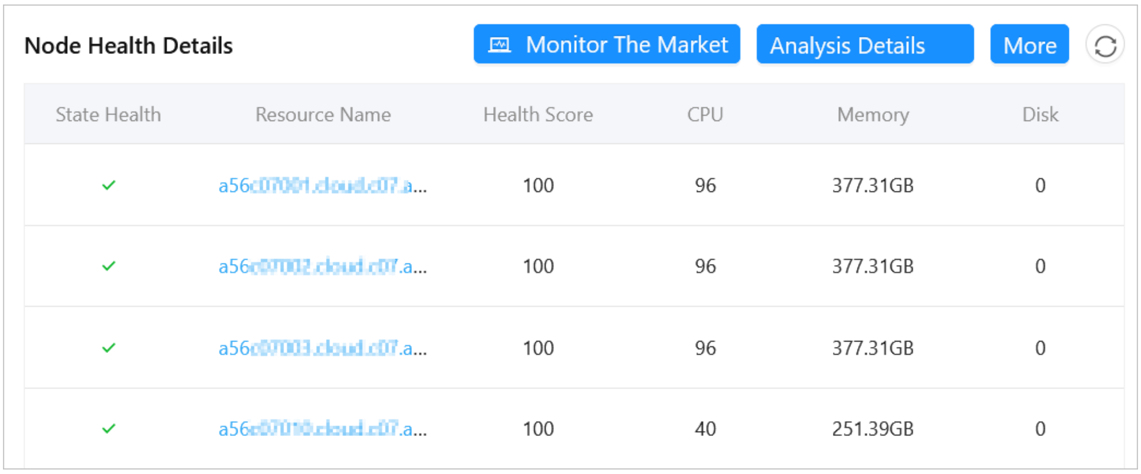
     tianji-paas-a-660b

     Total Nodes: 8Individual
     Health Score: 100/100
     Health Status: health

     Bulletin Board: In Total0Article
     No Problems Found

   - Node health details

     You can view node health details such as the health status of each node and the cluster topology.

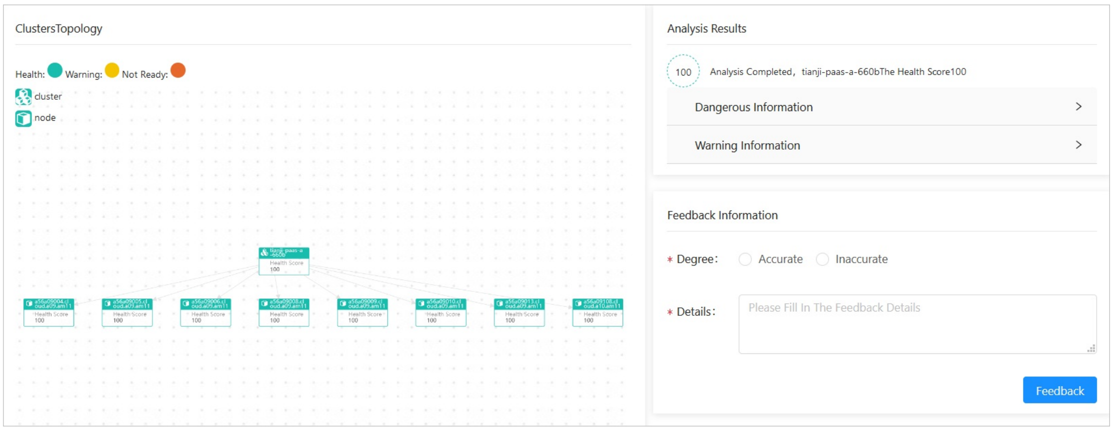


Node Health Details

State Health	Resource Name	Health Score	CPU	Memory	Disk
✓	a56[redacted].a...	100	96	377.31GB	0
✓	a56[redacted].a...	100	96	377.31GB	0
✓	a56[redacted].a...	100	96	377.31GB	0
✓	a56[redacted].a...	100	40	251.39GB	0

- Click the More button to go to the **Nodes** page and view the details of nodes.
- Click the ⟳ button to view the latest node data.
- Click the Analysis Details button to view the cluster topology and analysis results of the health status. You can also provide feedback about the accuracy of the analysis results.

> **Note**
>
> - If the health score is lower than 100, the **Analysis Results** section displays warning information of each unhealthy node and its child nodes.
> - When you move the pointer over a node of the **Release Link Topology**, the indicator information of the node is displayed.



ClustersTopology

Analysis Results

100 Analysis Completed，tianji-paas-a-660bThe Health Score100

Dangerous Information >

Warning Information >

Feedback Information

* Degree： ○ Accurate ○ Inaccurate

* Details： Please Fill In The Feedback Details

- Cluster events

  You can view all event parsing logs of a cluster.

  - Click **Original Alarm Information 10 Article** to view original alerts that are triggered by cluster events.
  - In the upper-right corner of the **Cluster event** section, click the **More** button to go to the **Cluster event** page and view all event information of a cluster.

7.1.3.1.2. View product health

The Product Health tab provides the health status of products that are deployed in a cluster. You can go to the homepage of the Grafana service from this tab.

Procedure

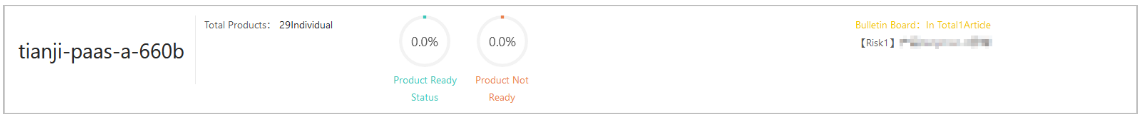
1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Overview > Health Panorama**.

   The **Cluster Health** tab is displayed.

2. Click the **Product Health** tab to view details of product health.

   - Overall status of product health

     You can view the number, ready status, and risks of products in a cluster.

     tianji-paas-a-660b

     Total Products: 29Individual

     0.0% Product Ready Status

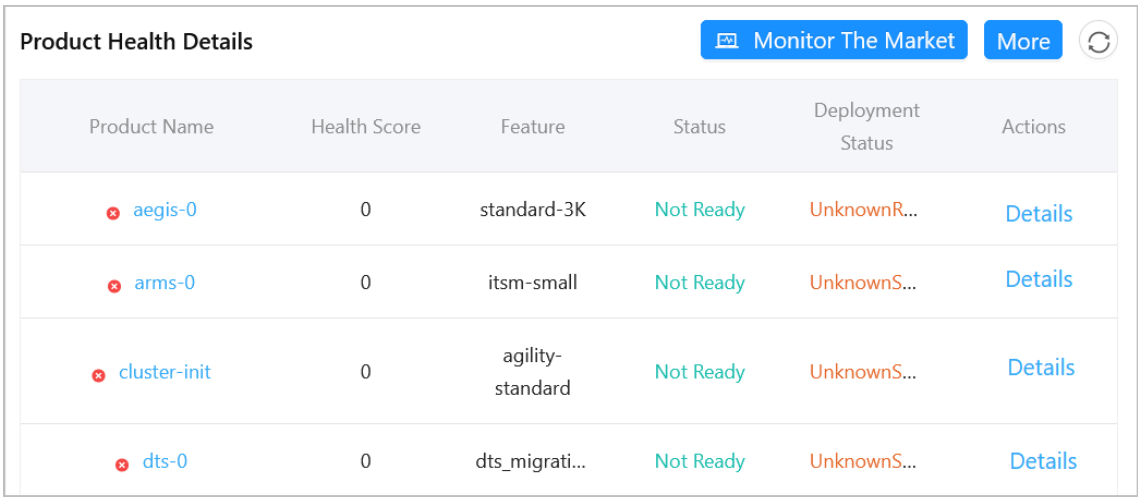
     0.0% Product Not Ready

     Bulletin Board: In Total1Article

     【Risk1】 [redacted]

   - Product health details

     You can view the health status of a product.

     Product Health Details

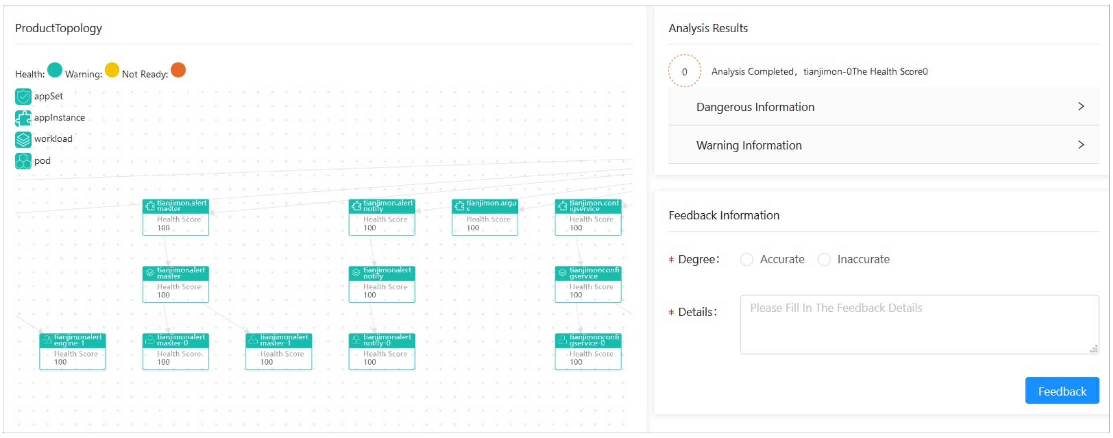
Product Name	Health Score	Feature	Status	Deployment Status	Actions
aegis-0	0	standard-3K	Not Ready	UnknownR...	Details
arms-0	0	itsm-small	Not Ready	UnknownS...	Details
cluster-init	0	agility-standard	Not Ready	UnknownS...	Details
dts-0	0	dts_migrati...	Not Ready	UnknownS...	Details

     - Click the More button to go to the **Products** page and view the details of products.

     - Click the ⟳ button to view the latest product data.

- Find the product that you want to view, and click **Details** in the **Actions** column. On the details page, view the product topology and analysis results of the health status. You can also provide feedback about the accuracy of the analysis results.

> **Note** When you move the pointer over a node of the **Product Topology**, the indicator information of the node is displayed.



Analysis Results

0 Analysis Completed，tianjimon-0The Health Score0

Feedback Information

* Degree： ○ Accurate ○ Inaccurate

* Details： Please Fill In The Feedback Details

- Cluster events

  You can view all event parsing logs of a cluster.

  - Click **Original Alarm Information 10 Article** to view original alerts that are triggered by cluster events.
  - In the upper-right corner of the **Cluster event** section, click the **More** button to go to the **Cluster event** page and view all event information of a cluster.

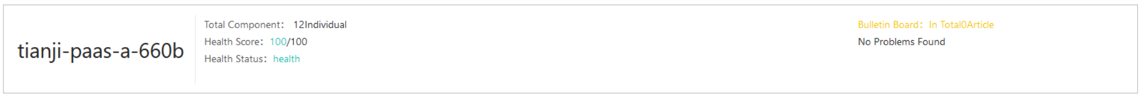
7.1.3.1.3. View release link health

The Release Link Health tab provides the health status of release link components. This helps you better understand the overall health status of a cluster. You can go to the homepage of the Grafana service from this tab.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Overview > Health Panorama**.The **Cluster Health** tab is displayed.
2. Click the **Release Link Health** tab to view the health status of the release link.
   - Overall status of release link health

     You can view the number of components, health score, and health status of the cluster release link.

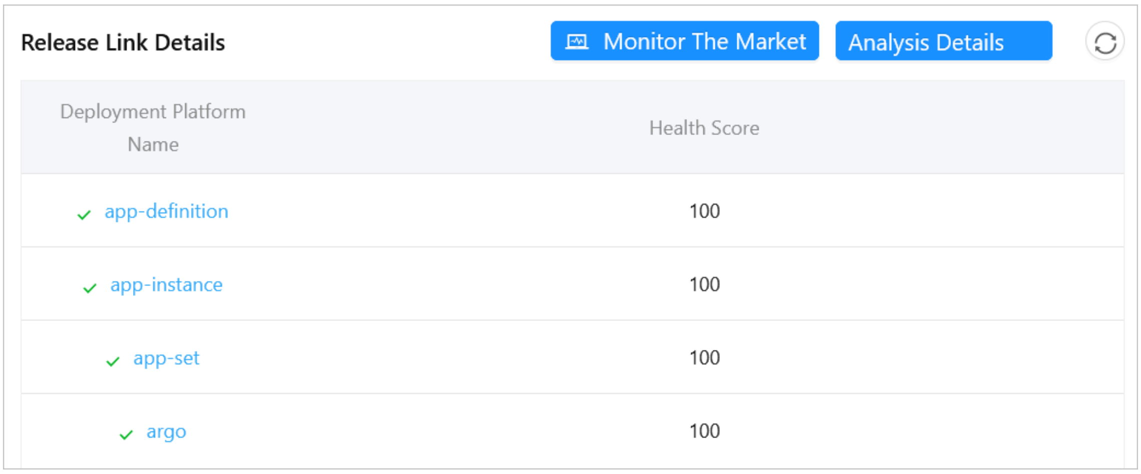
     tianji-paas-a-660b

     Total Component： 12Individual
     Health Score： 100/100
     Health Status： health

     Bulletin Board：In Total0Article
     No Problems Found

   - Details of release link health

You can view the health scores of release link components, donut chart of component distribution, and release link topology.

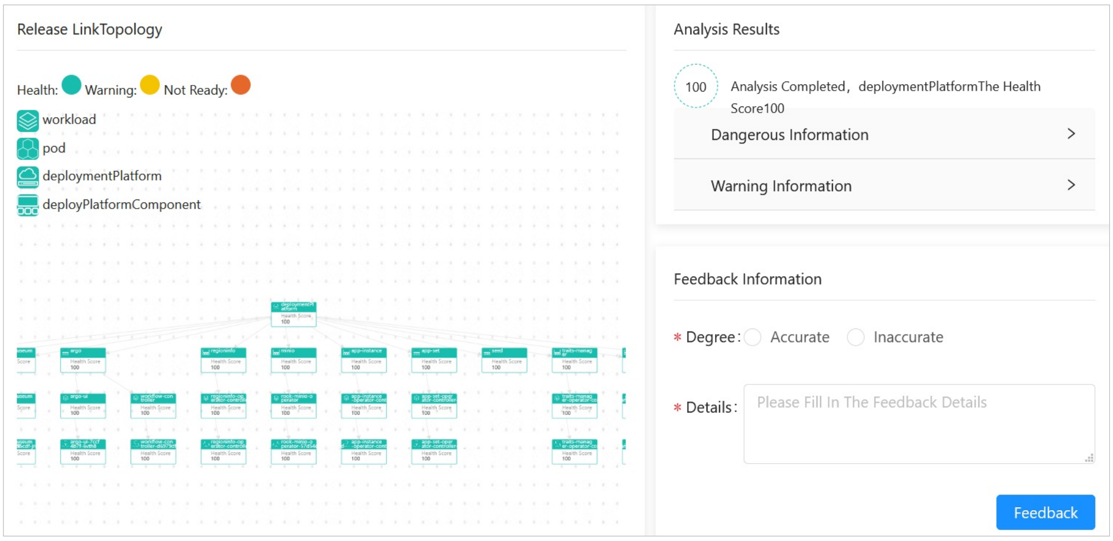


Release Link Details

Deployment Platform Name	Health Score
✓ app-definition	100
✓ app-instance	100
✓ app-set	100
✓ argo	100

- In the upper-right corner of the **Release Link Details** section, click the ⟳ button to view the latest component data.
- In the **Release Link Details** section, click the Analysis Details button to view the release link topology and analysis results of the health status. You can also provide feedback about the accuracy of the analysis results.

> **Note**
>
> - If the health score is lower than 100, the **Analysis Results** section displays warning information of each unhealthy node and its child nodes.
> - When you move the pointer over a node of the **Release Link Topology**, the indicator information of the node is displayed.



Release LinkTopology

Analysis Results

100 Analysis Completed，deploymentPlatformThe Health Score100

Dangerous Information >

Warning Information >

Feedback Information

* Degree：○ Accurate ○ Inaccurate

* Details：Please Fill In The Feedback Details

- Cluster events

  You can view all event parsing logs of a cluster.

- Click **Original Alarm Information 10 Article** to view original alerts that are triggered by cluster events.
- In the upper-right corner of the **Cluster event** section, click the **More** button to go to the **Cluster event** page and view all event information of a cluster.

7.1.3.2. Alert events

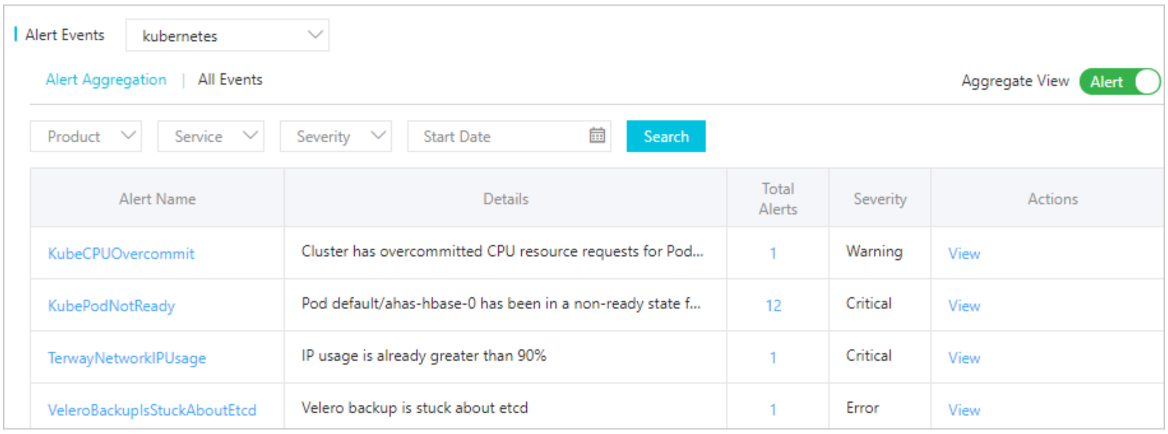
The Alert Events page displays all alert events and all aggregated alert events by alert or product name.

7.1.3.2.1. View aggregated alert events by alert name

You can view aggregated alert events by alert name on the Alert Aggregation tab.

Procedure

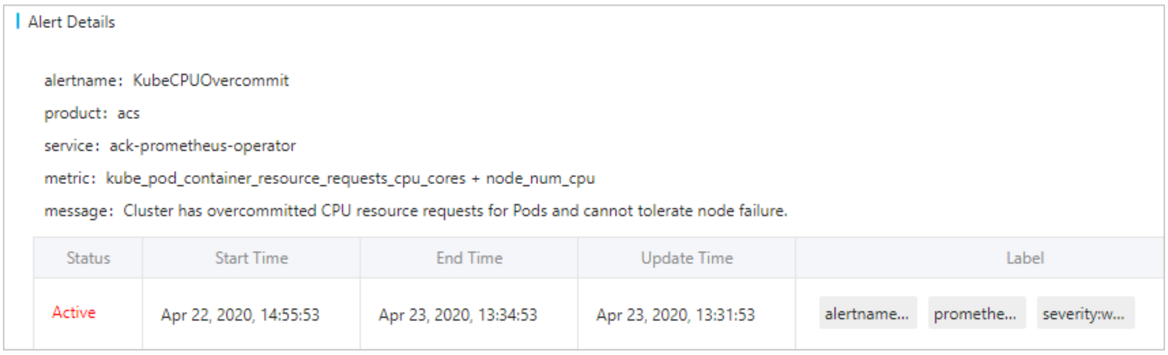
1. In the left-side navigation pane of the PaaS console, select **Alert Events** from the **Alerts** drop-down list.
   The **Alert Aggregation** tab is displayed by default.
2. In the upper part of the page, select the target cluster from the drop-down list. By default, all alert events that are aggregated by alert name are displayed.
3. In the alert name view, the Alert Aggregation tab displays all aggregated alert events by alert name. The aggregated alert event list includes the following columns: Alert Name, Details, Total Alerts, Severity, and Actions.



Alert Name	Details	Total Alerts	Severity	Actions
KubeCPUOvercommit	Cluster has overcommitted CPU resource requests for Pod...	1	Warning	View
KubePodNotReady	Pod default/ahas-hbase-0 has been in a non-ready state f...	12	Critical	View
TerwayNetworkIPUsage	IP usage is already greater than 90%	1	Critical	View
VeleroBackupIsStuckAboutEtcd	Velero backup is stuck about etcd	1	Error	View

4. (Optional)In the search box at the top of the tab, set Product, Service, Severity, and Start Date, and then click **Search** to query aggregated alert events that meet the conditions.
5. Find the target aggregated alert events. Click the name in the **Alert Name** column and the number in the **Total Alerts** column, or click **View** in the **Actions** column to view details of individual alert event within the aggregated alert events.

   The alert details include the following columns: Status, Start Time, End Time, Update Time, and Label.



Alert Details

alertname: KubeCPUOvercommit

product: acs

service: ack-prometheus-operator

metric: kube_pod_container_resource_requests_cpu_cores + node_num_cpu

message: Cluster has overcommitted CPU resource requests for Pods and cannot tolerate node failure.

Status	Start Time	End Time	Update Time	Label
Active	Apr 22, 2020, 14:55:53	Apr 23, 2020, 13:34:53	Apr 23, 2020, 13:31:53	alertname... promethe... severity:w...

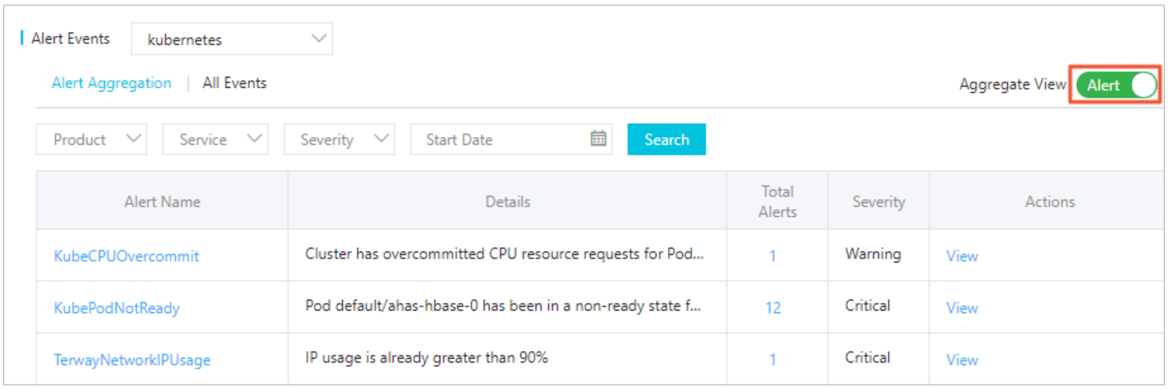
7.1.3.2.2. View aggregated alert events by product name

You can view aggregated alert events by product name on the Alert Aggregation tab.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Alert Events** from the **Alerts** drop-down list.
   The **Alert Aggregation** tab is displayed by default.
2. In the upper part of the page, select the target cluster from the drop-down list. By default, all alert events that are aggregated by alert name are displayed.
3. Turn off the **Aggregate View** to switch to the product name view.

   In the product name view, the **Alert Aggregation** tab displays all aggregated alert events by product name.

Alert Name	Details	Total Alerts	Severity	Actions
KubeCPUOvercommit	Cluster has overcommitted CPU resource requests for Pod...	1	Warning	View
KubePodNotReady	Pod default/ahas-hbase-0 has been in a non-ready state f...	12	Critical	View
TerwayNetworkIPUsage	IP usage is already greater than 90%	1	Critical	View

4. (Optional)In the search box at the top of the tab, set Product, Service, Severity, and Start Date, and then click **Search** to query aggregated alert events that meet the conditions.
5. Find the target aggregated alert events. Click the name in the **Alert Name** column and the number in the **Total Alerts** column, or click **View** in the **Actions** column to view details of individual alert events within the aggregated alert events. The alert details include the following columns: Status, Start Time, End Time, Update Time, and Label.

7.1.3.2.3. View all alert events

On the All Events tab, you can view all alert events generated in the PaaS console.

Procedure

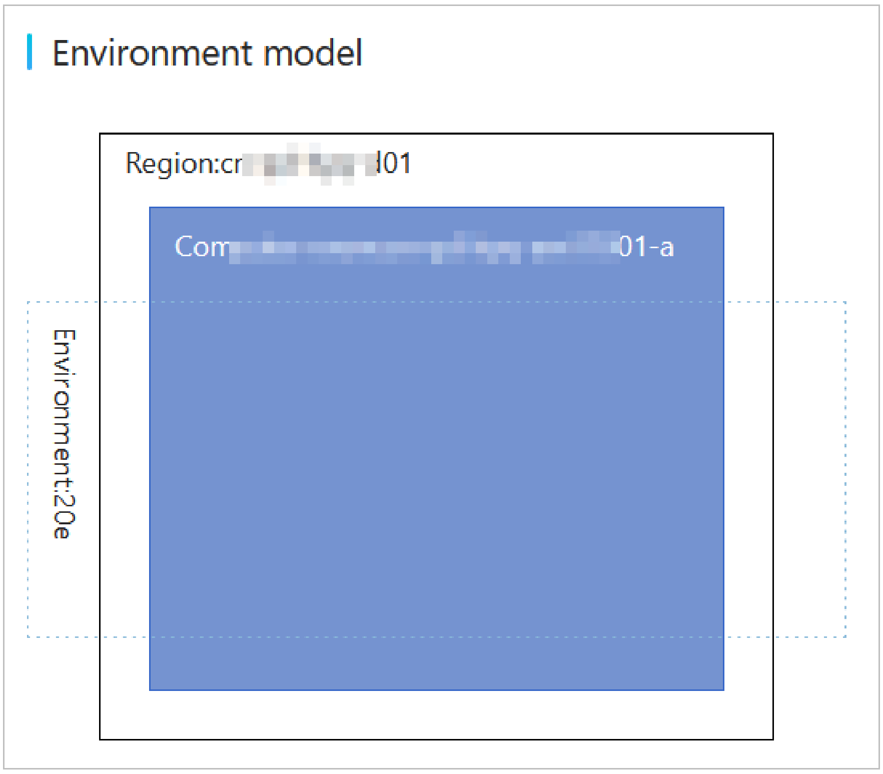
1. In the left-side navigation pane of the PaaS console, select **Alert Events** from the **Alerts** drop-down list.
2. Click the **All Events** tab.
3. All alert events are displayed on the tab. The alert event list includes the following columns: Alert Name, Start Time, End Time, Update Time, Status, Details, Severity, and Label.

7.1.3.3. Environment model

The Environment Model module displays the logical relationships among the region, zone, environment, and data center subsets in the Apsara Stack Agility PaaS console.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Overview > Environment model**.
2. On the **Environment model** page, view the logical relationships among the region, zone, environment, and data center subsets in the Apsara Stack Agility PaaS console.



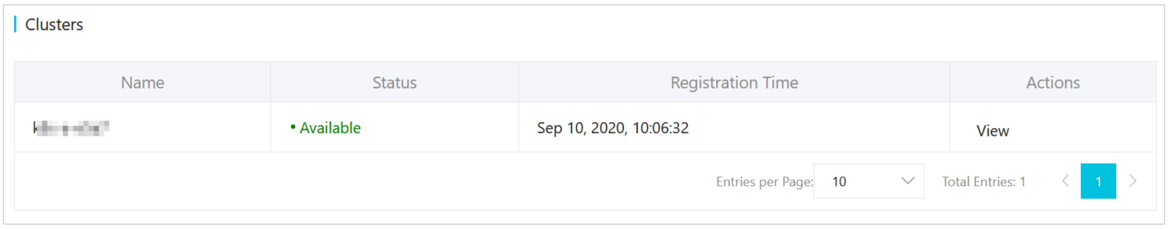
7.1.4. Clusters

7.1.4.1. View the cluster list

On the Clusters page, you can view the status and kubeconfig connection information of the PaaS-managed clusters.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Clusters > Clusters**.
2. On the **Clusters** page, view all clusters that are managed by PaaS.



Clusters

Name	Status	Registration Time	Actions
[redacted]	• Available	Sep 10, 2020, 10:06:32	View

3. Find a cluster, and click **View** in the **Actions** column to view the kubeconfig connection information of the cluster.

7.1.4.2. Node management

You can add node tags or taints for clusters to manage scheduling policies.

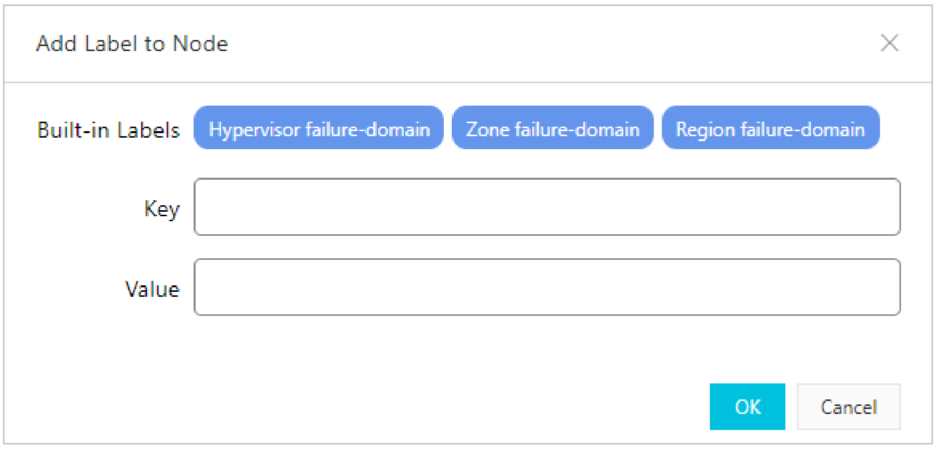
7.1.4.2.1. Add tags

You can add tags to nodes for subsequent cluster scheduling, configuration, and behavior customization.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Nodes** from the **Clusters** drop-down list.
2. (Optional)In the upper-left corner of the Nodes page, select the target cluster from the drop-down list.
3. Select one or more nodes to which you want to add a tag. Click **Add Label** in the lower-left corner.
4. Perform the following operations:
   - Add a built-in tag

     In the **Add Label to Node** dialog box, click a tag in the Built-in Labels field. The tag name is automatically filled into the Key field. Set **Value** and then click **OK**.



The following table describes the parameters.

Parameter	Description
Built-in Labels	Existing tags in the system. Valid values: - **Hypervisor failure-domain**: During output virtualization, virtual machines are distributed across different physical machines. This tag can be used to distribute pods to different physical machines. - **Zone failure-domain**: distributes Kubernetes nodes to different zones. - **Region failure-domain**: distributes Kubernetes nodes to different regions.
Key	After you click a tag in the Built-in Labels field, the tag name is automatically filled into the **Key** field. You can also set **Key** to specify a custom tag.
Value	The custom tag value.

- Add a custom tag

  In the **Add Label to Node** dialog box, set Key and Value, and then click **OK**.

7.1.4.2.2. Add taints

You can add taints to nodes for subsequent pod scheduling.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Nodes** from the **Clusters** drop-down list.
2. (Optional)In the upper-left corner of the Nodes page, select the target cluster from the drop-down list.
3. Select one or more nodes to which you want to add a taint. Click **Add Taint** in the lower-left corner.
4. Perform the following operations:
   - Add a built-in taint

     In the **Add Taint** dialog box, click a taint in the Built-in Taints field. The taint name is automatically filled into the Key field. Specify **Value** and **Effect**, and then click **OK**.

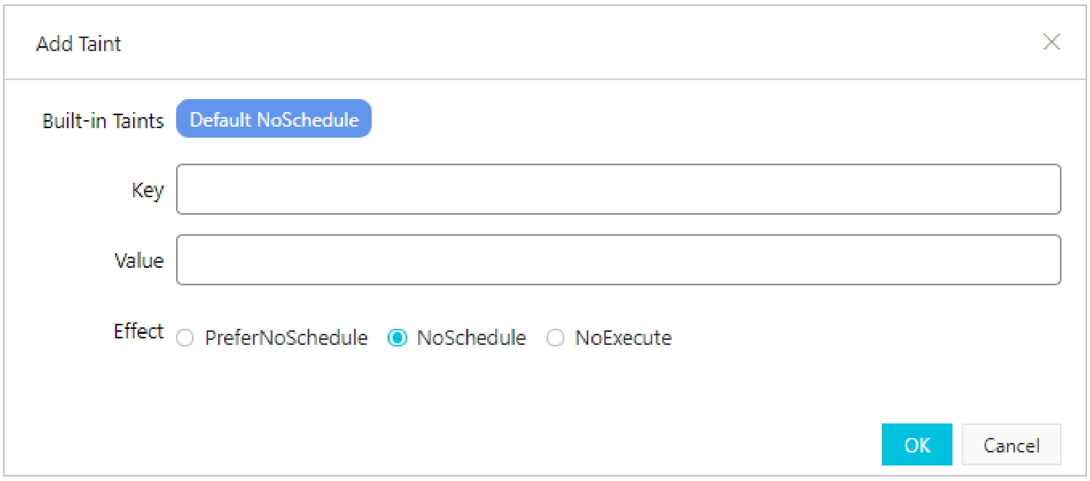
     The following table describes the parameters.

Parameter	Description
Built-in Taints	Existing taints in the system.
Key	After you click a taint in the Built-in Taints field, the taint name is automatically filled into the **Key** field. You can also set **Key** to specify a custom taint.
Value	The custom taint value.

Parameter	Description
Effect	The effects of the taint. Valid values: ▪ **PreferNoSchedule**: indicates that if possible, pods will not schedule the node. ▪ **NoSchedule**: indicates that pods will not be allowed to schedule the node. ▪ **NoExecute**: indicates that pods will not be allowed to schedule the node and that pods that are running on the node will be evicted.

- Create a custom taint

  In the **Add Taint** dialog box, specify **Key**, **Value**, and **Effect**, and then click **OK**.



Add Taint

Built-in Taints: Default NoSchedule

Key:

Value:

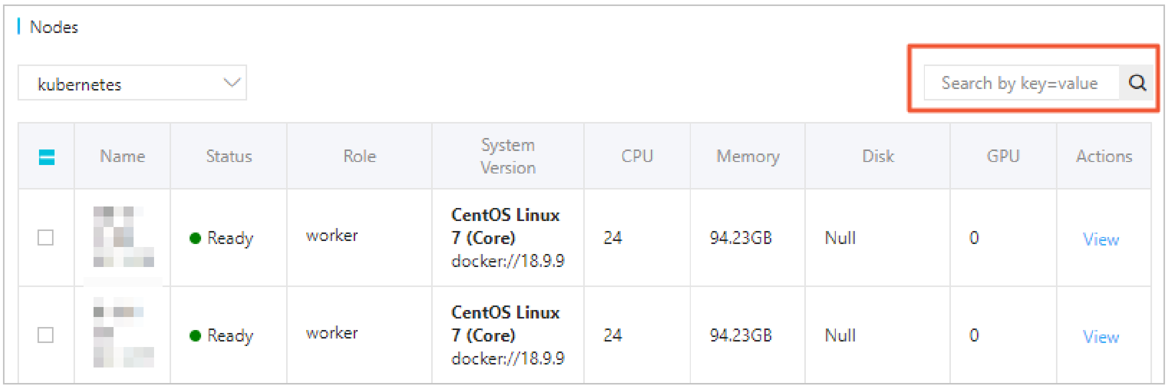
Effect: ○ PreferNoSchedule ● NoSchedule ○ NoExecute

7.1.4.2.3. Query nodes by tag

You can filter nodes by tag to find nodes that have a specified tag.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Nodes** from the **Clusters** drop-down list.
2. (Optional)In the upper-left corner of the Nodes page, select the target cluster from the drop-down list.
3. In the upper-right corner of the page, enter a tag name or specify a tag in the **key=value** format in the search box and then click the Search icon.



Nodes

kubernetes

Search by key=value

	Name	Status	Role	System Version	CPU	Memory	Disk	GPU	Actions
□	[redacted]	● Ready	worker	**CentOS Linux 7 (Core)** docker://18.9.9	24	94.23GB	Null	0	View
□	[redacted]	● Ready	worker	**CentOS Linux 7 (Core)** docker://18.9.9	24	94.23GB	Null	0	View

7.1.4.2.4. Delete a tag or taint

You can delete built-in or custom tags or taints from nodes. Kubernetes-defined tags of nodes cannot be deleted.

Procedure

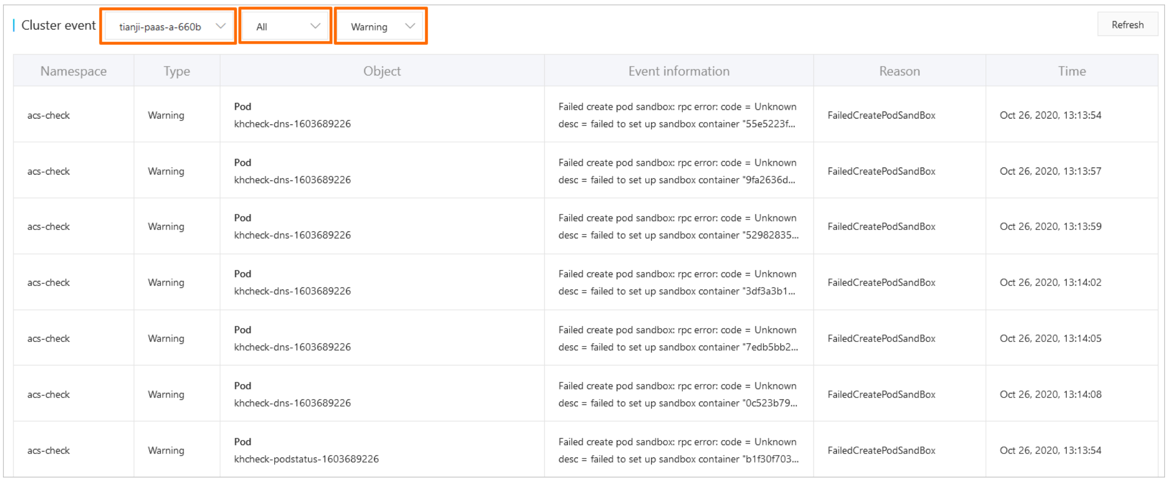
1. In the left-side navigation pane of the PaaS console, select **Nodes** from the **Clusters** drop-down list.
2. (Optional)In the upper-left corner of the Nodes page, select the target cluster from the drop-down list.
3. Find the target node and the target tag, and then click **View** in the **Actions** column.
4. In the dialog box that appears, move the pointer over the target tag or taint, and then click **Delete**.
5. In the message that appears, click **OK**.

7.1.4.3. Query event details

On the Cluster event page, you can view all event parsing logs of clusters that are deployed in the Apsara Stack Agility PaaS console.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Clusters > Events**.
2. In the upper-left corner of the page, filter events by cluster name, namespace, and log type to view details of event logs.



Namespace	Type	Object	Event information	Reason	Time
acs-check	Warning	Pod khcheck-dns-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "55e5223f...	FailedCreatePodSandBox	Oct 26, 2020, 13:13:54
acs-check	Warning	Pod khcheck-dns-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "9fa2636d...	FailedCreatePodSandBox	Oct 26, 2020, 13:13:57
acs-check	Warning	Pod khcheck-dns-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "52982835...	FailedCreatePodSandBox	Oct 26, 2020, 13:13:59
acs-check	Warning	Pod khcheck-dns-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "3df3a3b1...	FailedCreatePodSandBox	Oct 26, 2020, 13:14:02
acs-check	Warning	Pod khcheck-dns-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "7edb5bb2...	FailedCreatePodSandBox	Oct 26, 2020, 13:14:05
acs-check	Warning	Pod khcheck-dns-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "0c523b79...	FailedCreatePodSandBox	Oct 26, 2020, 13:14:08
acs-check	Warning	Pod khcheck-podstatus-1603689226	Failed create pod sandbox: rpc error: code = Unknown desc = failed to set up sandbox container "b1f30f703...	FailedCreatePodSandBox	Oct 26, 2020, 13:13:54

> ? **Note** In the upper-right corner of the page, you can view the latest information of event logs by clicking the **Refresh** button.

The following table describes relevant fields in the event list.

Field	Description
Namespace	The namespace associated with the event.
Type	The event type.
Object	The Kubernetes object that corresponds to the event.
Reason	The reason why the event was triggered.
Time	The time when the event was triggered.

7.1.5. Product center

7.1.5.1. Product list

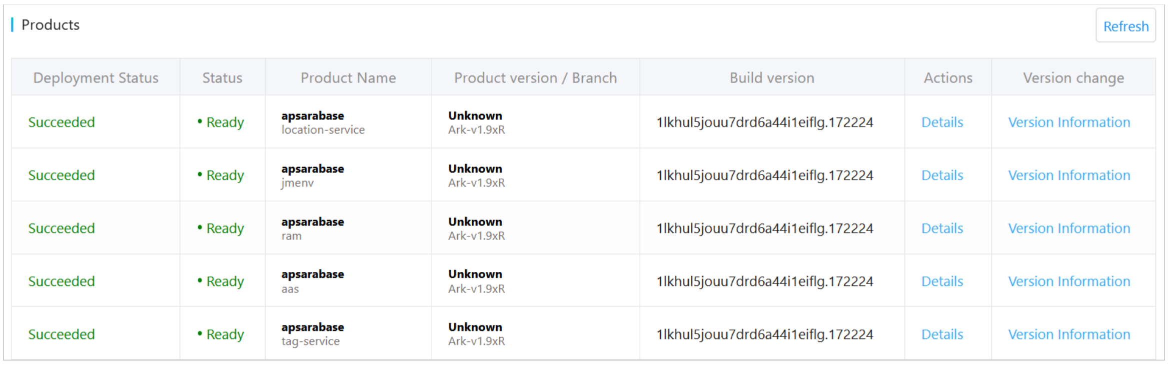
The product list displays the information about all products deployed in the PaaS console, including their names and versions. In the product list, you can perform O&M operations and view product resources or register variables. You can also remove products that are no longer needed.

7.1.5.1.1. View product details

You can view the details of products that are deployed in the Apsara Stack Agility PaaS console, including their names, versions, and components.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Product Center > Products**.
2. On the Products page, find the product that you want to view and click **Details** in the **Actions** column.

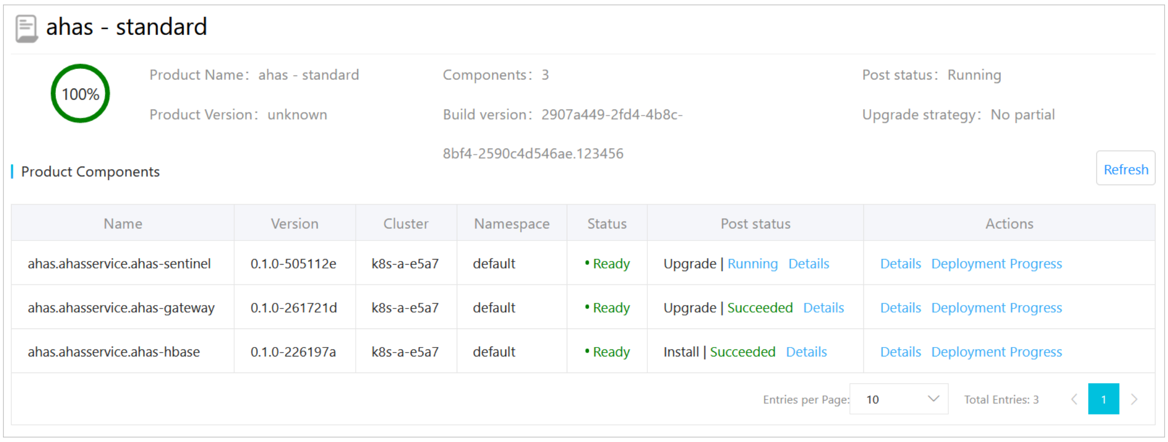


Products

Refresh

Deployment Status	Status	Product Name	Product version / Branch	Build version	Actions	Version change
Succeeded	• Ready	**apsarabase** location-service	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** jmenv	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** ram	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** aas	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** tag-service	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information

3. On the **Overview** page, view the name, version information, components, and release status of the product.



ahas - standard

100%

Product Name： ahas - standard

Product Version： unknown

Components： 3

Build version： 2907a449-2fd4-4b8c-8bf4-2590c4d546ae.123456

Post status： Running

Upgrade strategy： No partial

Product Components

Refresh

Name	Version	Cluster	Namespace	Status	Post status	Actions
ahas.ahasservice.ahas-sentinel	0.1.0-505112e	k8s-a-e5a7	default	• Ready	Upgrade | Running Details	Details Deployment Progress
ahas.ahasservice.ahas-gateway	0.1.0-261721d	k8s-a-e5a7	default	• Ready	Upgrade | Succeeded Details	Details Deployment Progress
ahas.ahasservice.ahas-hbase	0.1.0-226197a	k8s-a-e5a7	default	• Ready	Install | Succeeded Details	Details Deployment Progress

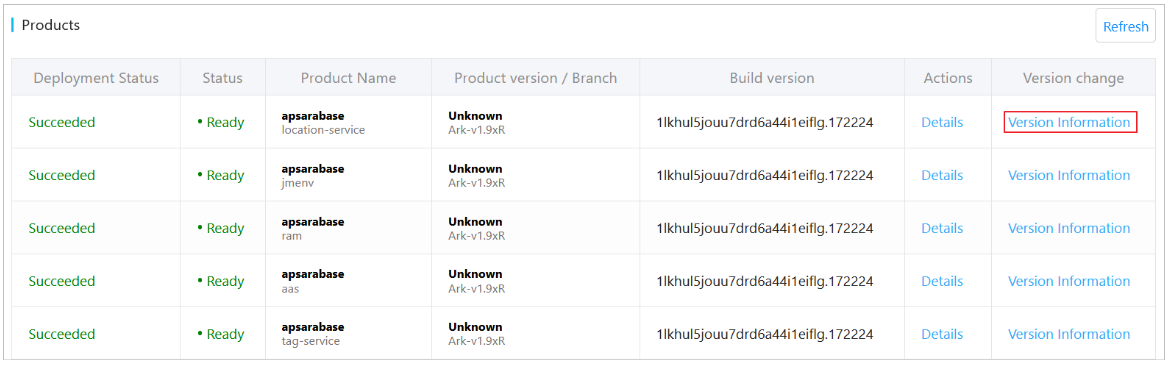
Entries per Page: 10 Total Entries: 3 < 1 >

7.1.5.1.2. View product versions

You can view versions of products that are deployed in the Apsara Stack Agility PaaS console.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Product Center > Products**.
2. On the **Products** page, find the product that you want to view and click **Version Information** in the **Version change** column.

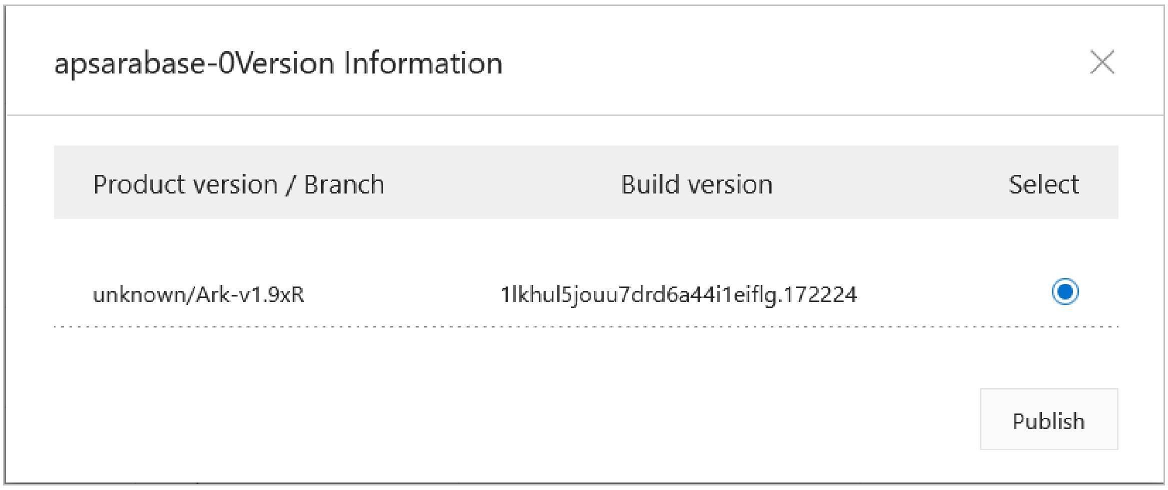


Products

Refresh

Deployment Status	Status	Product Name	Product version / Branch	Build version	Actions	Version change
Succeeded	• Ready	**apsarabase** location-service	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** jmenv	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** ram	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** aas	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information
Succeeded	• Ready	**apsarabase** tag-service	**Unknown** Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	Details	Version Information

3. In the **Version Information** dialog box, view the version information of the product.



apsarabase-0Version Information

Product version / Branch	Build version	Select
unknown/Ark-v1.9xR	1lkhul5jouu7drd6a44i1eiflg.172224	●

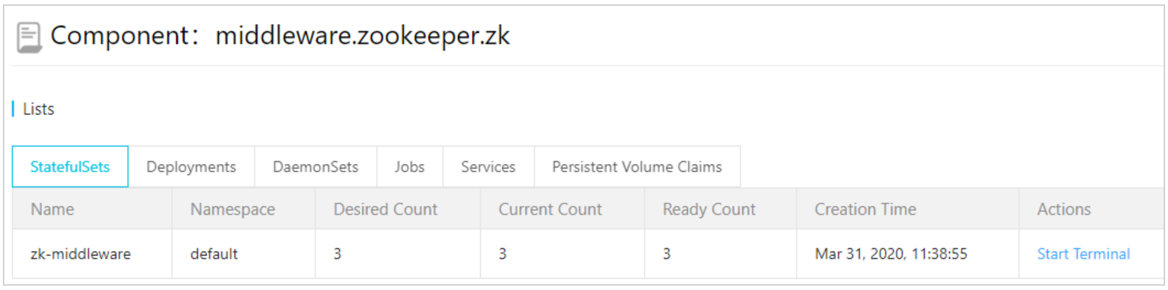
Note In the lower-right corner of the dialog box, you can click the **Publish** button to go to the Deploy&Upgrade page. For more information about how to deploy and upgrade products, see Deployment and upgrade.

7.1.5.1.3. View component information

You can view the component details in the Product Components section of the Overview page of a product.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Products** from the **Product Center** drop-down list.
2. In the product list, find the target product and click **Details** in the **Actions** column.
3. In the Product Components section of the **Overview** page, view the deployment information of components, such as the deployment status, component status, cluster, namespace, component name, and component version.
4. Find a component and click **Details** in the **Actions** column to view details of the component.
5. The **Component Details** page contains the following tabs: StatefulSets, Deployments, DaemonSets, Jobs, Services, and Persistence Volume Claims.



Component: middleware.zookeeper.zk

Lists

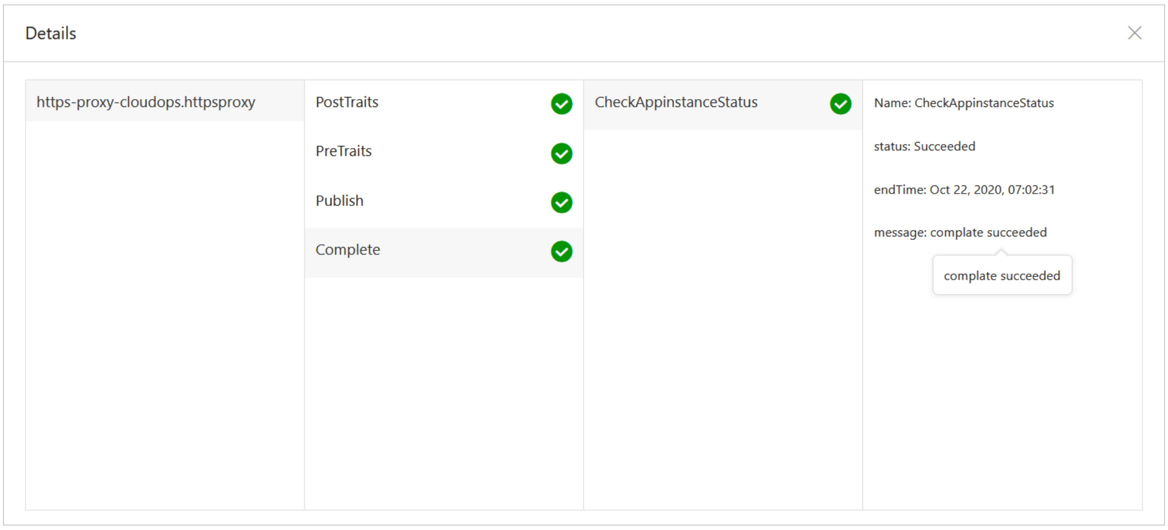
Name	Namespace	Desired Count	Current Count	Ready Count	Creation Time	Actions
zk-middleware	default	3	3	3	Mar 31, 2020, 11:38:55	Start Terminal

7.1.5.1.4. View the release status of a product component

You can view release status details of a product component.

Procedure

1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Product Center > Products**.
2. On the **Products** page, find the product that you want to view and click **Details** in the **Actions** column.
3. In the Product Components section of the **Overview** page, find the component that you want to view and click **Details** in the **Post status** column.
4. In the **Details** dialog box, move the pointer over the component to view tasks. Move the pointer over each task to view subtasks. Move the pointer over each subtask to view details of the subtask.



Details

https-proxy-cloudops.httpsproxy

PostTraits ✓
PreTraits ✓
Publish ✓
Complete ✓

CheckAppinstanceStatus ✓

Name: CheckAppinstanceStatus
status: Succeeded
endTime: Oct 22, 2020, 07:02:31
message: complate succeeded

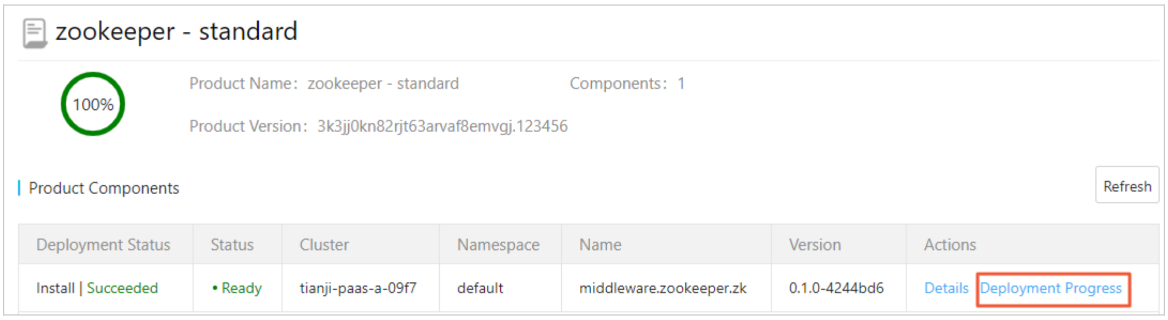
complate succeeded

7.1.5.1.5. View the deployment progress of product components

You can view the deployment progress of product components.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Products** from the **Product Center** drop-down list.
2. In the product list, find the target product and click **Details** in the **Actions** column.
3. In the Product Components section of the **Overview** page, find the target component and click **Deployment Progress** in the **Actions** column.



zookeeper - standard

100%

Product Name: zookeeper - standard

Components: 1

Product Version: 3k3jj0kn82rjt63arvaf8emvgj.123456

Product Components

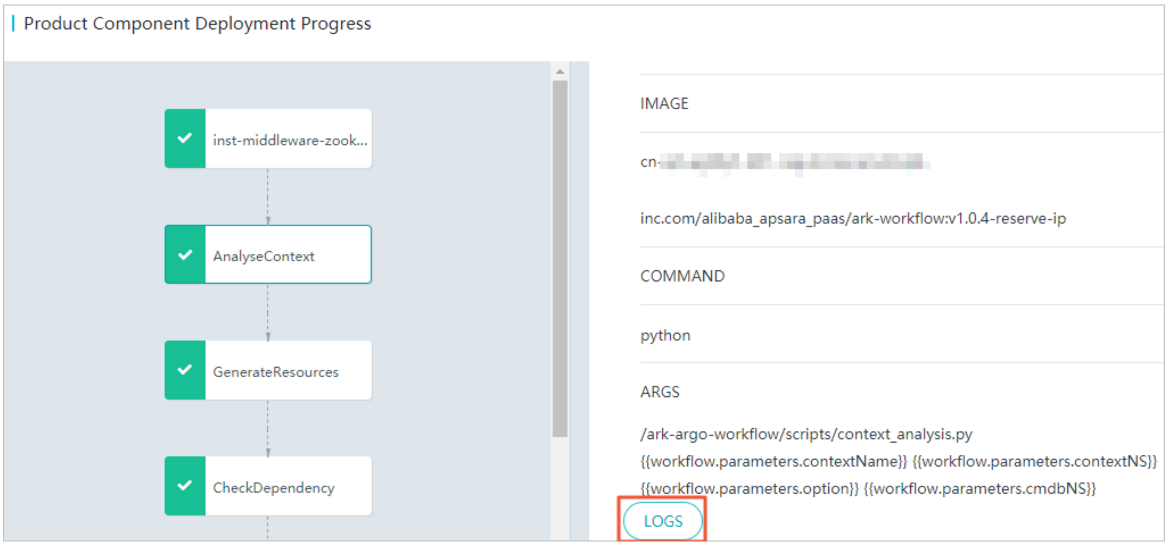
Refresh

Deployment Status	Status	Cluster	Namespace	Name	Version	Actions
Install | Succeeded	• Ready	tianji-paas-a-09f7	default	middleware.zookeeper.zk	0.1.0-4244bd6	Details Deployment Progress

4. On the **Product Component Deployment Progress** page, click the deployment nodes in

sequence to view the deployment progress and logs of the current component.

> **Note** You can click **LOGS** in the lower-left corner of the Summary tab to view the deployment logs.



Product Component Deployment Progress

IMAGE

cn-[redacted]

inc.com/alibaba_apsara_paas/ark-workflow:v1.0.4-reserve-ip

COMMAND

python

ARGS

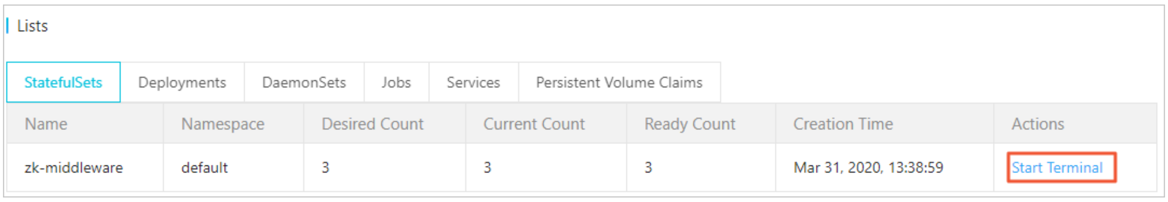
/ark-argo-workflow/scripts/context_analysis.py {{workflow.parameters.contextName}} {{workflow.parameters.contextNS}} {{workflow.parameters.option}} {{workflow.parameters.cmdbNS}}

7.1.5.1.6. Log on to a web terminal

The StatefulSets and Deployments tabs of the Component Details page list available terminals. Browser-based terminals are used for O&M management and troubleshooting.

Procedure

1. In the left-side navigation pane of the PaaS console, select Products from the **Product Center** drop-down list.
2. In the product list, find the target product and click **Details** in the **Actions** column.
3. In the Product Components section of the **Overview** page, find the target component and click **Details** in the **Actions** column.
4. On the **Component Details** page, click the **StatefulSets** or **Deployments** tab.
5. Find the target component, and then click **Start Terminal** in the **Actions** column. Available containers that are based on the number of replicas are displayed in the pane.



Lists

Name	Namespace	Desired Count	Current Count	Ready Count	Creation Time	Actions
zk-middleware	default	3	3	3	Mar 31, 2020, 13:38:59	Start Terminal

6. Select the target container and then click **OK** to start the terminal process.

7.1.5.1.7. Perform O&M operations

The O&M Actions page displays the O&M operations that are available to a product. You can also perform O&M operations on this page.

Procedure

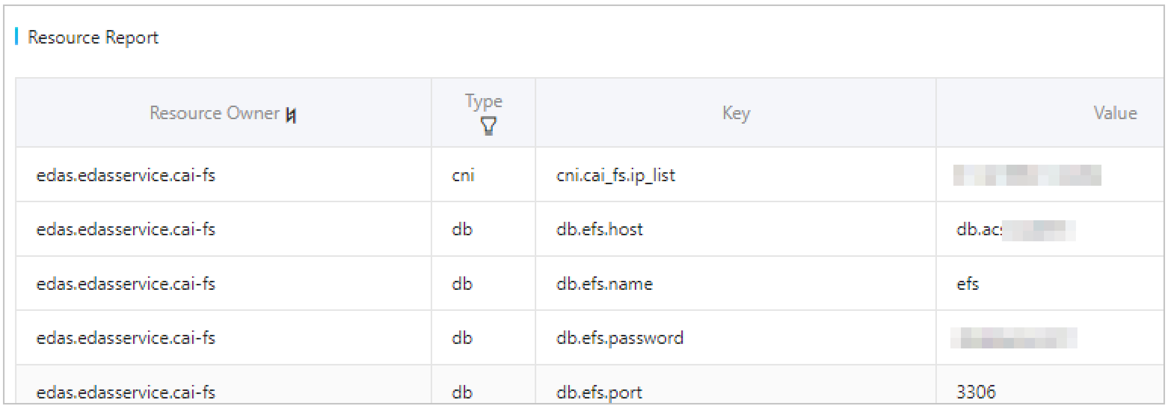
1. In the left-side navigation pane of the PaaS console, select **Products** from the **Product Center** drop-down list.
2. In the product list, find the target product and click **Details** in the **Actions** column.
3. In the left-side navigation pane, click **O&M Actions**.
4. Perform O&M operations that are available to the product.

7.1.5.1.8. View a resource report

The Resource Report page displays the information of all resources that a product has requested from the PaaS console. The resource type can be cni (ip), db, vip, dns, and accesskey.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Products** from the **Product Center** drop-down list.
2. In the product list, find the target product and click **Details** in the **Actions** column.
3. In the left-side navigation pane, click **Resource Report**.



Resource Report

Resource Owner	Type	Key	Value
edas.edasservice.cai-fs	cni	cni.cai_fs.ip_list	[redacted]
edas.edasservice.cai-fs	db	db.efs.host	db.ac[redacted]
edas.edasservice.cai-fs	db	db.efs.name	efs
edas.edasservice.cai-fs	db	db.efs.password	[redacted]
edas.edasservice.cai-fs	db	db.efs.port	3306

4. View the information of resources.

   By default, all resources are displayed. You can click the up and down arrows next to **Resource Owner** to sort resources. You can also click the ▽ icon next to **Type** to filter resources.

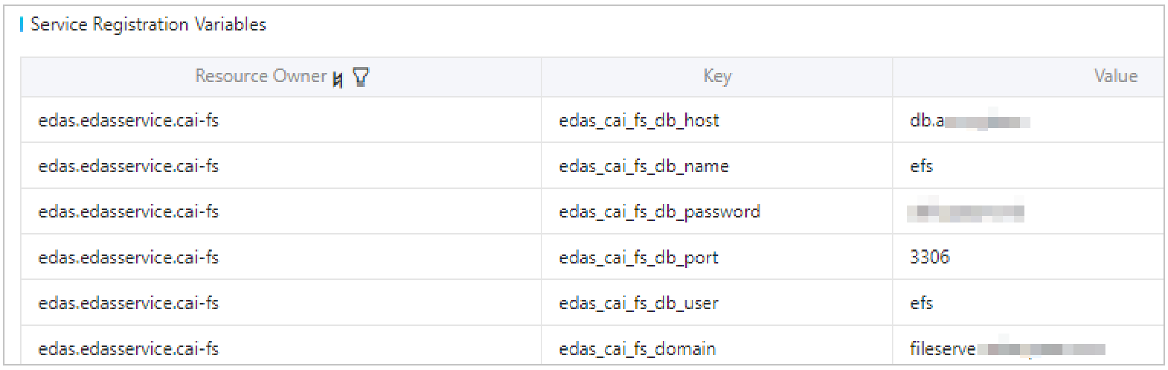
Field	Description
Resource Owner	The name of the component to which the resource belongs.
Type	The type of the resource.
Key	The attribute name of the resource.
Value	The attribute value of the resource.

7.1.5.1.9. View service registration variables

The Service Registration Variables page displays the values of all service registration variables. You can view the service registration variables of a product. The service registration variables report for a product lists the variables that the product can deliver to other products or components.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Products** from the **Product Center** drop-down list.
2. In the product list, find the target product and click **Details** in the **Actions** column.
3. In the left-side navigation pane, click **Service Registration Variables**.



Service Registration Variables

Resource Owner	Key	Value
edas.edasservice.cai-fs	edas_cai_fs_db_host	db.a[redacted]
edas.edasservice.cai-fs	edas_cai_fs_db_name	efs
edas.edasservice.cai-fs	edas_cai_fs_db_password	[redacted]
edas.edasservice.cai-fs	edas_cai_fs_db_port	3306
edas.edasservice.cai-fs	edas_cai_fs_db_user	efs
edas.edasservice.cai-fs	edas_cai_fs_domain	fileserve[redacted]

4. View the information of service registration variables.

   By default, all service registration variables are displayed. You can click the up and down arrows next to **Resource Owner** to sort service registration variables. You can also click the ▽ icon next to **Resource Owner** to filter service registration variables.

   The following table describes the fields for service registration variables.

Field	Description
Resource Owner	The name of the component to which the resource belongs.
Key	The variable name that is registered on CMDB and can be used by this product or other product components.
Value	The variable value that is registered on CMDB.

7.1.5.2. Deployment and upgrade

This topic describes how to perform batch upgrade and incremental deployment. You can customize product features when you deploy a product. If the product supports custom configuration, the system goes to the custom configuration page.

Prerequisites

The deployment and upgrade packages are imported to the Apsara Stack Agility PaaS console. To import the deployment and upgrade packages, perform the following operations:

1. Upload the installation disk used for deployment and upgrade to the bootstrap node in the onsite environment.
2. Log on to the bootstrap node over SSH.

3. Run the following command to import deployment packages and generate a deployment package list:

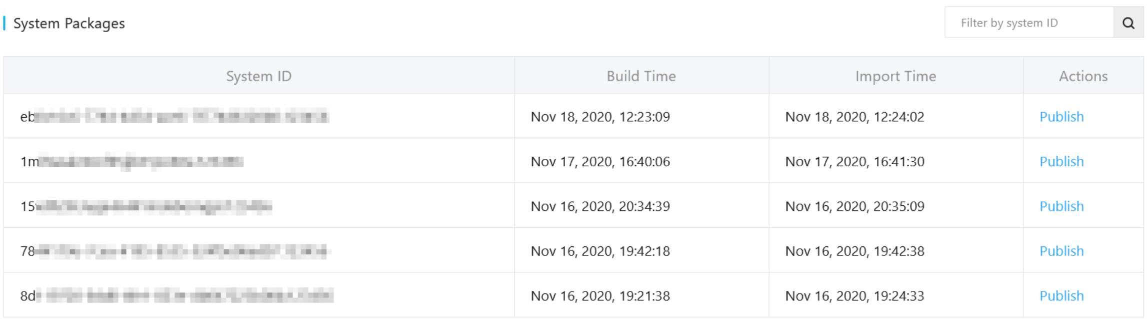
   sh upgrade.sh *{packages -path}.iso*

   Replace *{packages -path}.iso* with the actual storage path of the .iso file on the installation disk.

Procedure

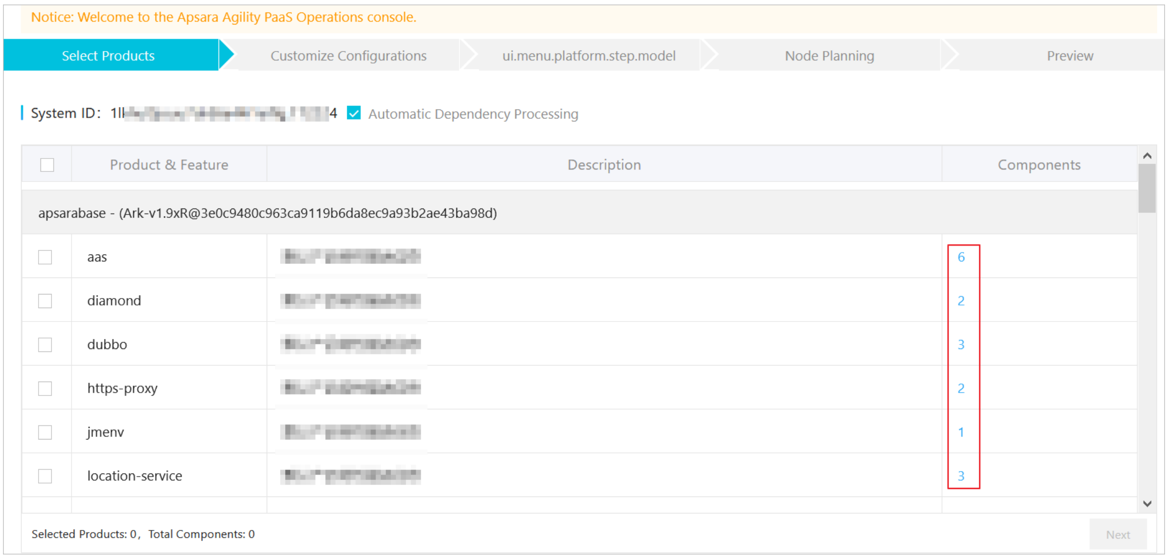
1. In the left-side navigation pane of the Apsara Stack Agility PaaS console, choose **Product Center > Deploy&Upgrade**.The **System Packages** page displays the deployment packages that have been imported to the Apsara Stack Agility PaaS console.
2. On the **System Packages** page, find the deployment package that you want to upgrade.

   > ⓘ **Note** If multiple deployment and upgrade packages exist, you can enter a system ID in the search box to search for deployment packages by system ID.



System ID	Build Time	Import Time	Actions
eb[redacted]	Nov 18, 2020, 12:23:09	Nov 18, 2020, 12:24:02	Publish
1m[redacted]	Nov 17, 2020, 16:40:06	Nov 17, 2020, 16:41:30	Publish
15[redacted]	Nov 16, 2020, 20:34:39	Nov 16, 2020, 20:35:09	Publish
78[redacted]	Nov 16, 2020, 19:42:18	Nov 16, 2020, 19:42:38	Publish
8d[redacted]	Nov 16, 2020, 19:21:38	Nov 16, 2020, 19:24:33	Publish

3. Click **Publish** in the **Actions** column to start the deployment or upgrade process.
4. (Optional)In the **Select Products** step, click the number in the **Components** column to view the components and versions of the current product. Select the required features and click **Next**.



Notice: Welcome to the Apsara Agility PaaS Operations console.

System ID: 1l[redacted]4 ☑ Automatic Dependency Processing

□	Product & Feature	Description	Components
	apsarabase - (Ark-v1.9xR@3e0c9480c963ca9119b6da8ec9a93b2ae43ba98d)		
□	aas	[redacted]	6
□	diamond	[redacted]	2
□	dubbo	[redacted]	3
□	https-proxy	[redacted]	2
□	jmenv	[redacted]	1
□	location-service	[redacted]	3

Selected Products: 0 , Total Components: 0

> ⓘ **Note** The system can parse dependencies among products. When the Automatic Dependency Processing check box is selected, the system checks whether dependencies exist between the deployed products and the products that you want to deploy. Then, the system selects the products that have dependencies with the products that you want to deploy. If you want to manually select the products to be deployed, you can clear the **Automatic Dependency Processing** check box. If you select products that have been deployed, the system upgrades these products. If you select products that have not been deployed, the system deploys these products incrementally.

If the custom configuration feature is enabled for a selected product, the **Customize Configurations** step is displayed. Otherwise, the **Preview** step is displayed.

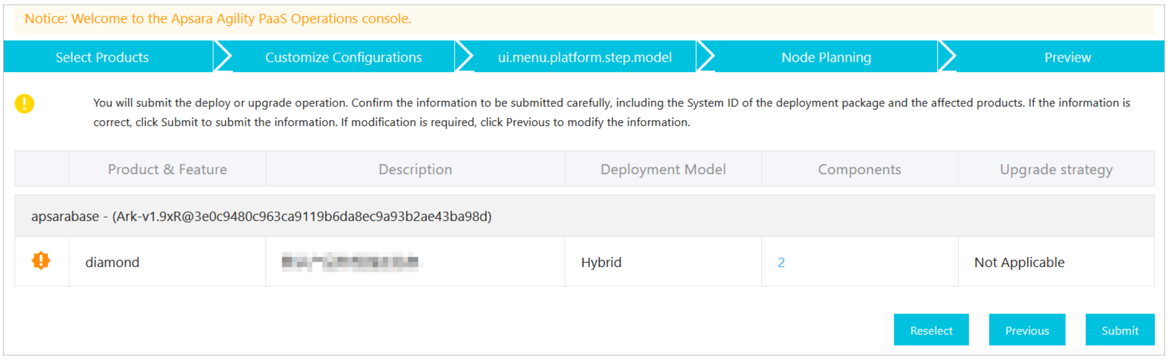
5. In the **Customize Configurations** step, configure the parameters and click **Save**. Then, click **Next**.
6. In the **Resource Planning** step, click **Edit** in the upper-left corner to configure project parameters. Click **Save**, and then click **Next**.
7. In the **Node Planning** step, verify that the node planning is correct and click **Next**.

> ⓘ **Note** If you want to modify the node planning, click the **Reselect** button.

8. In the **Preview** step, check the information of the products to be deployed.

   A type of icon to the left of each item in the **Product & Feature** column indicates a type of deployment state of the product:

   - 📦: indicates that the product is to be deployed.
   - ☑: indicates that the product has been deployed and does not need to be upgraded.
   - ❗: indicates that the product is to be upgraded. You can click the ❗ icon to check the differences.



Notice: Welcome to the Apsara Agility PaaS Operations console.

You will submit the deploy or upgrade operation. Confirm the information to be submitted carefully, including the System ID of the deployment package and the affected products. If the information is correct, click Submit to submit the information. If modification is required, click Previous to modify the information.

	Product & Feature	Description	Deployment Model	Components	Upgrade strategy
apsarabase - (Ark-v1.9xR@3e0c9480c963ca9119b6da8ec9a93b2ae43ba98d)					
❗	diamond	[redacted]	Hybrid	2	Not Applicable

9. Click **Submit** to start the deployment or upgrade process.

   After the deployment or upgrade process starts, you can view the progress on the Task Instances page. To view the progress, choose **Task Center > Task Instances**.

7.1.6. Task center

The Task Center module provides general task management capabilities. You can view and run task templates, and view, suspend, resume, terminate, and delete tasks.

7.1.6.1. Task templates

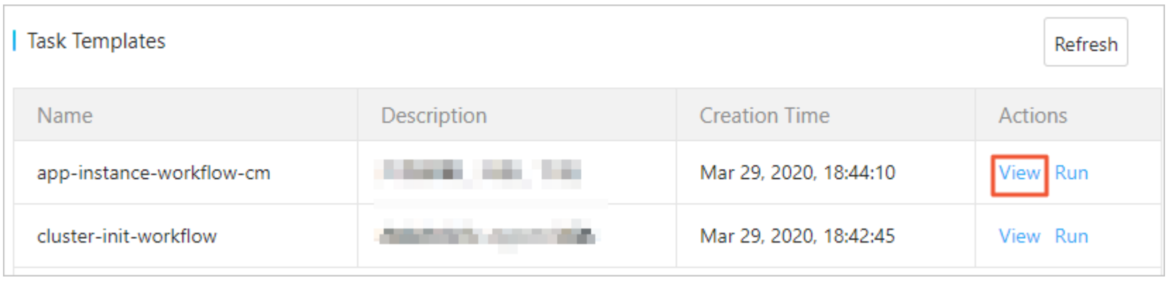
The Task Templates page lists all task templates, both imported and preset.

7.1.6.1.1. View a task template

You can view information of all task templates on the Task Templates page, such as the name, description, parameters, and workflow definition.

Procedure

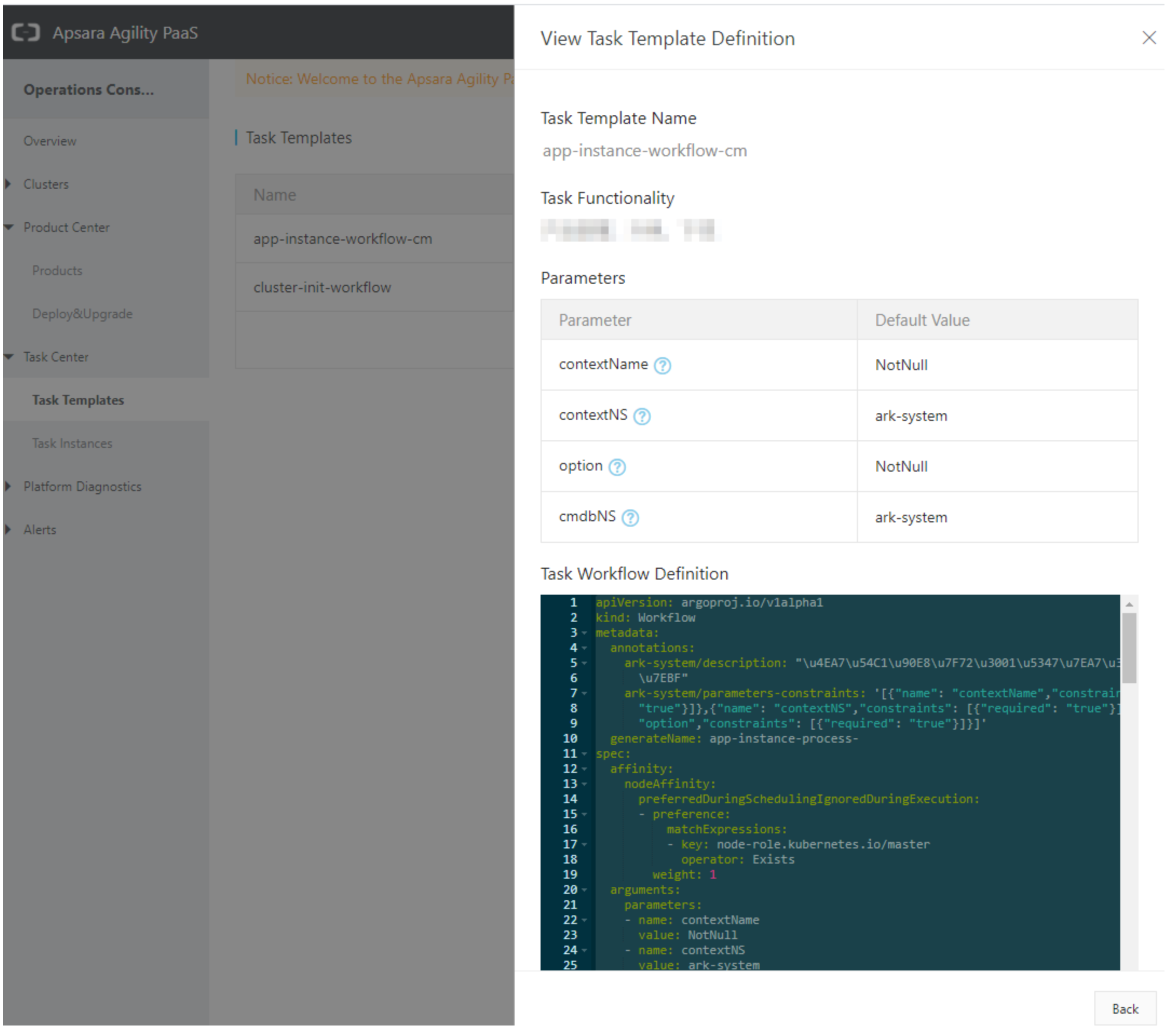
1. In the left-side navigation pane of the PaaS console, select **Task Templates** from the **Task Center** drop-down list.
2. Find the target task template. Click **View** in the **Actions** column.



Task Templates

Name	Description	Creation Time	Actions
app-instance-workflow-cm	[redacted]	Mar 29, 2020, 18:44:10	View Run
cluster-init-workflow	[redacted]	Mar 29, 2020, 18:42:45	View Run

3. In the pane that appears, view the name, description, parameters, and workflow definition of the task template.



View Task Template Definition

Task Template Name

app-instance-workflow-cm

Task Functionality

[redacted]

Parameters

Parameter	Default Value
contextName	NotNull
contextNS	ark-system
option	NotNull
cmdbNS	ark-system

Task Workflow Definition

```
apiVersion: argoproj.io/v1alpha1
kind: Workflow
metadata:
  annotations:
    ark-system/description: "\u4EA7\u54C1\u90E8\u7F72\u3001\u5347\u7EA7\u3
      \u7EBF"
    ark-system/parameters-constraints: '[{"name": "contextName","constrai
      "true"}]},{"name": "contextNS","constraints": [{"required": "true"}]
      "option","constraints": [{"required": "true"}]}]'
  generateName: app-instance-process-
spec:
  affinity:
    nodeAffinity:
      preferredDuringSchedulingIgnoredDuringExecution:
      - preference:
          matchExpressions:
          - key: node-role.kubernetes.io/master
            operator: Exists
        weight: 1
  arguments:
    parameters:
    - name: contextName
      value: NotNull
    - name: contextNS
      value: ark-system
```

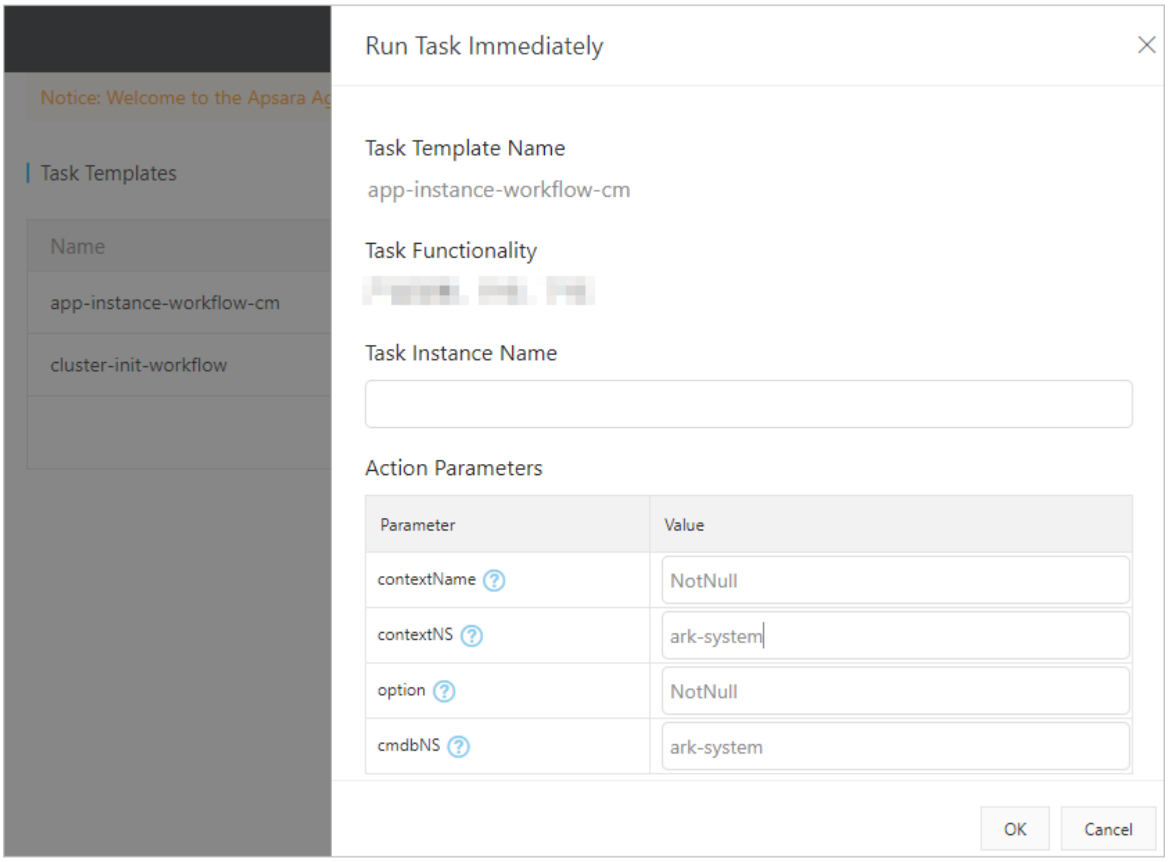
7.1.6.1.2. Run a task

You can run a task on the Task Templates page.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Task Templates** from the **Task Center** drop-down list.
2. Find the target task template. Click **Run** in the **Actions** column.
3. In the pane that appears, set Task Instance Name and Action Parameters.

> **Note** If the task instance name is not specified, the system automatically generates a task instance name. We recommend that you enter a recognizable name for easy query.



Name
app-instance-workflow-cm
cluster-init-workflow

Run Task Immediately

Task Template Name
app-instance-workflow-cm

Task Functionality
[redacted]

Task Instance Name

Action Parameters

Parameter	Value
contextName	NotNull
contextNS	ark-system
option	NotNull
cmdbNS	ark-system

4. Click **OK**.

7.1.6.2. Task instances

The Task Instances page displays information of all tasks. On this page, you can view, suspend, resume, terminate, retry, and delete tasks.

7.1.6.2.1. View task details

After you run a task, you can view the progress, logs, and parameters of the task on the Task Instances page.

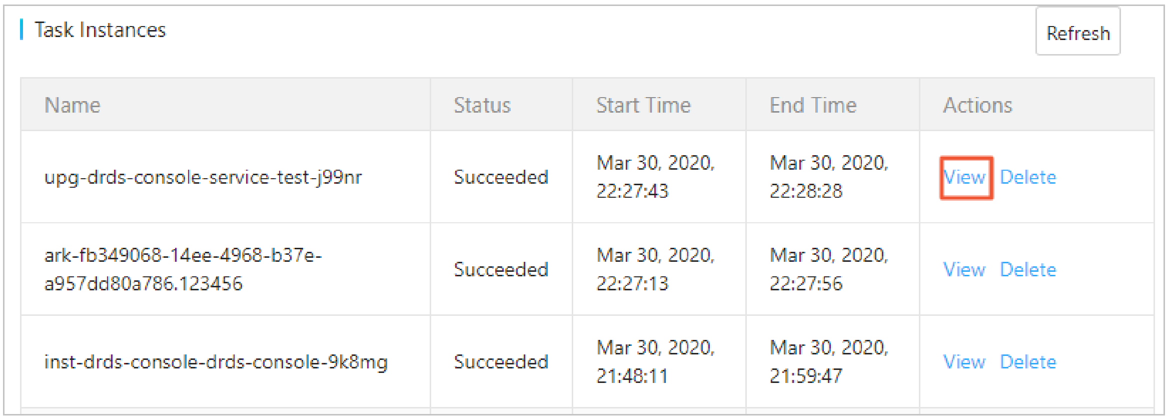
Procedure

1. In the left-side navigation pane of the PaaS console, select **Task Instances** from the **Task Center** drop-down list.
2. In the task instance list, view the status of all tasks.

   Valid values of the task status:

   - **Succeeded**: indicates that the task has been executed.
   - **Running**: indicates that the task is being executed.
   - **Running (Suspended)**: indicates that the task has been suspended.
   - **Failed**: indicates that the task has failed.
   - **Failed (Terminated)**: indicates that the task has been terminated.
3. Find the target task. Click **View** in the **Actions** column. Then, you are redirected to the **Task**

Instance Details page.



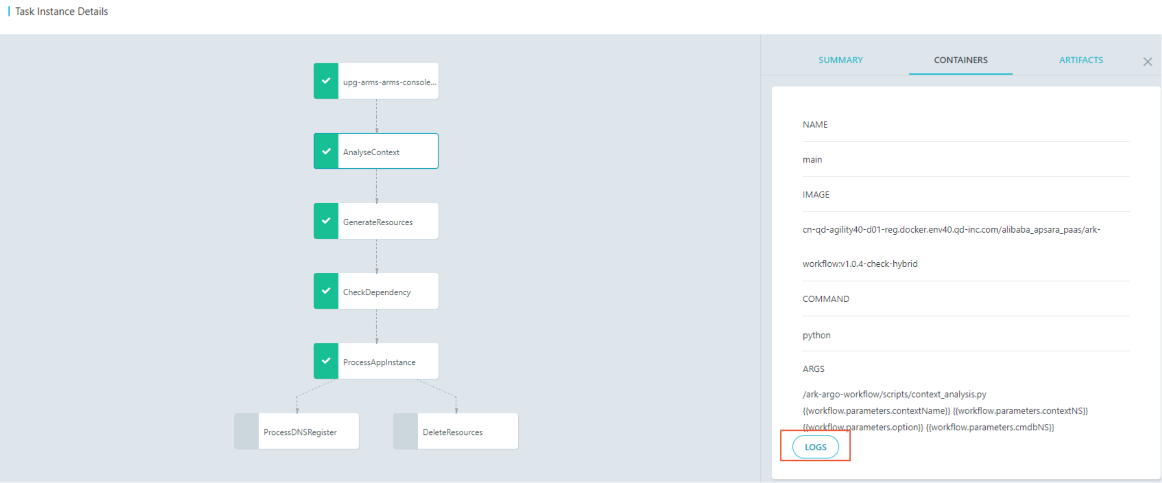
Task Instances

Refresh

Name	Status	Start Time	End Time	Actions
upg-drds-console-service-test-j99nr	Succeeded	Mar 30, 2020, 22:27:43	Mar 30, 2020, 22:28:28	View Delete
ark-fb349068-14ee-4968-b37e-a957dd80a786.123456	Succeeded	Mar 30, 2020, 22:27:13	Mar 30, 2020, 22:27:56	View Delete
inst-drds-console-drds-console-9k8mg	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 21:59:47	View Delete

4. On the Task Instance Details page, click the task nodes in sequence to view the information and logs of the current task.

> **Note** You can click **LOGS** in the lower-left corner of the Summary tab to view task logs.



Task Instance Details

NAME

main

IMAGE

cn-qd-agility40-d01-reg.docker.env40.qd-inc.com/alibaba_apsara_paas/ark-workflow:v1.0.4-check-hybrid

COMMAND

python

ARGS

/ark-argo-workflow/scripts/context_analysis.py {{workflow.parameters.contextName}} {{workflow.parameters.contextNS}} {{workflow.parameters.option}} {{workflow.parameters.cmdbNS}}

7.1.6.2.2. Suspend a task

You can suspend a task in the Running state. Then, the task status becomes Running (Suspended).

Prerequisites

The task is in the **Running** state.

Procedure

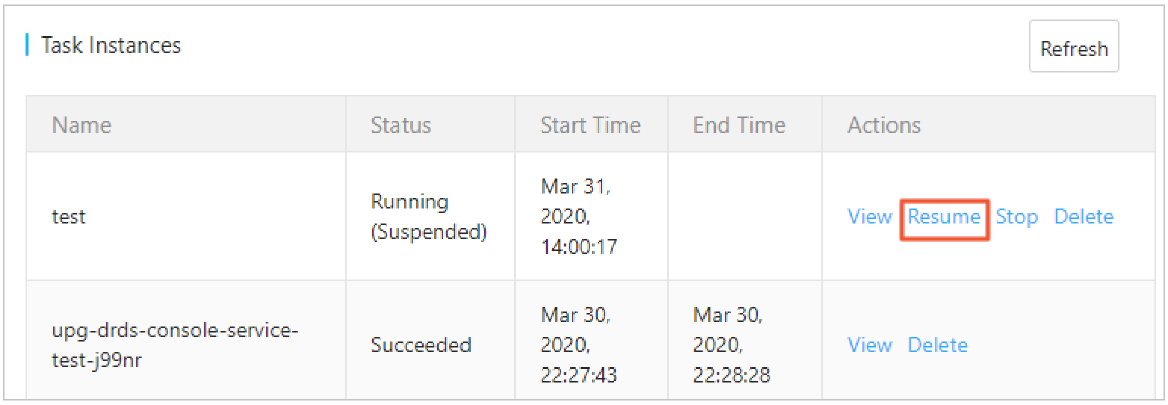
1. In the left-side navigation pane of the PaaS console, select **Task Instances** from the **Task Center** drop-down list.
2. In the task instance list, find the task in the **Running** state that you want to suspend. Click **Suspend** in the **Actions** column. After a successful operation, the task status changes from **Running** to **Running (Suspend)** in the **Status** column.

7.1.6.2.3. Resume a task

After a task is suspended, the task is in the Running (Suspended) state. Then, you can click Resume in the Actions column to resume the task.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Task Instances** from the **Task Center** drop-down list.
2. In the task instance list, find the task in the **Running (Suspended)** state that you want to resume. Click **Resume** in the **Actions** column. After a successful operation, the task status changes from **Running (Suspend)** to **Running** in the **Status** column.



Name	Status	Start Time	End Time	Actions
test	Running (Suspended)	Mar 31, 2020, 14:00:17		View Resume Stop Delete
upg-drds-console-service-test-j99nr	Succeeded	Mar 30, 2020, 22:27:43	Mar 30, 2020, 22:28:28	View Delete

7.1.6.2.4. Terminate a task

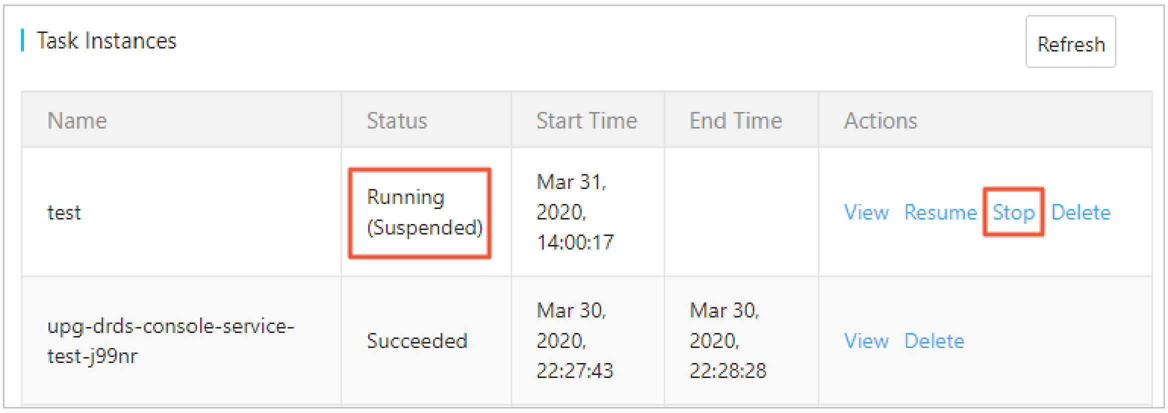
You can terminate a task in the Running (Suspended) or Running state.

Prerequisites

The task is in the **Running (Suspended)** or **Running** state.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Task Instances** from the **Task Center** drop-down list.
2. In the task instance list, find a task in the **Running (Suspended)** or **Running** state. Click **Stop** in the **Actions** column. For a task in the Running the system immediately terminates the task and the task status becomes **Failed (Terminated)**. For a task whose **Status** is **Running (Suspended)**, the system immediately terminates the task when the task status becomes Running again. Then the task status becomes **Failed (Terminated)**.



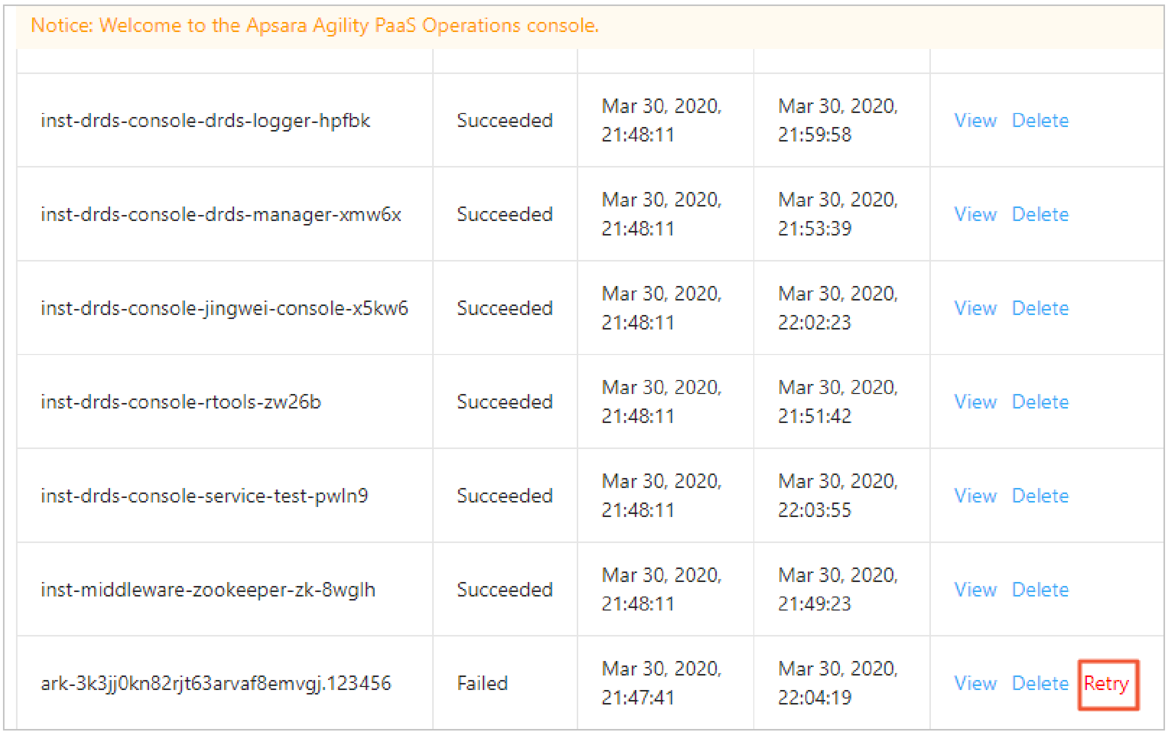
Name	Status	Start Time	End Time	Actions
test	Running (Suspended)	Mar 31, 2020, 14:00:17		View Resume Stop Delete
upg-drds-console-service-test-j99nr	Succeeded	Mar 30, 2020, 22:27:43	Mar 30, 2020, 22:28:28	View Delete

7.1.6.2.5. Retry a task

You can retry a task in the Failed or Failed (Terminated) state. When a task is retried, the task restarts from the failed or terminated task node.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Task Instances** from the **Task Center** drop-down list.
2. In the task instance list, find a task in the **Failed** or **Failed (Terminated)** state. Click **Retry** in the **Actions** column.



Notice: Welcome to the Apsara Agility PaaS Operations console.

inst-drds-console-drds-logger-hpfbk	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 21:59:58	View Delete
inst-drds-console-drds-manager-xmw6x	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 21:53:39	View Delete
inst-drds-console-jingwei-console-x5kw6	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 22:02:23	View Delete
inst-drds-console-rtools-zw26b	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 21:51:42	View Delete
inst-drds-console-service-test-pwln9	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 22:03:55	View Delete
inst-middleware-zookeeper-zk-8wglh	Succeeded	Mar 30, 2020, 21:48:11	Mar 30, 2020, 21:49:23	View Delete
ark-3k3jj0kn82rjt63arvaf8emvgj.123456	Failed	Mar 30, 2020, 21:47:41	Mar 30, 2020, 22:04:19	View Delete Retry

7.1.6.2.6. Delete a task

You can delete a task in any state. If a task is in the Running state, this operation enables the system to immediately terminate the task and delete the task record. If a task is in a state other than Running, this operation enables the system to immediately delete the task record.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Task Instances** from the **Task Center** drop-down list.
2. In the task instance list, find the target task. Click **Delete** in the **Actions** column.

7.1.7. Platform diagnostics

The PaaS console provides platform-level diagnostics. This module collects information about the console and products deployed in the console, presents summary diagnostic results, and allows you to download detailed diagnostic results. The module aims to improve user experience of diagnostics.

7.1.7.1. Diagnostic items

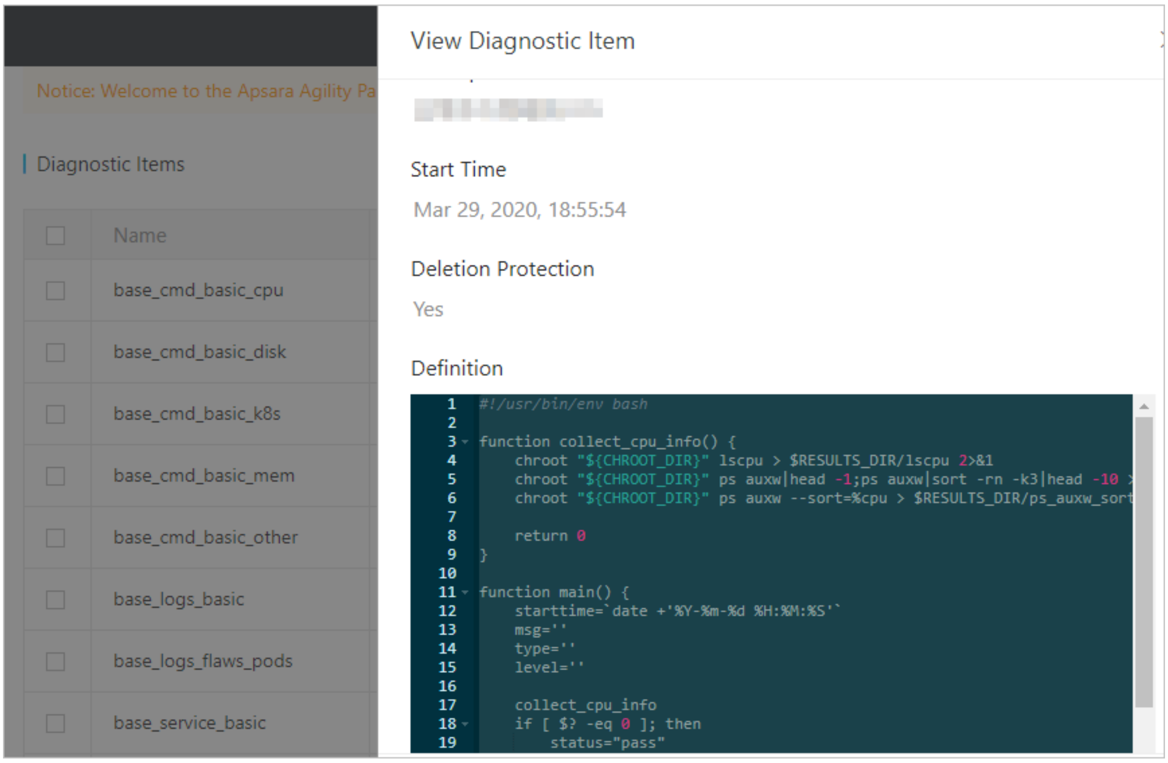
The Diagnostic Items page displays all diagnostic items in the PaaS console. On this page, you can view, execute, and delete diagnostic items.

7.1.7.1.1. View a diagnostic item

You can view details about the current diagnostic item, such as the name, type, description, start time, deletion protection, and definition.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Items** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic item. Click **View** in the **Actions** column.
3. In the pane that appears, view details of the diagnostic item.



□	Name
□	base_cmd_basic_cpu
□	base_cmd_basic_disk
□	base_cmd_basic_k8s
□	base_cmd_basic_mem
□	base_cmd_basic_other
□	base_logs_basic
□	base_logs_flaws_pods
□	base_service_basic

[redacted]

Start Time

Mar 29, 2020, 18:55:54

Deletion Protection

Yes

Definition

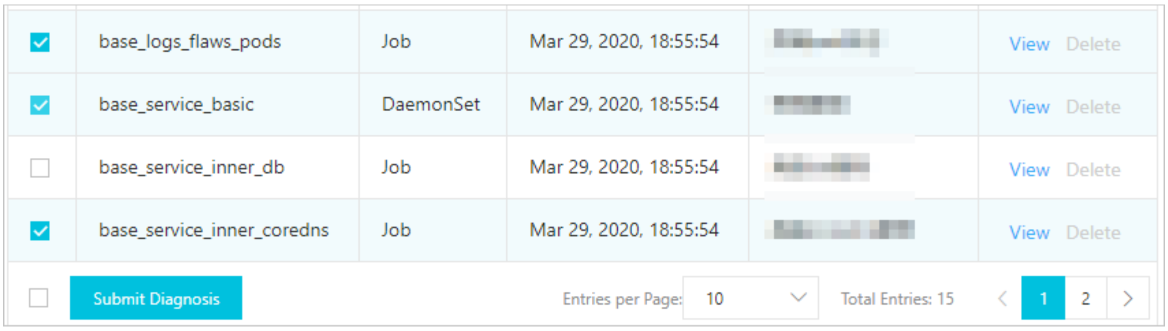
```
#!/usr/bin/env bash

function collect_cpu_info() {
    chroot "${CHROOT_DIR}" lscpu > $RESULTS_DIR/lscpu 2>&1
    chroot "${CHROOT_DIR}" ps auxw|head -1;ps auxw|sort -rn -k3|head -10 >
    chroot "${CHROOT_DIR}" ps auxw --sort=%cpu > $RESULTS_DIR/ps_auxw_sort

    return 0
}

function main() {
    starttime=`date +'%Y-%m-%d %H:%M:%S'`
    msg=''
    type=''
    level=''

    collect_cpu_info
    if [ $? -eq 0 ]; then
        status="pass"
```

7.1.7.1.2. Execute diagnostic items

You can execute diagnostic items on the Diagnostic Items page.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Items** from the **Platform Diagnostics** drop-down list.
2. Select one or more diagnostic items and click **Submit Diagnosis**.



☑	base_logs_flaws_pods	Job	Mar 29, 2020, 18:55:54	[redacted]	View Delete
☑	base_service_basic	DaemonSet	Mar 29, 2020, 18:55:54	[redacted]	View Delete
□	base_service_inner_db	Job	Mar 29, 2020, 18:55:54	[redacted]	View Delete
☑	base_service_inner_coredns	Job	Mar 29, 2020, 18:55:54	[redacted]	View Delete

3. In the message that appears, click **OK**.

7.1.7.1.3. Delete a diagnostic item

You can delete a diagnostic item. You can only delete imported diagnostic items, but not the diagnostic items preset by the system.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Items** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic item. Click **Delete** in the **Actions** column.
3. In the message that appears, click **OK**.

7.1.7.2. Diagnostic tasks

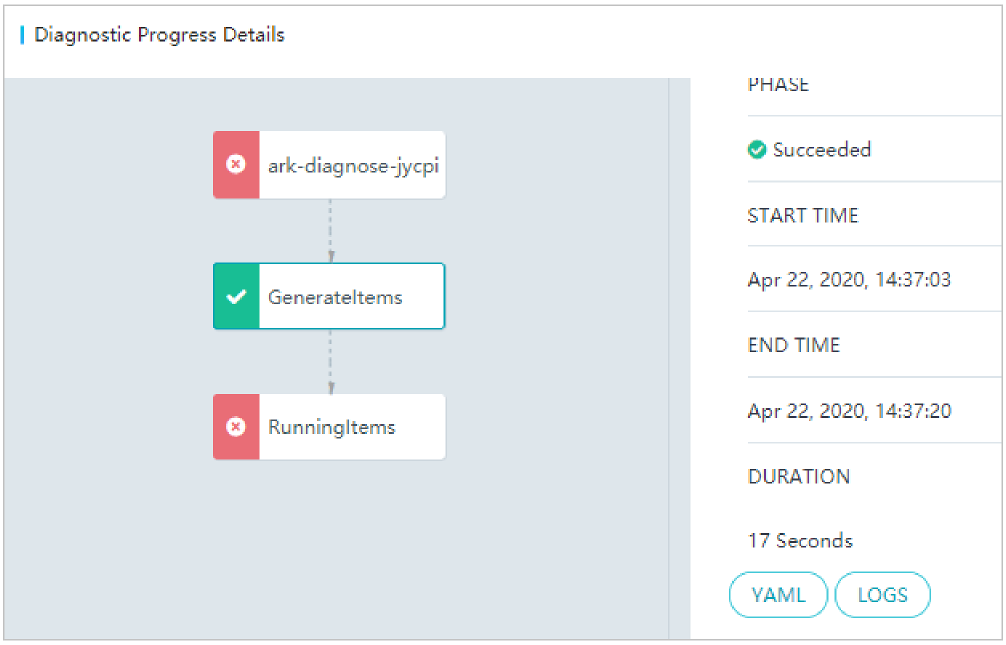
The Diagnostic Tasks page displays all diagnostic tasks. On this page, you can view diagnostic progress, view diagnostic reports, download diagnostic reports, terminate diagnostic tasks, and delete diagnostic tasks.

7.1.7.2.1. View diagnostic progress

After you start a diagnostic task, you can view its diagnostic progress on the Diagnostic Tasks page.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Tasks** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic task. Click **Diagnostic Progress** in the **Actions** column.
3. On the **Diagnostic Progress** page, click the task nodes in sequence to view the diagnostic progress and logs of the current diagnostic task.



Diagnostic Progress Details

PHASE

Succeeded

START TIME

Apr 22, 2020, 14:37:03

END TIME

Apr 22, 2020, 14:37:20

DURATION

17 Seconds

7.1.7.2.2. View a diagnostic report

After a diagnostic task is complete, you can view its diagnostic report.

Prerequisites

You can view the diagnostic report only for a diagnostic task in the **Succeeded** state.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Tasks** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic task. Click **View Report** in the **Actions** column.
3. In the pane that appears, view the diagnostic results, such as the name, status, and details.

7.1.7.2.3. Download a diagnostic report

After a diagnostic task is complete, you can download its diagnostic report to your on-premises machine for offline query and analysis.

Prerequisites

You can download the diagnostic report only for a diagnostic task in the **Succeeded** state.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Tasks** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic task. Click **Download** in the **Actions** column.

7.1.7.2.4. Terminate a diagnostic task

You can terminate a diagnostic task in the Running state.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Tasks** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic task. Choose **More > Terminate** in the **Actions** column.
3. In the message that appears, click **OK**.

7.1.7.2.5. Delete a diagnostic task

You can delete a diagnostic task that is no longer needed.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Diagnostic Tasks** from the **Platform Diagnostics** drop-down list.
2. Find the target diagnostic task. Choose **More > Delete** in the **Actions** column.
3. In the message that appears, click **OK**.

7.1.8. Alerts

The **Alerts** module implements unified management of alerts in the PaaS console. You can view alert rules, notification channels, and alert events. You can also configure alert rules and notification channels in the **Alerts** module.

7.1.8.1. Alert rule groups

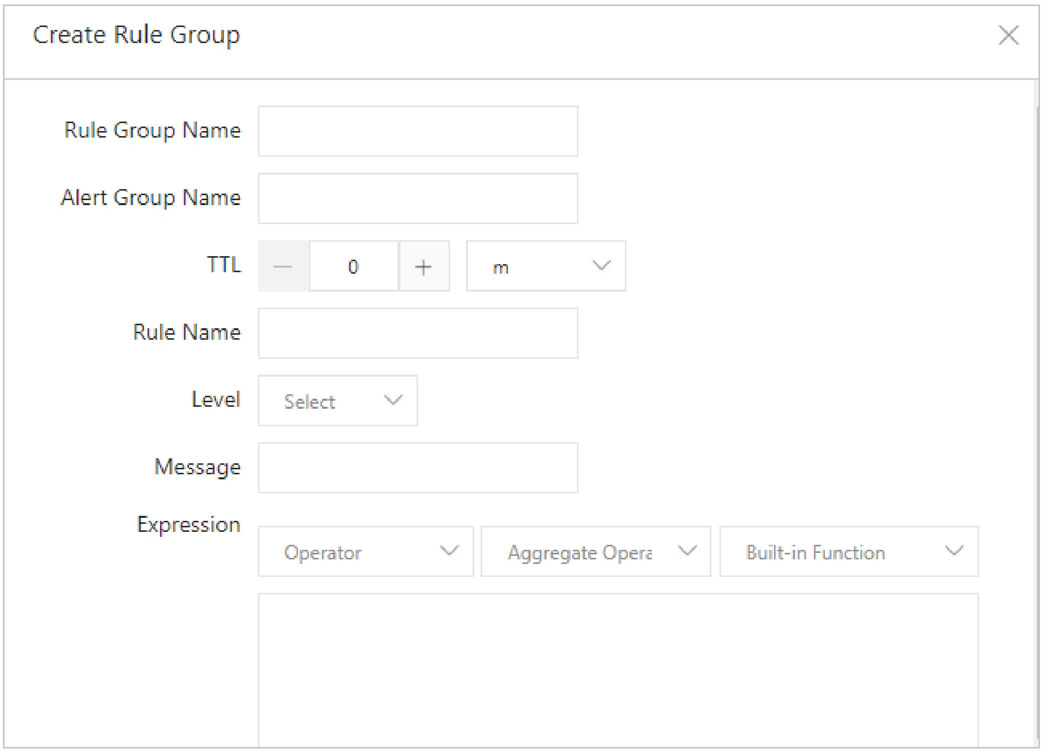
An alert rule must belong to an alert rule group. You can create alert rule groups and add alert rules to alert rule groups.

7.1.8.1.1. Create an alert rule group

You can create an alert rule group. When you create an alert rule group, you must add an alert rule to the group.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Alert Groups** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. In the upper-right corner of the page, click **Create Rule Group**.
4. In the **Create Rule Group** dialog box, configure the parameters.



Create Rule Group

Rule Group Name	
Alert Group Name	
TTL	0 m
Rule Name	
Level	Select
Message	
Expression	Operator / Aggregate Opera / Built-in Function

Parameter	Description
Rule Group Name	The globally unique name of the alert rule group.
Alert Group Name	The globally unique name of the alert group. An alert rule group must have an alert group.
TTL	Specifies the time period that an error lasts for before an alert is sent. ○ **h**: indicates hours. ○ **m**: indicates minutes. ○ **s**: indicates seconds.
Rule Name	The globally unique name of the alert rule.
Level	The severity of the alert. Valid values: ○ **Warning**: indicates a warning alert. ○ **Critical**: indicates a critical alert.
Message	The description of the alert.
Expression	The criteria to trigger the alert. **Note** We recommend that you select operators, aggregate operations, or built-in functions from the drop-down lists if you need to use them in the expression.

5. Click **Submit**.

7.1.8.1.2. Create an alert rule

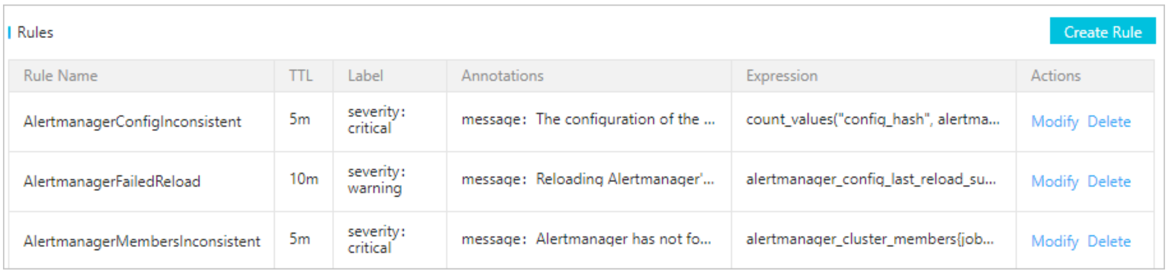
After you create an alert rule group, you can add an alert rule to the group.

Prerequisites

An alert rule group is created. For more information about how to create an alert rule group, see Create an alert rule group.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Alert Groups** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. Find the target rule group. Click **Modify Rule** in the **Actions** column.
   The **Rules** page is displayed. You can view all alert rules in the alert rule group.

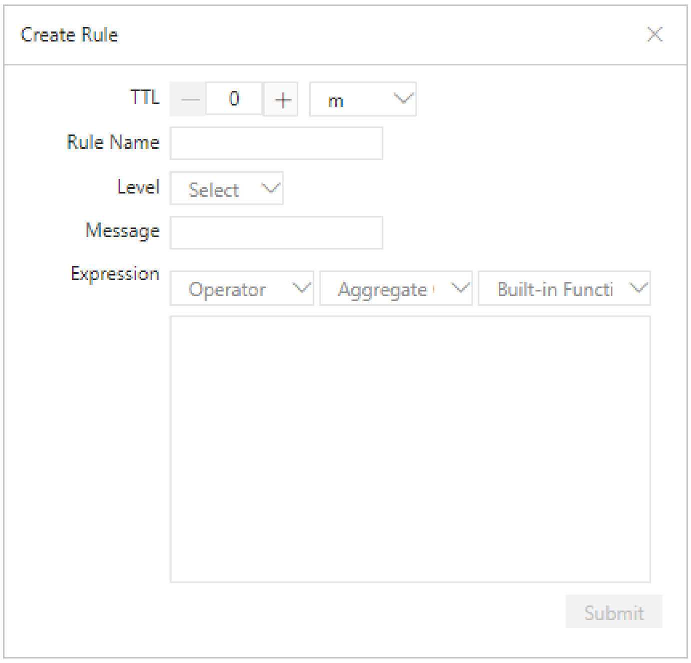


Rules

Create Rule

Rule Name	TTL	Label	Annotations	Expression	Actions
AlertmanagerConfigInconsistent	5m	severity: critical	message: The configuration of the ...	count_values("config_hash", alertma...	Modify Delete
AlertmanagerFailedReload	10m	severity: warning	message: Reloading Alertmanager'...	alertmanager_config_last_reload_su...	Modify Delete
AlertmanagerMembersInconsistent	5m	severity: critical	message: Alertmanager has not fo...	alertmanager_cluster_members{job...	Modify Delete

4. In the upper-right corner of the page, click **Create Rule**.
5. In the **Create Rule** dialog box, configure the parameters.



Create Rule

TTL: 0 m

Rule Name

Level: Select

Message

Expression: Operator | Aggregate | Built-in Functi

Submit

Parameter	Description

Parameter	Description
TTL	Specifies the time period that an error lasts for before an alert is sent. ○ **h**: indicates hours. ○ **m**: indicates minutes. ○ **s**: indicates seconds.
Rule Name	The globally unique name of the alert rule.
Level	The severity of the alert. Valid values: ○ **Warning**: indicates a warning alert. ○ **Critical**: indicates a critical alert.
Message	The description of the alert.
Expression	The criteria to trigger the alert. **Note** We recommend that you select operators, aggregate operations, or built-in functions from the drop-down lists if you need to use them in the expression.

6. Click **Submit**.

7.1.8.1.3. Modify an alert rule

You can modify an alert rule.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Alert Groups** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. On the **Rule Groups** page, view all alert rule groups defined in the system.
4. Find the rule group for the target rule. Click **Modify Rule** in the **Actions** column.
5. On the **Rules** page, view all alert rules in the rule group.
6. Find the target rule. Click **Modify** in the **Actions** column.
7. Modify the TTL, Level, Message, and Expression parameter settings of the alert rule.

Parameter	Description

Parameter	Description
TTL	Specifies the time period that an error lasts for before an alert is sent. ○ **h**: indicates hours. ○ **m**: indicates minutes. ○ **s**: indicates seconds.
Level	The severity of the alert. Valid values: ○ **Warning**: indicates a warning alert. ○ **Critical**: indicates a critical alert.
Message	The description of the alert.
Expression	The criteria to trigger the alert. **Note** We recommend that you select operators, aggregate operations, or built-in functions from the drop-down lists if you need to use them in the expression.

8. Click **Submit**.

7.1.8.1.4. Delete an alert rule

You can delete an alert rule that is no longer needed from an alert rule group.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Alert Groups** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. On the **Rule Groups** page, view all alert rule groups defined in the system.
4. Find the rule group for the target rule. Click **Modify Rule** in the **Actions** column.
5. On the **Rules** page, view all alert rules in the rule group.
6. Find the target rule. Click **Delete** in the **Actions** column.
7. In the message that appears, click **OK**.

7.1.8.1.5. Delete an alert rule group

You can delete an alert rule group that is no longer needed.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Alert Groups** from the **Alerts** drop-down list. The **Rule Groups** page is displayed.
2. In the upper part of the page, select the target cluster from the drop-down list.

3. Find the target rule group. Click **Delete** in the **Actions** column.
4. In the message that appears, click **OK**.

7.1.8.2. Notification channels

You can view and modify notification channel settings on the Notification Channels page.

7.1.8.2.1. View notification channel settings

You can view the current notification channel settings.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Notification Channels** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. In the **Global Settings**, **Routing**, and **Receiver** sections, view the relevant information.

7.1.8.2.2. Modify notification channel settings

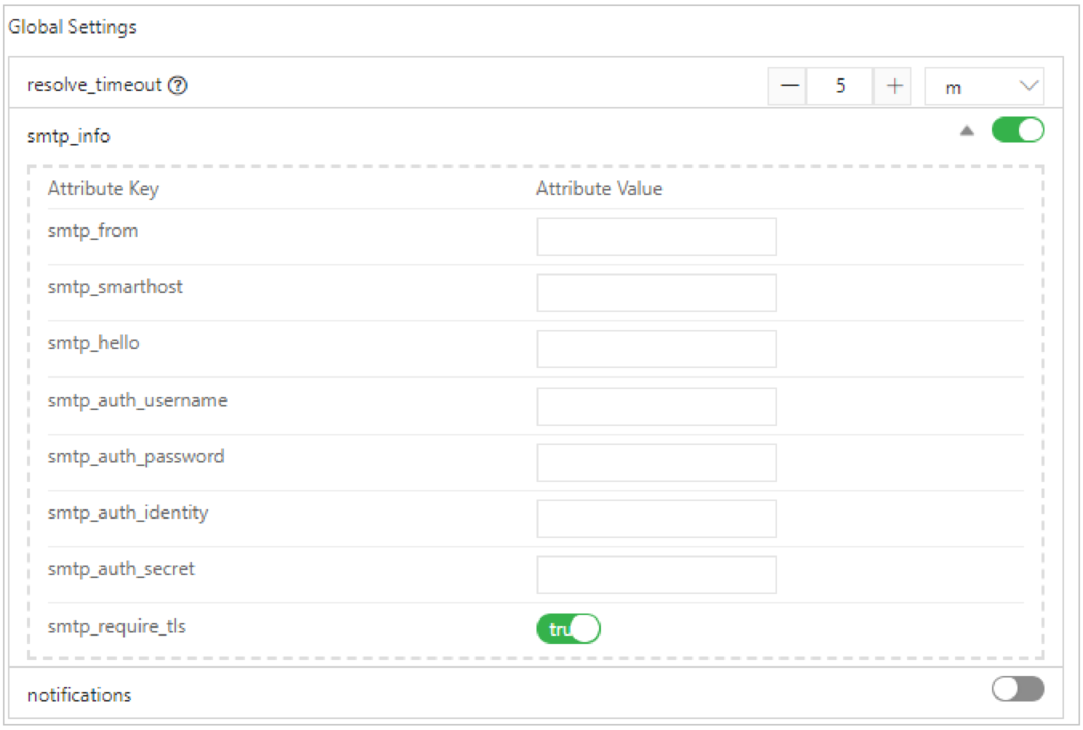
You can modify notification channel settings such as global settings, routing, and receivers.

7.1.8.2.2.1. Modify global settings

You can modify global settings, such as the resolve_timeout, smtp_info, and notifications settings.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Notification Channels** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. In the upper-right corner of the page, click **Edit**.
4. In the **Global Settings** section, modify the resolve_timeout, smtp_info, and notifications settings.



Global Settings

resolve_timeout ⑦ — 5 + m

smtp_info

Attribute Key	Attribute Value
smtp_from	
smtp_smarthost	
smtp_hello	
smtp_auth_username	
smtp_auth_password	
smtp_auth_identity	
smtp_auth_secret	
smtp_require_tls	tru

notifications

Parameter	Description
resolve_timeout	Specifies the time period before an alert is marked as resolved if the Alertmanager does not receive further notifications of the alert.
smtp_info	Specifies global SMTP information. To modify this item, turn on the switch on the right and then click the Show icon. You can configure the following parameters: ○ **smtp_from**: the source email address used to send alerts. ○ **smtp_smarthost**: the SMTP server address and port number for the source email address used to send alerts. Example: smtp_smarthos t:smtp.example.com:465 ○ **smtp_hello**: the default hostname that identifies the SMTP server. ○ **smtp_auth_username**, **smtp_auth_password**: the username and password for the source email address used to send alerts. ○ **smtp_auth_identity**: specifies the PLAIN SMTP authentication method. ○ **smtp_auth_secret**: specifies the CRAM-MD5 SMTP authentication method. ○ **smtp_require_tls**: the default SMTP TLS configuration. Although the default value is **true**, the parameter is typically set to **false** to avoid starttls errors that occur if the parameter is set to **true**.

Parameter	Description
notifications	The Slack configuration. To modify this item, turn on the switch on the right and then click the Show icon. You can configure the following parameters: ○ **slack_api_url**: the API URL for Slack notifications. ○ **victorops_api_key**: the VictorOps API key. ○ **victorops_api_url**: the VictorOps API URL. ○ **pagerduty_url**: the destination URL for API requests. ○ **opsgenie_api_key**: the Opsgenie API key. ○ **opsgenie_api_url**: the destination URL for Opsgenie API requests. ○ **hipchat_api_url**: the source URL for API requests. ○ **hipchat_auth_token**: the authentication token. ○ **wechat_api_url**: the WeChat API URL. ○ **wechat_api_secret**: the WeChat API key. ○ **wechat_api_corp_id**: the WeChat API corporate ID.

5. In the upper-right corner of the page, click **Save**.

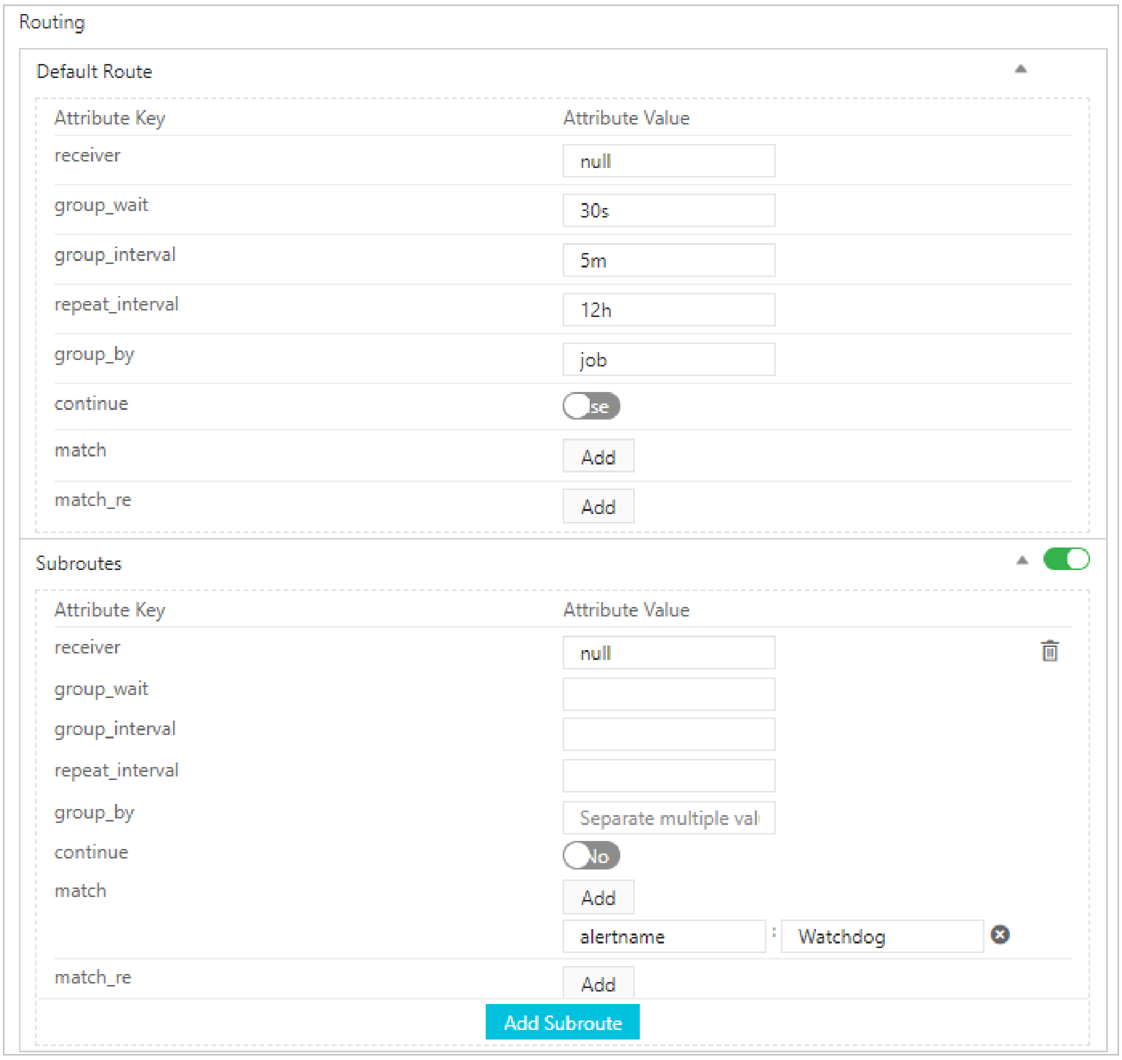
7.1.8.2.2.2. Modify routing settings

You can modify global routing settings, and create or delete sub-routes.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Notification Channels** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. In the upper-right corner of the page, click **Edit**.
4. In the **Routing** section, perform the following operations:
   - Modify routing settings

     You can modify the default route or subroutes.



Routing

Default Route

Attribute Key	Attribute Value
receiver	null
group_wait	30s
group_interval	5m
repeat_interval	12h
group_by	job
continue	○ se
match	Add
match_re	Add

Subroutes

Attribute Key	Attribute Value
receiver	null
group_wait	
group_interval	
repeat_interval	
group_by	Separate multiple val
continue	○ No
match	Add alertname : Watchdog
match_re	Add

Parameter	Description

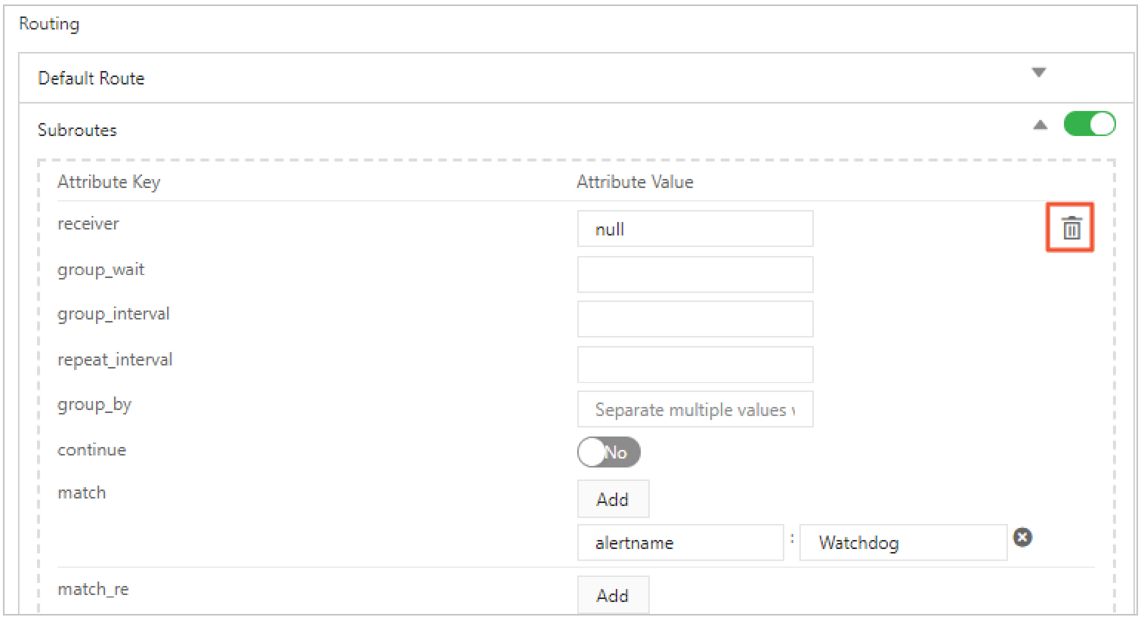
Parameter	Description
Default Route	The global route. You can configure the route information based on the actual environment. ■ **receiver**: the name of the alert receiver. ■ **group_wait**: specifies the waiting time to initialize a message when a new alert group is created. This method ensures that the system can have enough time to obtain multiple alerts for the same alert group, and then trigger an alert message. ■ **group_interval**: specifies the waiting time to send a new alert message. ■ **repeat_interval**: specifies the waiting time to resend an alert message. ■ **group_by**: the tag list. It is the regrouping tag list after alert messages are received. For example, all received alert messages that contain the `cluster=A` and `alertname=Latncy High` tags are aggregated into a group. ■ **continue**: specifies whether an alert matches subsequent nodes. ■ **match**: Click **Add** and specify a receiver for matched alerts. ■ **match_re**: Click **Add**. Enter a regular expression and specify a receiver for alerts that match the regular expression.
Subroutes	Configure subroutes in a similar way to the global route, so that you can export an alert type to another location. ■ **receiver**: the name of the alert receiver. ■ **group_wait**: specifies the waiting time to initialize a message when a new alert group is created. This method ensures that the system can have enough time to obtain multiple alerts for the same alert group, and then trigger an alert message. ■ **group_interval**: specifies the waiting time to send a new alert message. ■ **repeat_interval**: specifies the waiting time to resend an alert message. ■ **group_by**: the tag list. It is the regrouping tag list after alert messages are received. For example, all received alert messages that contain the `cluster=A` and `alertname=Latncy High` tags are aggregated into a group. ■ **continue**: specifies whether an alert matches subsequent nodes. ■ **match**: click **Add**. Enter the key and value of a tag and specify a receiver for alerts that match the tag. ■ **match_re**: click **Add**. Enter a regular expression based on the key and value of a tag and specify a receiver for alerts that match the regular expression.

- Create a subroute

  To export an alert type to another location, you can click **Add Subroute** in the lower part of the **Routing** section to configure a new subroute.

- Delete a subroute

  In the **Routing** section, find a subroute that is no longer needed and click the Delete icon to delete the subroute.



Routing

Default Route

Subroutes

Attribute Key	Attribute Value
receiver	null
group_wait	
group_interval	
repeat_interval	
group_by	Separate multiple values \
continue	No
match	Add alertname : Watchdog
match_re	Add

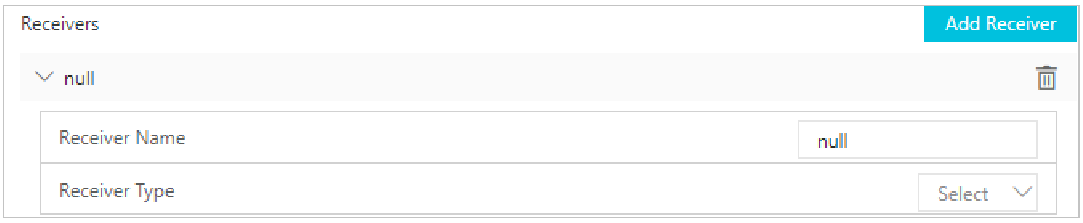
7.1.8.2.2.3. Modify receiver settings

You can create, modify, or delete alert receiver settings.

Procedure

1. In the left-side navigation pane of the PaaS console, select **Notification Channels** from the **Alerts** drop-down list.
2. In the upper part of the page, select the target cluster from the drop-down list.
3. In the upper-right corner of the page, click **Edit**.
4. In the **Receivers** section, perform the following operations:
   - Modify receiver settings

     Modify the name and type of a receiver.



Receivers

null

Receiver Name	null
Receiver Type	Select

Parameter	Description
Receiver Name	The name of the alert receiver.

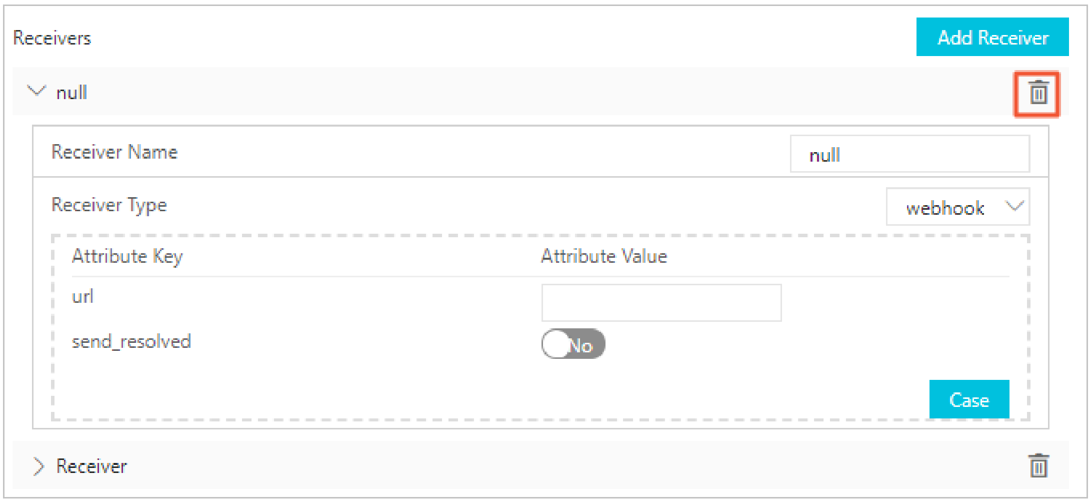
Parameter	Description
Receiver Type	Valid values for **Receiver Type**: **webhook** and **email**. If Receiver Type is set to **webhook**, you must configure the following parameters: - **url**: the URL of the alert receiver. - **send_resolved**: specifies whether to send messages for resolved alerts. Default value: **No**. If Receiver Type is set to **email**, you must configure the following parameters: - **send_resolved**: specifies whether to send messages for resolved alerts. Default value: **No**. - **to**: the destination email address for alerts. - **from**: the source email address used to send alerts. - **smarthost**: the server address and port number for the source email address used to send alerts. - **hello**: the default hostname that identifies the email server. - **auth_username**: the username for the source email address used to send alerts. - **auth_password**: the password for the source email address used to send alerts. - **auth_secret**: specifies the CRAM-MD5 authentication method. - **auth_identity**: specifies the PLAIN authentication method. - **require_tls**: the default TLS configuration. Although the default value is **Yes**, the parameter is typically set to **No** to avoid starttls errors that occur if the parameter is set to **Yes**.

- Add a receiver

  In the upper-right corner of the **Receivers** section, click **Add Receiver**. Configure the parameters.

- Delete a receiver

  In the **Receivers** section, find the target receiver and click the Delete icon to delete a receiver that is no longer needed.



Receivers

Receiver Name: null

Receiver Type: webhook

Attribute Key	Attribute Value
url	
send_resolved	No

7.2. Harbor-based image repository console

7.2.1. Overview

This topic describes the features and purposes of Harbor.

The Harbor service is integrated into Apsara Stack Agility PaaS Kubernetes to provide a high-availability image repository and support image permission control, security scanning, and synchronization.

You can use Docker to push and pull images, as well as grant different image repository permissions to different roles.

Harbor 1.9.3 is an open-source tool. This documentation only provides basic instructions on image pushing and permission control. For more information about the features of Harbor, visit https://github.com/goharbor/harbor/blob/release-1.9.0/docs/user_guide.md.

7.2.2. Preparations

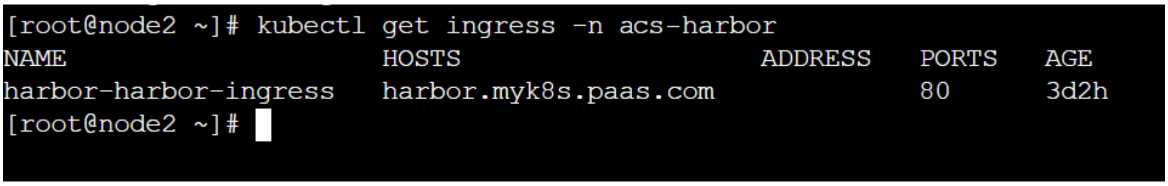
Before you use the Harbor-based image repository, you must obtain the domain name of the Harbor-based image repository and configure the host information.

7.2.2.1. Query the domain name of the Harbor-based image repository

After the environment is deployed, you can perform the following steps to query the domain name of the Harbor-based image repository:

Procedure

1. Log on to the master1 node.
2. Run the following command: **kubectl get ingress -n acs-harbor**



```
[root@node2 ~]# kubectl get ingress -n acs-harbor
NAME                     HOSTS                  ADDRESS   PORTS   AGE
harbor-harbor-ingress    harbor.myk8s.paas.com            80      3d2h
[root@node2 ~]# 
```

You can obtain the domain name of the Harbor-based image repository based on the returned result.

For example, if the returned result is `harbor.myk8s.paas.com`, the domain name of the Harbor-based image repository is harbor.myk8s.paas.com:80.

7.2.2.2. Configure host information

Before you use the Harbor-based image repository, you must perform a series of configurations to ensure that each machine in the cluster can access the Harbor-based image repository.

Add master1 node information

If the DNS of the machine accessing the Harbor-based image repository cannot resolve to the domain name of the repository, you must add the following content to the */etc/hosts* file of the machine:

```
xx.xx.xx.xx harbor.myk8s.${domain}
```

In this example, the domain name of the Harbor-based image repository is `harbor.myk8s.paas.com`. You must add the following content to the /etc/hosts file:

```
xx.xx.xx.xx harbor.myk8s.paas.com
```

In the content, `xx.xx.xx.xx` is the IP address of the master1 node.

Configure insecure-registry for Docker

You must access the Harbor-based image repository over HTTP because Harbor does not have TLS enabled. If the current machine encounters HTTPS problems when attempting to use Docker to access the Harbor-based image repository, you can solve these problems by configuring insecure-registry.

This example shows how to configure insecure-registry for Linux machines. Follow these steps:

1. Log on to each node of the PaaS cluster separately.
2. Find the *daemon.json* file in the */etc/docker/daemon.json* directory.
3. Add the domain name of the Harbor-based image repository to the *daemon.json* file.

   An example of the result is as follows:

   ```
   {
    "insecure-registries";[
    "harbor.myk8s.paas.com:80"
    ]
   }
   ```

4. After the modification, run the following command to restart Docker: **systemctl restart docker**

7.2.3. Log on to the Harbor-based image repository console

This topic describes how to log on to the Harbor-based image repository console.

Prerequisites

Before you log on to the Harbor-based image repository console, make sure that the following requirements are met:

- You have obtained the URL of the Harbor-based image repository console. For more information, see Query the domain name of the Harbor-based image repository.
- You have obtained the username and password that are used to log on to the Harbor-based image repository console from the deployment personnel or administrator.
- We recommend that you use the Google Chrome browser.

Procedure

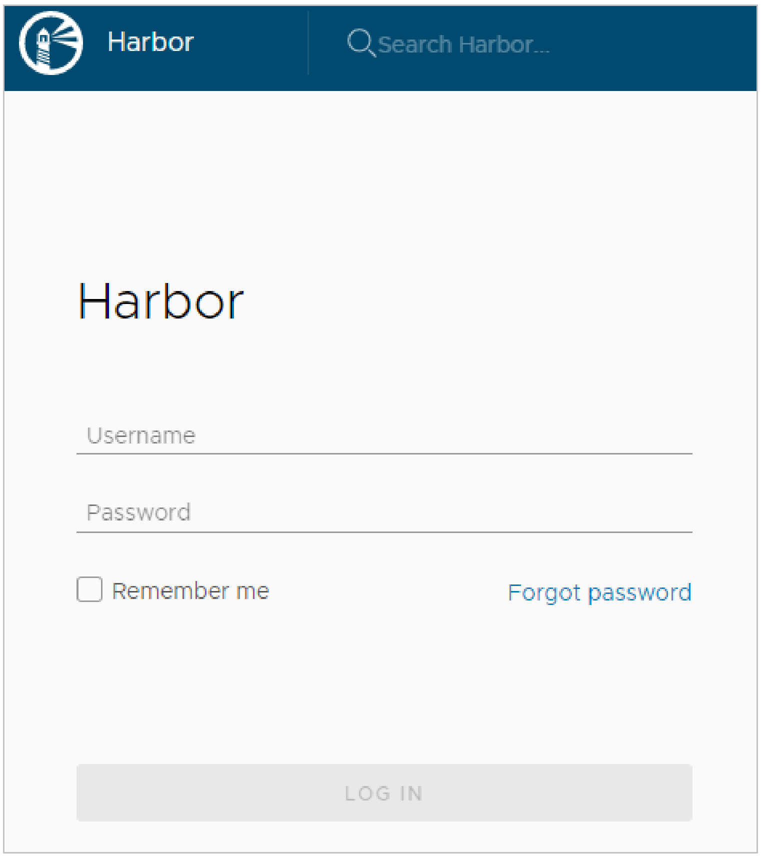
1. Enter the access URL of the Harbor-based image repository console in the address bar: harbor.myk8s.${domain}:80. Press the Enter key.

   ⓘ **Note** If you cannot access the Harbor-based image repository console, see Configure host information.

2. Enter your username and password.

   ⓘ **Note** We recommend that you change your password immediately after you log on to the Harbor-based image repository console.

   Method: In the upper-right corner of the page, click **Change Password**. Enter the current password and new password, and confirm the password. Click **OK**.



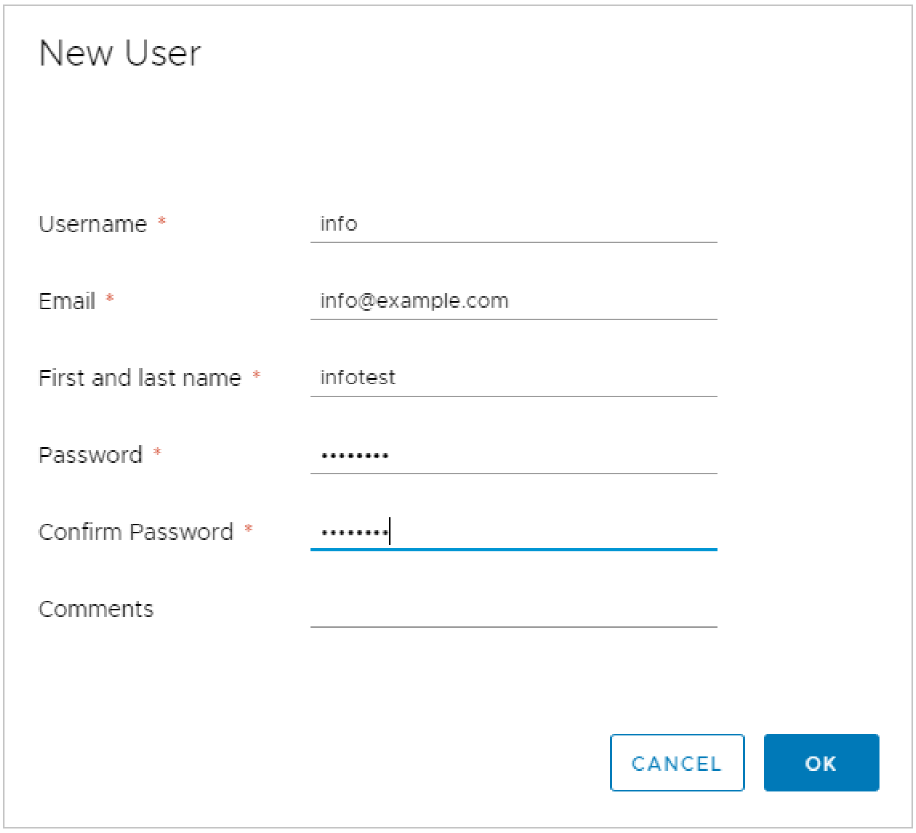
3. Click **LOG IN**.

7.2.4. Create users

After logging on to the Harbor-based image repository console, an administrator must create users to meet different requirements for access control.

Procedure

1. Log on to the Harbor-based image repository console as an administrator.
2. In the left-side navigation pane, choose **Administration > Users**.
3. On the **Users** page, click **NEW USER**.
4. In the **New User** dialog box that appears, set Username, Email, First and last name, Password, Confirm Password, and Comments. Click **OK**.



New User

Username * info

Email * info@example.com

First and last name * infotest

Password * ••••••••

Confirm Password * ••••••••

Comments

7.2.5. Create projects

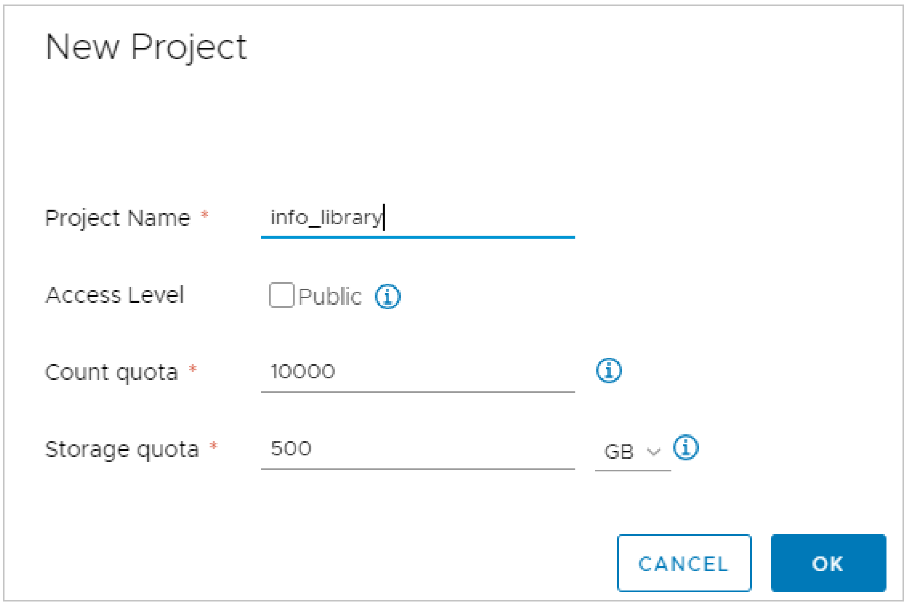
Projects are containers that store image repositories. You must create a project before you can push or pull images.

Procedure

1. Log on to the Harbor-based image repository console as an administrator.
2. In the left-side navigation pane, click **Projects**.
3. On the **Projects** page, click **NEW PROJECT**.
4. In the **New Project** dialog box that appears, configure the following parameters.

Parameter	Description
Project Name	The name of the project to be created.
Access Level	The access level of the project. Whether the project is public determines whether permissions are required to pull images from the image repository. If **Public** is selected, all users including unlogged users are allowed to use Docker to pull images.
Count quota	The maximum number of images that can be stored in the image repository. The default value is **-1**, indicating that no upper limit is set on the number of images that can be stored in the image repository.

Parameter	Description
Storage quota	The storage capacity of the image repository. The default value is -**1**, indicating that no upper limit is set on the storage capacity of the image repository.



New Project

Project Name * info_library

Access Level □ Public

Count quota * 10000

Storage quota * 500 GB

5. Click **OK**. By default, the creator of the project is the project administrator.

7.2.6. Grant project permissions

After creating a user and a project, you must grant the user project permissions so that the user can access the project.

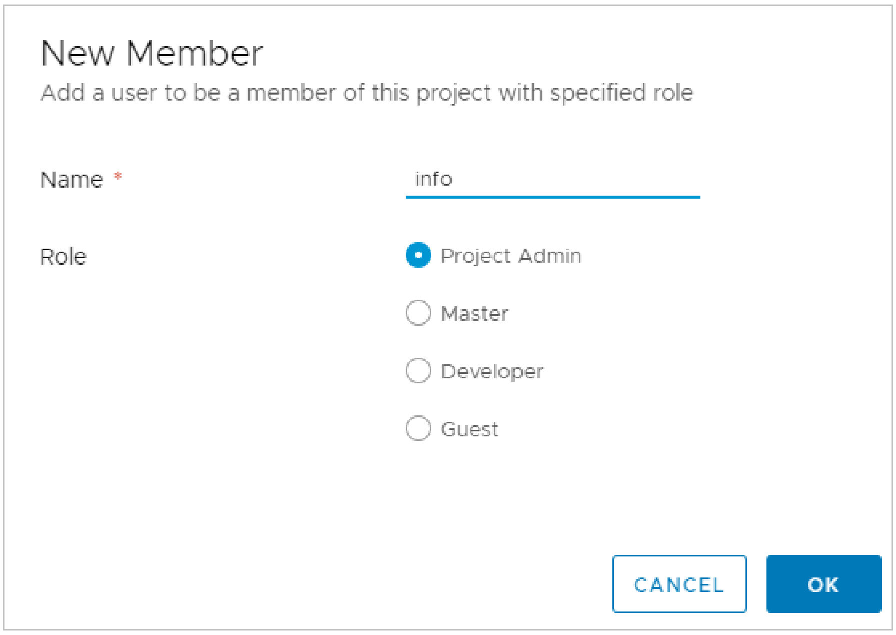
Prerequisites

- A user is created. For more information about how to create a user, see Create users.
- A project is created. For more information about how to create a project, see Create projects.

Procedure

1. Log on to the Harbor-based image repository console as an administrator.
2. In the left-side navigation pane, click **Projects**.
3. In the project list, find the project you just created and click the project name.
4. Click the **Members** tab.
5. Click **+ USER**.
6. In the **New Member** dialog box that appears, configure the following parameters.

Parameter	Description
Name	Enter the name of the user to whom you want to grant project permissions. For example, you can enter the name of the user you just created.
Role	Valid values: ○ **Project Admin**: This role has all project permissions such as those to push images, pull images, and configure the project. ○ **Master**: This role has the permissions to push images and pull images. ○ **Developer**: This role has the permissions to push images and pull images. ○ **Guest**: This role has the permission to pull images.



New Member

Add a user to be a member of this project with specified role

Name * info

Role
● Project Admin
○ Master
○ Developer
○ Guest

7. Click **OK**.

7.2.7. Push images

To deploy your applications on the cloud, you must push images to the Harbor-based image repository.

Prerequisites

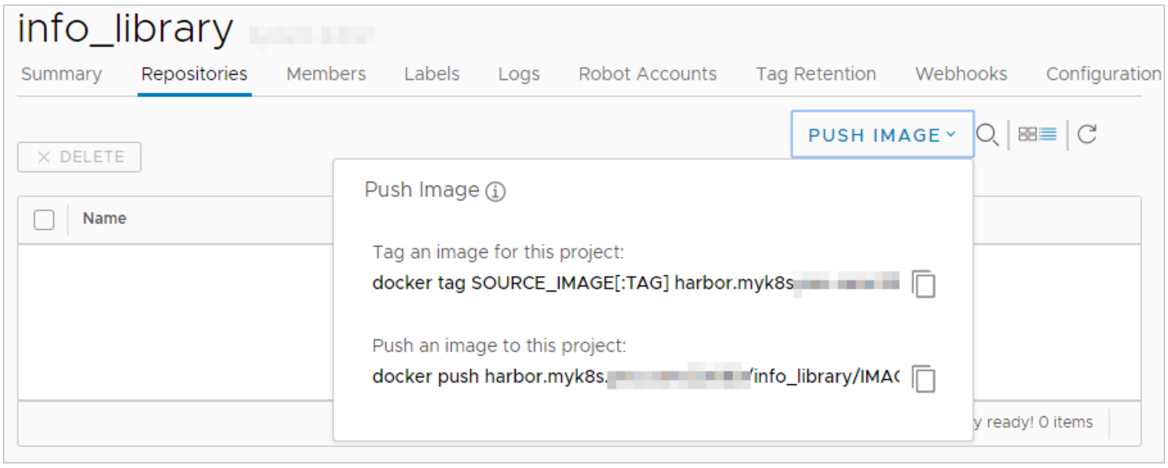
Before you push images, make sure that the following requirements are met:

- You have the permission to push images as a project administrator, maintenance personnel, or developer.
- The image to be pushed is available. It can be a local image or an image downloaded from another image repository.

> **Note**
> - The Harbor-based image repository does not support images with manifest v2 schema 1.
> - The Harbor-based image repository limits the size of an image layer to 5,000 MB. If this limit is exceeded, the image will fail to be uploaded. If an image layer is larger than 5,000 MB in size, reduce the size of the image.

Procedure

1. In the left-side navigation pane of the Harbor-based image repository console, click **Projects**.
2. In the project list, find the project to which you want to push the image and click the project name.
3. Click the **Repositories** tab.
4. In the upper-right corner of the page, click **PUSH IMAGE**. The command used to push images is displayed.



Tag an image for this project:

```
docker tag SOURCE_IMAGE[:TAG] harbor.myk8s[redacted]
```

Push an image to this project:

```
docker push harbor.myk8s.[redacted]/info_library/IMA(
```

> **Note** The specific domain name of the image repository to which you push images varies with the environment. This topic uses the domain name harbor.myk8s.paas.com:80 of the Harbor-based image repository as an example.

5. Tag and push the image by using the displayed commands.
   1. Log on to the master1 node.
   2. Prepare the image to be pushed in the local environment.
   3. Run the following command to tag the image.

      In this example, the *1.13.3-k8s* tag is added to the *info_library/nginx* image repository.

      docker tag *info_library/nginx:1.13.3-k8s* **harbor.myk8s.paas.com:80** */info_library/nginx:1.13.3-k8s*

iv. Use the Docker command to log on to the image repository.

a. Run the following command to log on to the image repository:

```
docker login harbor.myk8s.paas.com:80
```

b. Enter the administrator account and password of the image repository.

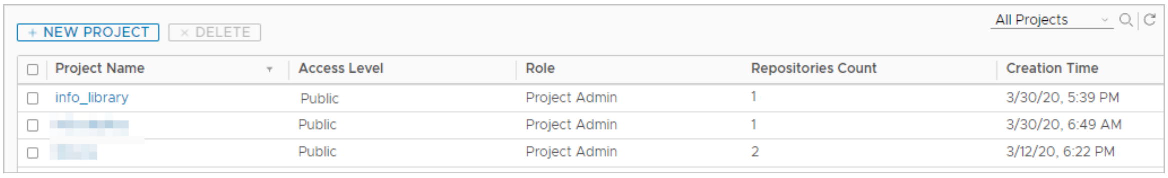
After you log on to the image repository, `Login Succeeded` is displayed.

> **Notice** If the system prompts that the certificate verification failed during logon, you must refer to Configure host information to complete the configuration of insecure-registry.

v. After you log on to the image repository, run the following command to push the tagged image to the current project:

```
docker push harbor.myk8s.paas.com:80/info_library/nginx:1.13.3-k8s
```

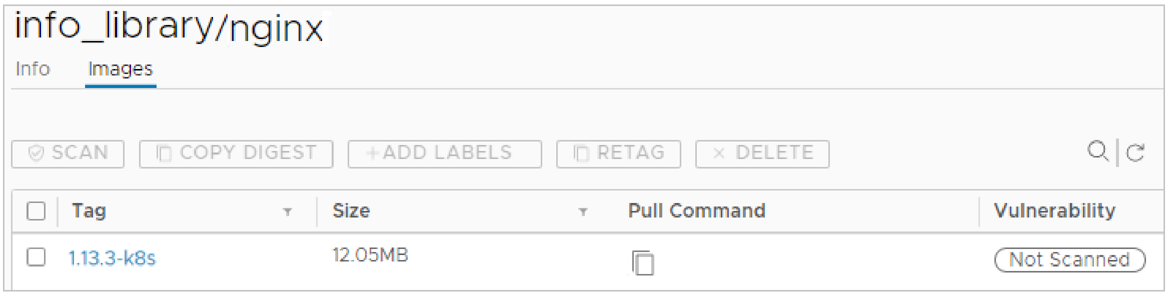
6. Wait a few minutes and then log on to the Harbor-based image repository console again. On the **Projects** page, the value of **Repositories Count** corresponding to the **info_library** project is displayed as 1.



□	Project Name	Access Level	Role	Repositories Count	Creation Time
□	info_library	Public	Project Admin	1	3/30/20, 5:39 PM
□	[redacted]	Public	Project Admin	1	3/30/20, 6:49 AM
□	[redacted]	Public	Project Admin	2	3/12/20, 6:22 PM

7. Click the project name. On the page that appears, click the **Repositories** tab to view the pushed image.

8. Click the image name to view the image tag.


info_library/nginx

□	Tag	Size	Pull Command	Vulnerability
□	1.13.3-k8s	12.05MB		Not Scanned

8.Operations of basic cloud products

8.1. ApsaraDB for RDS

8.1.1. Architecture

8.1.1.1. System architecture

8.1.1.1.1. Backup system

ApsaraDB for RDS can back up databases at any time and restore them to any point in time based on the backup policy, which makes the data more traceable.

Automatic backup

ApsaraDB RDS for MySQL supports both physical and logical backup.

You can flexibly configure the backup start time based on the service off-peak hours. All backup files are retained for seven days.

Temporary backup

You can create temporary backup files when necessary. Temporary backup files are retained for seven days.

Log management

ApsaraDB RDS for MySQL automatically generates binlogs and allows you to download them for local incremental backup.

Instance cloning

A cloned instance is a new instance with the same content as the primary instance, including data and settings. This feature allows you to restore data of the primary instance or create multiple instances that are the same as the primary instance.

8.1.1.1.2. Monitoring system

RDS provides multi-dimensional monitoring services across the physical, network, and application layers to ensure business availability.

Performance monitoring

RDS provides nearly 20 metrics for system performance monitoring, such as disk capacity, IOPS, connections, CPU utilization, network traffic, TPS, QPS, and cache hit rate. You can obtain the running status information for any instances within the past year.

SQL auditing

The system records the SQL statements and related information sent to RDS instances, such as the connection IP address, database name, access account, execution time, and number of records returned. You can use SQL auditing to check instance security and locate problems.

Threshold alerts

RDS provides alert SMS notifications if status or performance exceptions occur in the instance.

These exceptions can be involved in instance locking, disk capacity, IOPS, connections, and CPU. You can configure alert thresholds and up to 50 alert recipients (of which five are effective at a time). When an instance exceeds the threshold, an SMS notification is sent to the alert recipients.

Web operation logs

The system logs all modification operations in the RDS console for administrators to check. These logs are retained for a maximum of 30 days.

8.1.1.1.3. Control system

If a host or instance does not respond, the RDS high-availability (HA) component checks for exceptions and fails over services within 30 seconds to guarantee that applications run normally.

8.1.1.1.4. Task scheduling system

You can use the RDS console or API operations to create and delete instances, or switch instances between the internal network and Internet. All instance operations are scheduled, traced, and displayed as tasks.

8.1.2. Log on to the Apsara Stack Operations console

Prerequisites

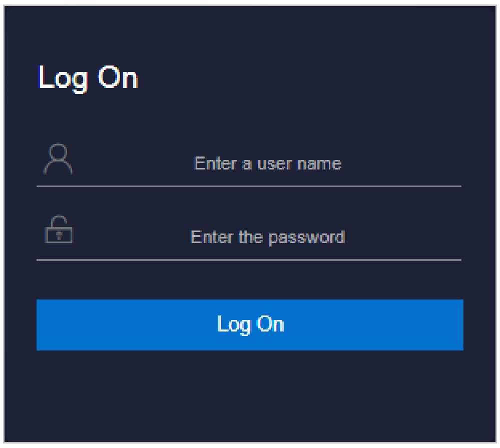
- The URL of the ASO console, and the username and password used for logging on to the console are obtained from the deployment personnel or an administrator.

  The URL of the ASO console is in the following format: *region-id*.aso.*intranet-domain-id*.com.

- A browser is available. We recommend that you use the Google Chrome browser.

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.


Log On

Enter a user name

Enter the password

> **Note** You can select a language from the drop-down list in the upper-right corner of the page.

3. Enter your username and password.

> **Note** Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

When you log on to the ASO console for the first time, you must change the password of your username as prompted.

To enhance security, a password must meet the following requirements:

- It must contain uppercase and lowercase letters.
- It must contain digits.
- It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
- It must be 10 to 20 characters in length.

4. Click **Log On** to go to the **ASO** console.

8.1.3. Manage instances

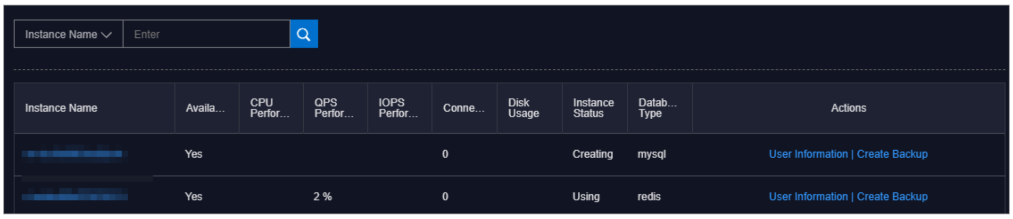
You can view instance details, logs, and user information.

Procedure

1. Log on to the Apsara Stack Operations console.
2. In the left-side navigation pane, choose **Products** > **RDS**.
3. On the **Instance Management** tab of the **RDS** page, you can perform the following operations:
   - View instances

     View instances that belong to the account on the **Instance Management** tab, as shown in Instances.

     Instances



Instance Name ∨ Enter

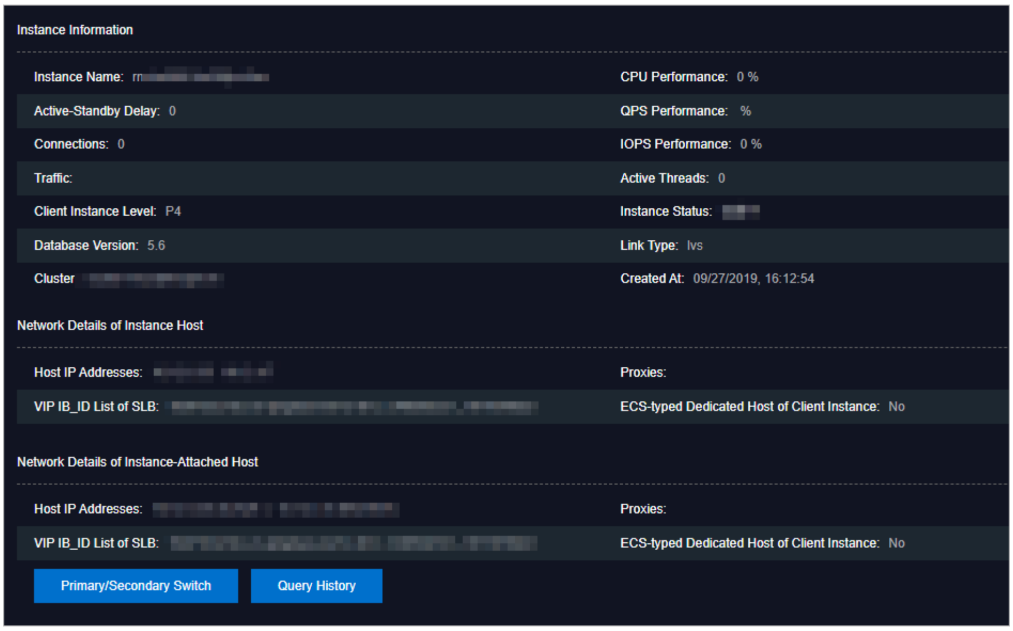
Instance Name	Availa...	CPU Perfor...	QPS Perfor...	IOPS Perfor...	Conne...	Disk Usage	Instance Status	Datab... Type	Actions
[redacted]	Yes				0		Creating	mysql	User Information | Create Backup
[redacted]	Yes		2 %		0		Using	redis	User Information | Create Backup

- View instance details

  Click the ID of an instance to view details, as shown in Instance details. You can switch your service between primary and secondary instances and query historical operations on this page.

  > Note We recommend that you do not perform forced switchover, because it may result in data loss if data is not synchronized between the primary and secondary instances.

  Instance details



Instance Information

Instance Name: [redacted]
CPU Performance: 0 %
Active-Standby Delay: 0
QPS Performance: %
Connections: 0
IOPS Performance: 0 %
Traffic:
Active Threads: 0
Client Instance Level: P4
Instance Status: [redacted]
Database Version: 5.6
Link Type: lvs
Cluster [redacted]
Created At: 09/27/2019, 16:12:54

Network Details of Instance Host

Host IP Addresses: [redacted]
Proxies:
VIP IB_ID List of SLB: [redacted]
ECS-typed Dedicated Host of Client Instance: No

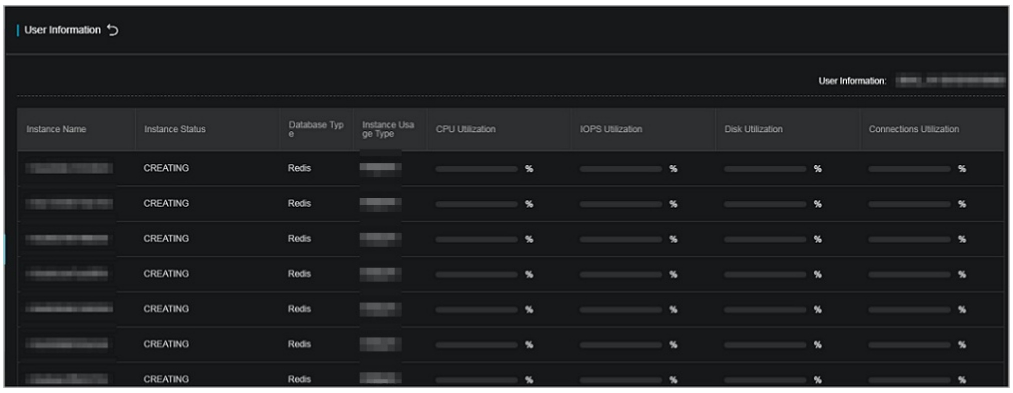
Network Details of Instance-Attached Host

Host IP Addresses: [redacted]
Proxies:
VIP IB_ID List of SLB: [redacted]
ECS-typed Dedicated Host of Client Instance: No

- **View user information**

  Click **User Information** in the **Actions** column corresponding to an instance, as shown in User information.

  User information



User Information

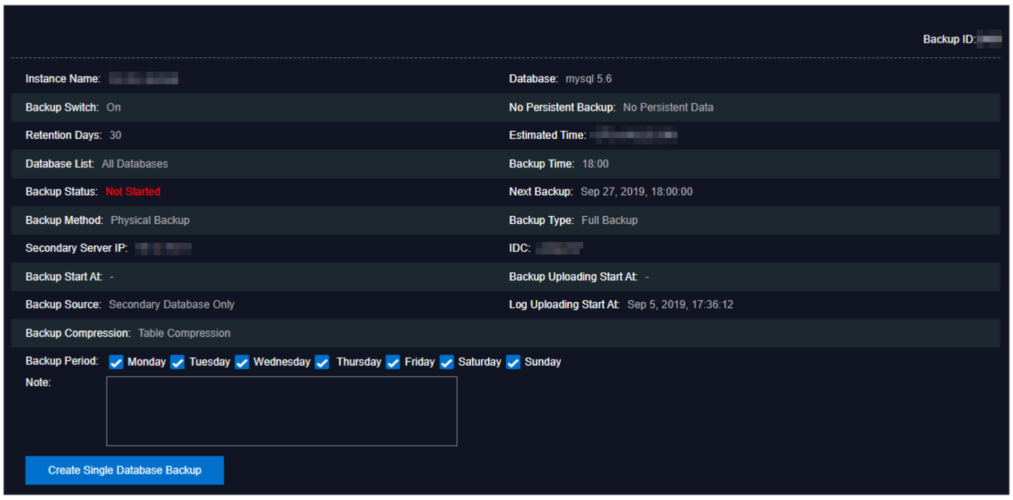
User Information: [redacted]

Instance Name	Instance Status	Database Type	Instance Usage Type	CPU Utilization	IOPS Utilization	Disk Utilization	Connections Utilization
[redacted]	CREATING	Redis	[redacted]	%	%	%	%
[redacted]	CREATING	Redis	[redacted]	%	%	%	%
[redacted]	CREATING	Redis	[redacted]	%	%	%	%
[redacted]	CREATING	Redis	[redacted]	%	%	%	%
[redacted]	CREATING	Redis	[redacted]	%	%	%	%
[redacted]	CREATING	Redis	[redacted]	%	%	%	%
[redacted]	CREATING	Redis	[redacted]	%	%	%	%

- Create backups

  For ApsaraDB RDS for MySQL instances, click **Create Backup** in the **Actions** column to view the backup information, as shown in Backup information. You can also click **Create Single Database Backup** on the Backup Information page to back up a single database.

  Backup information



Backup ID: [redacted]

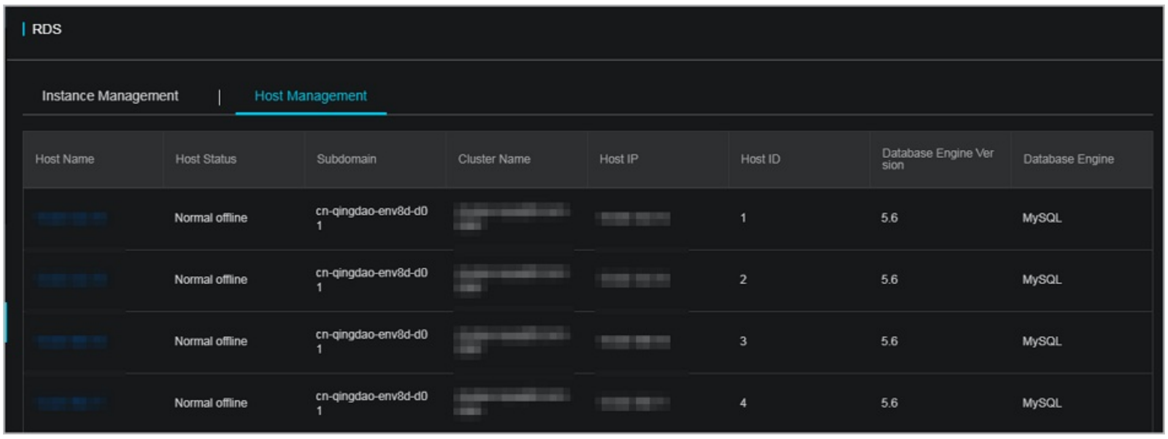
Instance Name: [redacted]
Database: mysql 5.6
Backup Switch: On
No Persistent Backup: No Persistent Data
Retention Days: 30
Estimated Time: [redacted]
Database List: All Databases
Backup Time: 18:00
Backup Status: Not Started
Next Backup: Sep 27, 2019, 18:00:00
Backup Method: Physical Backup
Backup Type: Full Backup
Secondary Server IP: [redacted]
IDC: [redacted]
Backup Start At: -
Backup Uploading Start At: -
Backup Source: Secondary Database Only
Log Uploading Start At: Sep 5, 2019, 17:36:12
Backup Compression: Table Compression
Backup Period: ☑ Monday ☑ Tuesday ☑ Wednesday ☑ Thursday ☑ Friday ☑ Saturday ☑ Sunday
Note:

8.1.4. Manage hosts

You can view and manage hosts.

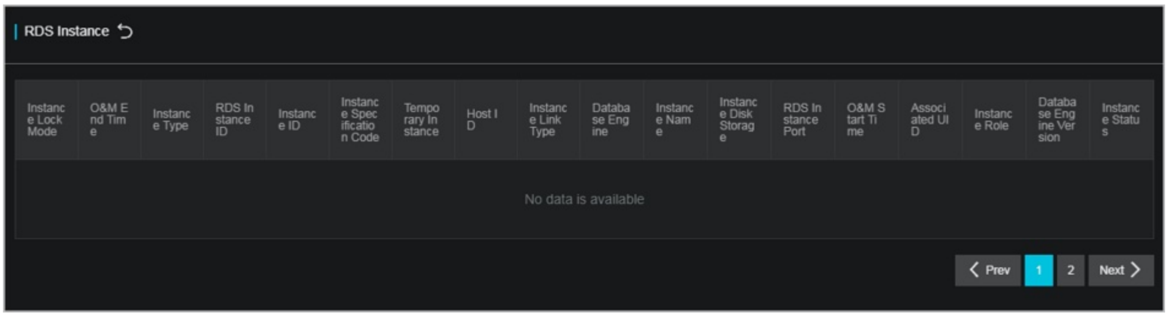
Procedure

1. Log on to the Apsara Stack Operations console.
2. In the left-side navigation pane, choose **Products > RDS**.
3. On the **Host Management** tab of the **RDS** page, you can view the information of all hosts.



Host Name	Host Status	Subdomain	Cluster Name	Host IP	Host ID	Database Engine Version	Database Engine
[redacted]	Normal offline	cn-qingdao-env8d-d01	[redacted]	[redacted]	1	5.6	MySQL
[redacted]	Normal offline	cn-qingdao-env8d-d01	[redacted]	[redacted]	2	5.6	MySQL
[redacted]	Normal offline	cn-qingdao-env8d-d01	[redacted]	[redacted]	3	5.6	MySQL
[redacted]	Normal offline	cn-qingdao-env8d-d01	[redacted]	[redacted]	4	5.6	MySQL

4. Click a hostname to go to the **RDS Instance** page. You can view all instances on this host.



RDS Instance

Instance Lock Mode	O&M End Time	Instance Type	RDS Instance ID	Instance ID	Instance Specification Code	Temporary Instance	Host ID	Instance Link Type	Database Engine	Instance Name	Instance Disk Storage	RDS Instance Port	O&M Start Time	Associated UID	Instance Role	Database Engine Version	Instance Status

No data is available

8.1.5. Security maintenance

8.1.5.1. Network security maintenance

Network security maintenance consists of device and network security maintenance.

Device security

Check network devices and enable their security management protocols and configurations of devices.

Check for timely updates to secure versions of network device software.

For more information about the security maintenance method, see the device documentation.

Network security

Based on your network considerations, select the intrusion detection system (IDS) or intrusion prevention system (IPS) to detect abnormal Internet and Intranet traffic and protect against attacks.

8.1.5.2. Account password maintenance

Account passwords include RDS system passwords and device passwords.

To ensure account security, you must periodically change the system and device passwords, and use passwords with high complexity.

9.Appendix

9.1. Operation Access Manager (OAM)

9.1.1. OAM introduction

Overview

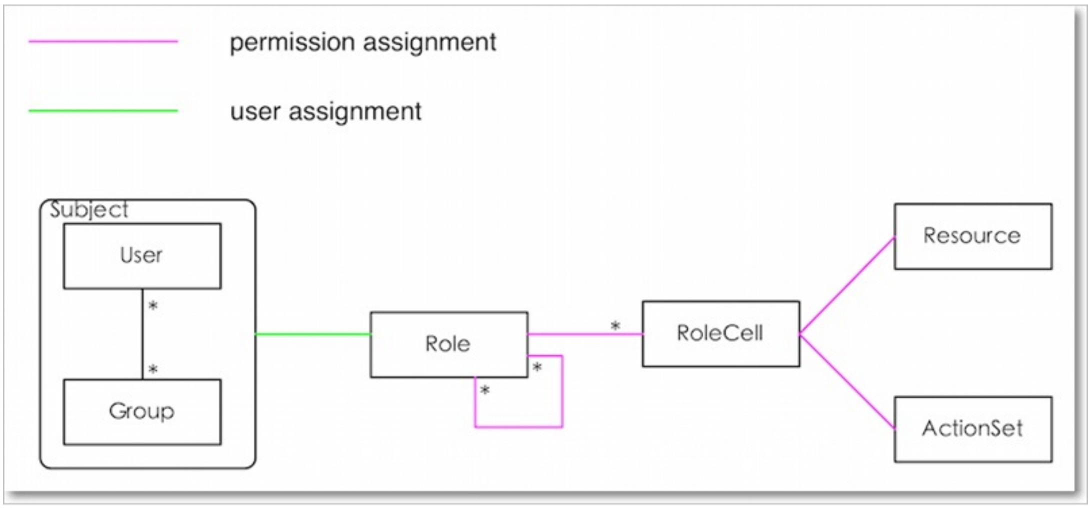
Operation Access Manager (OAM) is a centralized permission management platform of Apsara Stack Operations (ASO). OAM uses a simplified role-based access control (RBAC) model. Administrators can use OAM to assign roles to operations personnel, granting them corresponding operation permissions to operations systems.

OAM permission model

In RBAC, administrators do not directly grant system operation permissions to users. Instead, they create a collection of roles between a collection of users and a collection of permissions. Each role corresponds to a group of permissions. If a role is assigned to a user, the user is granted all the operation permissions of that role. Therefore, when creating a user, administrators are only required to assign a role to the user, saving the trouble to grant specific permissions to the user. In addition, the frequency of role permission changes is less than that of user permission changes, simplifying the user permission management and reducing the system overhead.

See the OAM permission model as follows.

Permission model



9.1.2. Instructions

Before using Operation Access Manager (OAM), you must know the following basic concepts about permission management.

subject

Operators of the access control system. OAM has two types of subjects: users and groups.

user

Administrators and operators of operations systems.

group

A collection of users.

role

The core of the role-based access control (RBAC) system.

Generally, a role can be regarded as a collection of permissions. A role can contain multiple RoleCells or roles.

RoleHierarchy

In the OAM system, a role can contain other roles to form RoleHierarchy.

RoleCell

The specific description of a permission. A RoleCell consists of resources, ActionSets, and available authorizations.

resource

The description of an authorized object. For more information about resources of operations platforms, see Permission lists of operations platforms.

ActionSet

The description of authorized actions. An ActionSet can contain multiple actions. For more information about actions of operations platforms, see Permission lists of operations platforms.

available authorizations

The maximum number of authorizations in the cascaded authorization, which is an integer greater than or equal to zero. If the value is not zero, the permission can be granted. If the value is zero, the permission cannot be granted.

For example, if administrator A sets **Available Authorizations** to 5 when granting a permission to administrator B, the permission can be granted for another five times at most. When administrator B grants the permission to administrator C, the value of **Available Authorizations** cannot be greater than 4. If **Available Authorizations** is set to 0 when administrator B grants the permission to operator D, operator D can only use the permission but cannot grant it to others.

> **Note** Currently, OAM does not support the cascaded revocation for cascaded authorization. Therefore, administrator C and operator D still have the permission even if the permission is revoked for administrator B.

9.1.3. Quick Start

By completing the steps in this guide, you will learn how to create and assign roles for O&M.

9.1.3.1. Log on to OAM

This topic describes how to log on to Operation Administrator Manager (OAM).

Prerequisites

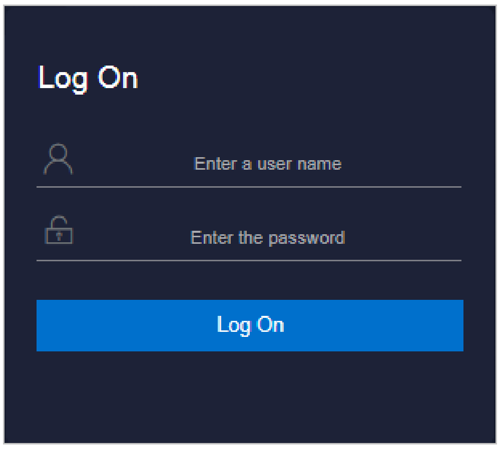
- The URL of the ASO console, and the username and password used for logging on to the console are obtained from the deployment personnel or an administrator.

  The URL of the ASO console is in the following format: *region-id*.aso.*intranet-domain-id*.com.

- A browser is available. We recommend that you use the Google Chrome browser.

Procedure

1. Open your browser.
2. In the address bar, enter the URL *region-id*.aso.*intranet-domain-id*.com and press the Enter key.

   > Note You can select a language from the drop-down list in the upper-right corner of the page.

3. Enter your username and password.

   > Note Obtain the username and password for logging on to the ASO console from the deployment personnel or an administrator.

   When you log on to the ASO console for the first time, you must change the password of your username as prompted.

   To enhance security, a password must meet the following requirements:

   - It must contain uppercase and lowercase letters.
   - It must contain digits.
   - It must contain special characters such as exclamation points (!), at signs (@), number signs (#), dollar signs ($), and percent signs (%).
   - It must be 10 to 20 characters in length.

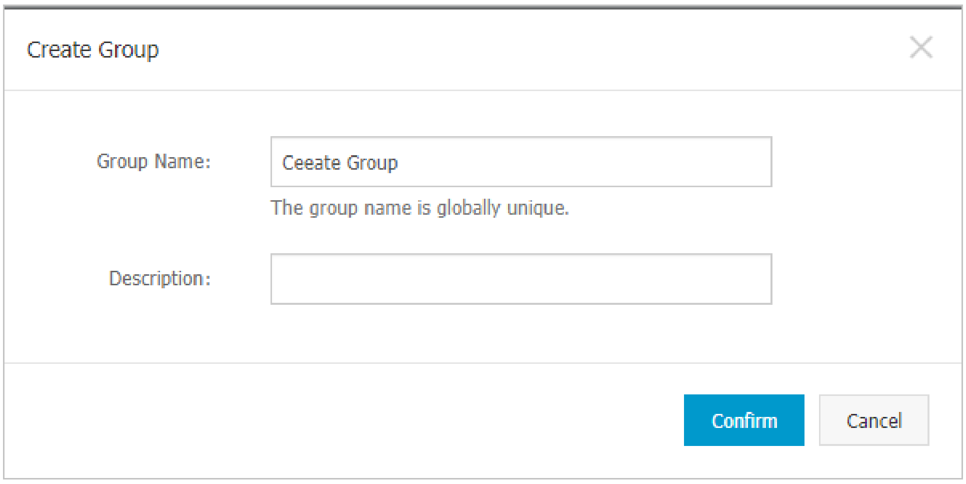
4. Click **Log On** to go to the **ASO** console.
5. In the left-side navigation pane, choose **Products > Product List**.
6. In the **Apsara Stack O&M > Basic O&M** section, click **OAM**.

9.1.3.2. Create groups

You can create user groups for centralized management.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management > Owned Groups**.
3. On the **Owned Groups** page, click **Create Group** in the upper-right corner. In the **Create Group** dialog box that appears, set **Group Name** and **Description**.



Create Group

Group Name: Ceeate Group

The group name is globally unique.

Description:

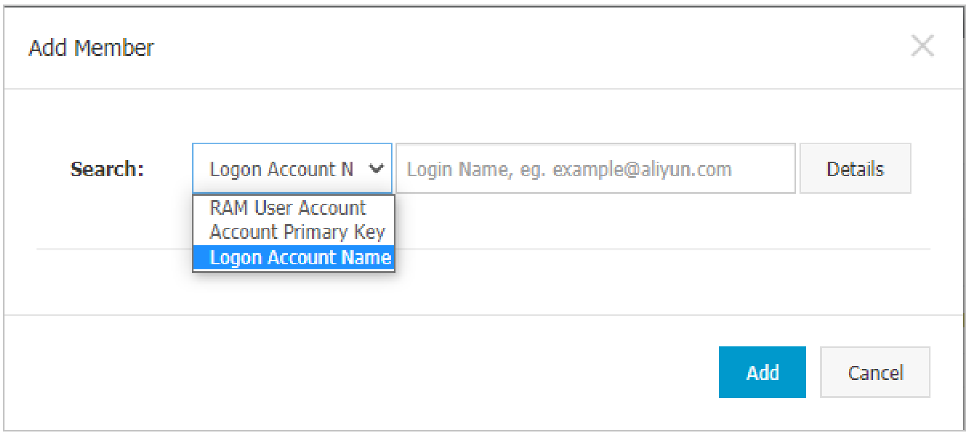
4. Click **Confirm**.After the group is created, it is displayed on the **Owned Groups** page.

9.1.3.3. Add group members

You can add members to an existing group to grant permissions to the group members in a centralized manner.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management > Owned Groups**.
3. Find the group whose name and description you want to modify and click **Manage** in the **Actions** column.
4. In the upper-right corner of the **Group Member** section, click **Add Member**.



Add Member

Search: Logon Account N

5. Select a search mode, enter the corresponding information, and click **Details**. Details of the

specified user are displayed.

Three search modes are available:

- **RAM User Account**: Search in the format of RAM user@Apsara Stack tenant account ID.
- **Account Primary Key**: Search by using the unique ID of the Apsara Stack tenant account.
- **Logon Account Name**: Search by using the logon name of the Apsara Stack tenant account.

6. Click **Add**.
7. You can repeat the preceding steps to add multiple group members.To remove a member from a group, click **Remove** in the Actions column corresponding to the member.

9.1.3.4. Add group roles

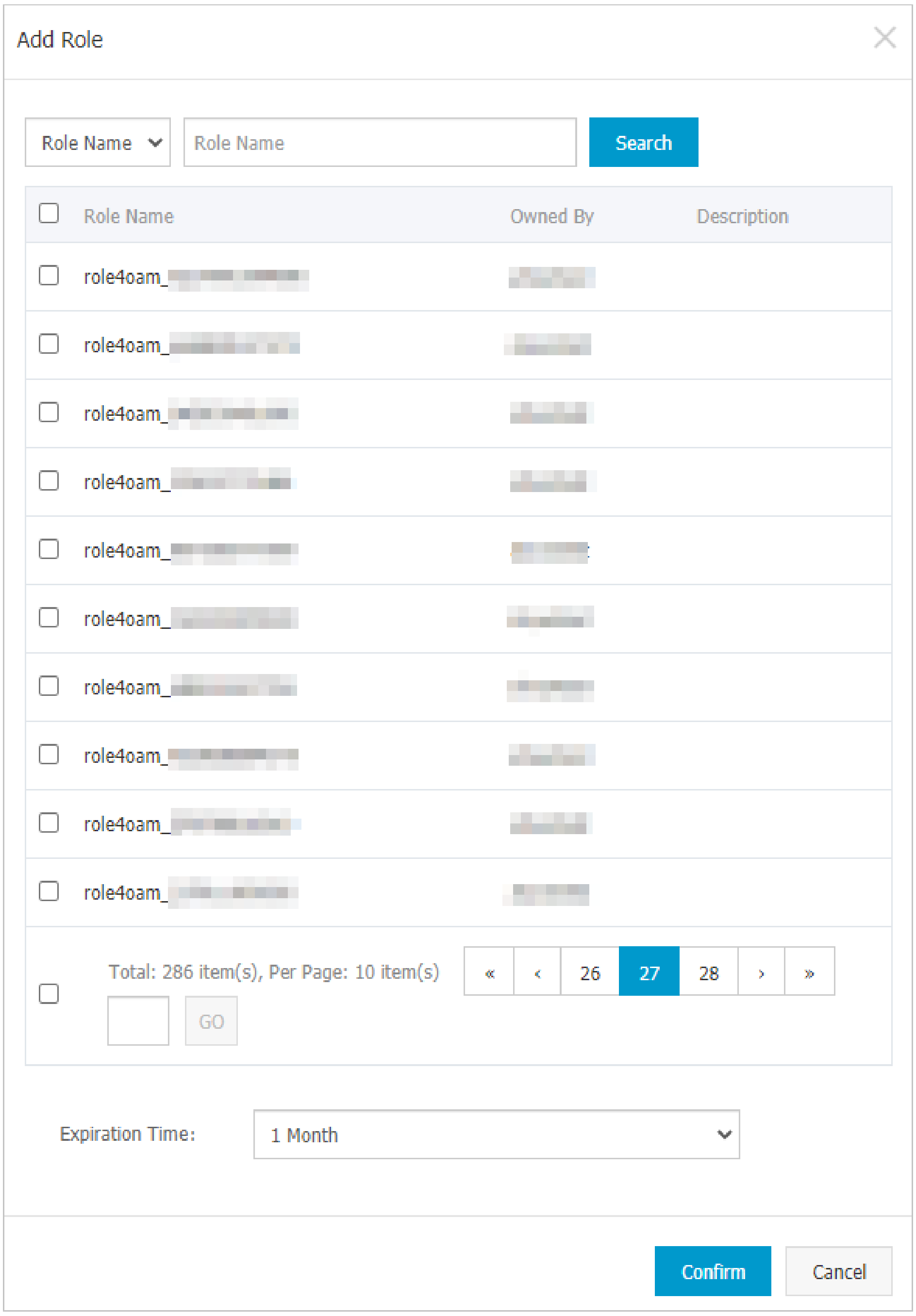
You can add roles to an existing group.

Prerequisites

- The role to be added is created. For more information, see Create roles.
- You are the owner of the group and the role.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management > Owned Groups**.
3. Find the group whose name and description you want to modify and click **Manage** in the **Actions** column.
4. In the upper-right corner of the **Role List** section, click **Add Role**.



Add Role

Role Name ▾ | Role Name | Search

□	Role Name	Owned By	Description
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	

□ Total: 286 item(s), Per Page: 10 item(s) « ‹ 26 27 28 › »

GO

Expiration Time: 1 Month

Confirm | Cancel

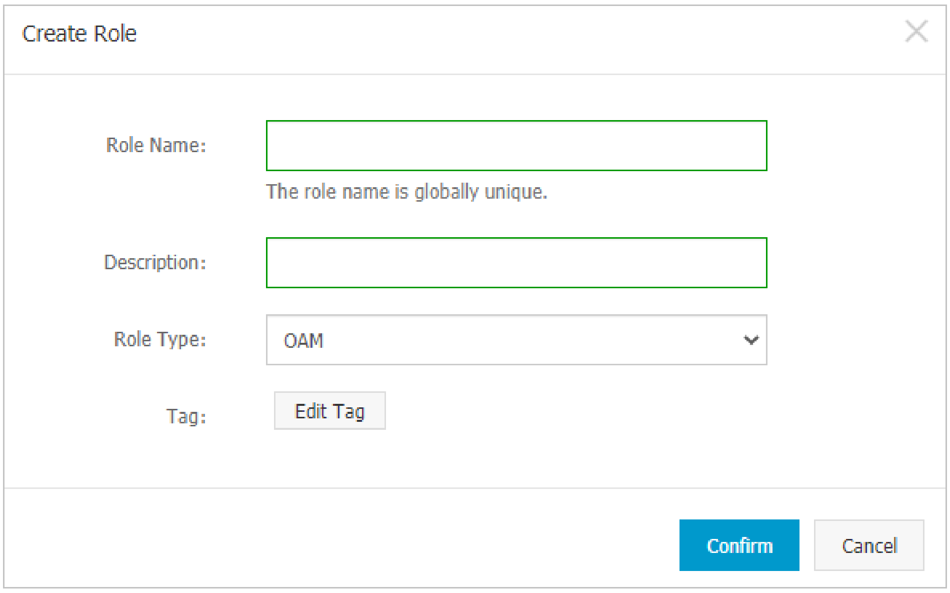
5. Search for roles by **Role Name**. Select one or more roles and set Expiration Time.
6. Click **Confirm**.

   To remove a role from a group, find the role in **Role List**, and click **Remove** in the **Actions** column.

9.1.3.5. Create roles

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. On the **Owned Roles** page, click **Create Role** in the upper-right corner.



Create Role

Role Name:

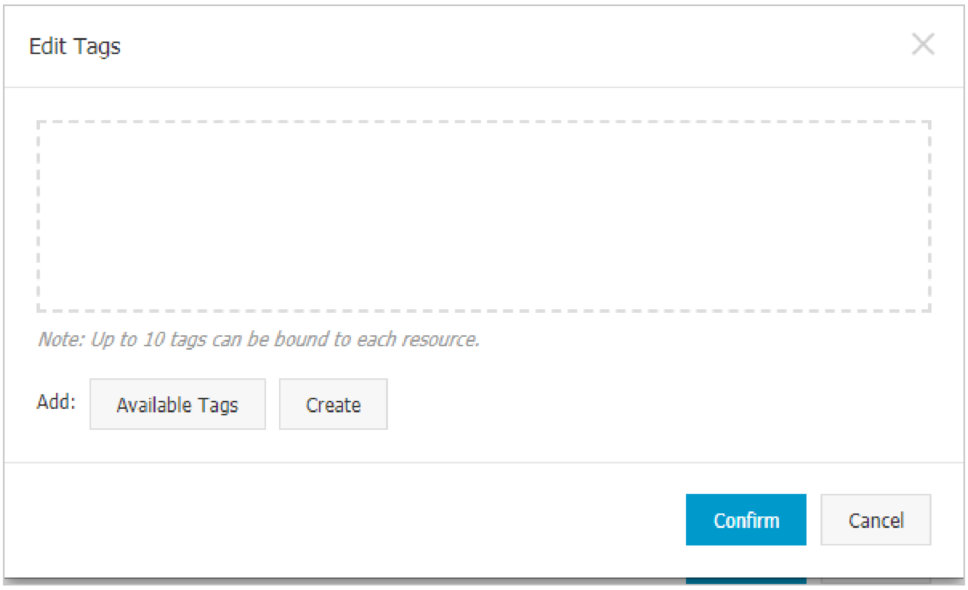
The role name is globally unique.

Description:

Role Type: OAM

Tag:

4. In the Create Role dialog box that appears, set **Role Name**, **Description**, and **Role Type**.
5. (Optional)Configure the role tags, which can be used to filter roles.
   i. Click **Edit Tags**.



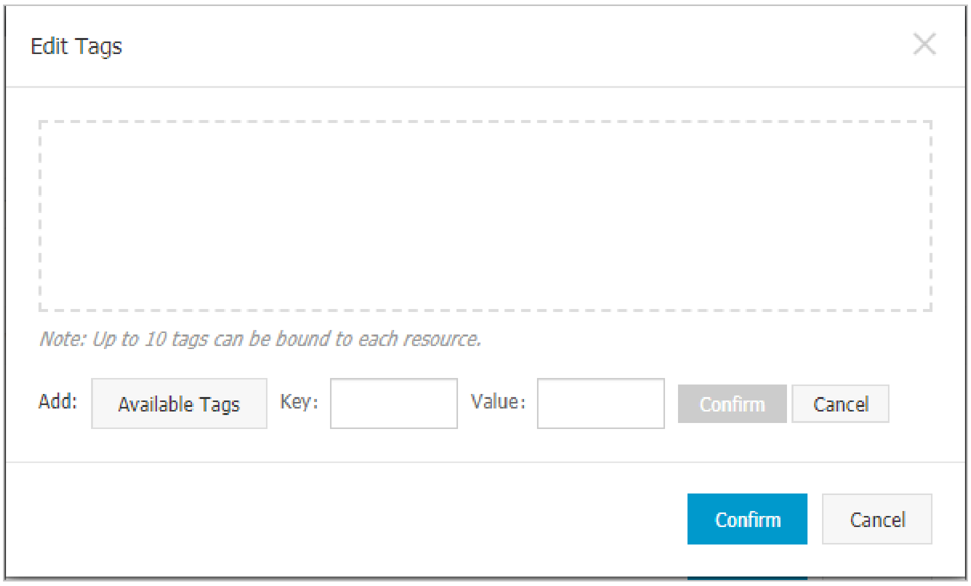
Edit Tags

Note: Up to 10 tags can be bound to each resource.

Add:

   ii. In the **Edit Tags** dialog box that appears, click **Create**.

iii. Set **Key** and **Value** for the tag and click **Confirm**.



iv. Repeat the preceding step to create more tags.

The created tags are displayed inside the dotted box.

v. Click **Confirm** to create the tags and exit the **Edit Tags** dialog box.

6. Click **Confirm** to create the role.

9.1.3.6. Add inherited roles to a role

You can add inherited roles to a role to grant the permissions of the inherited roles to the role.

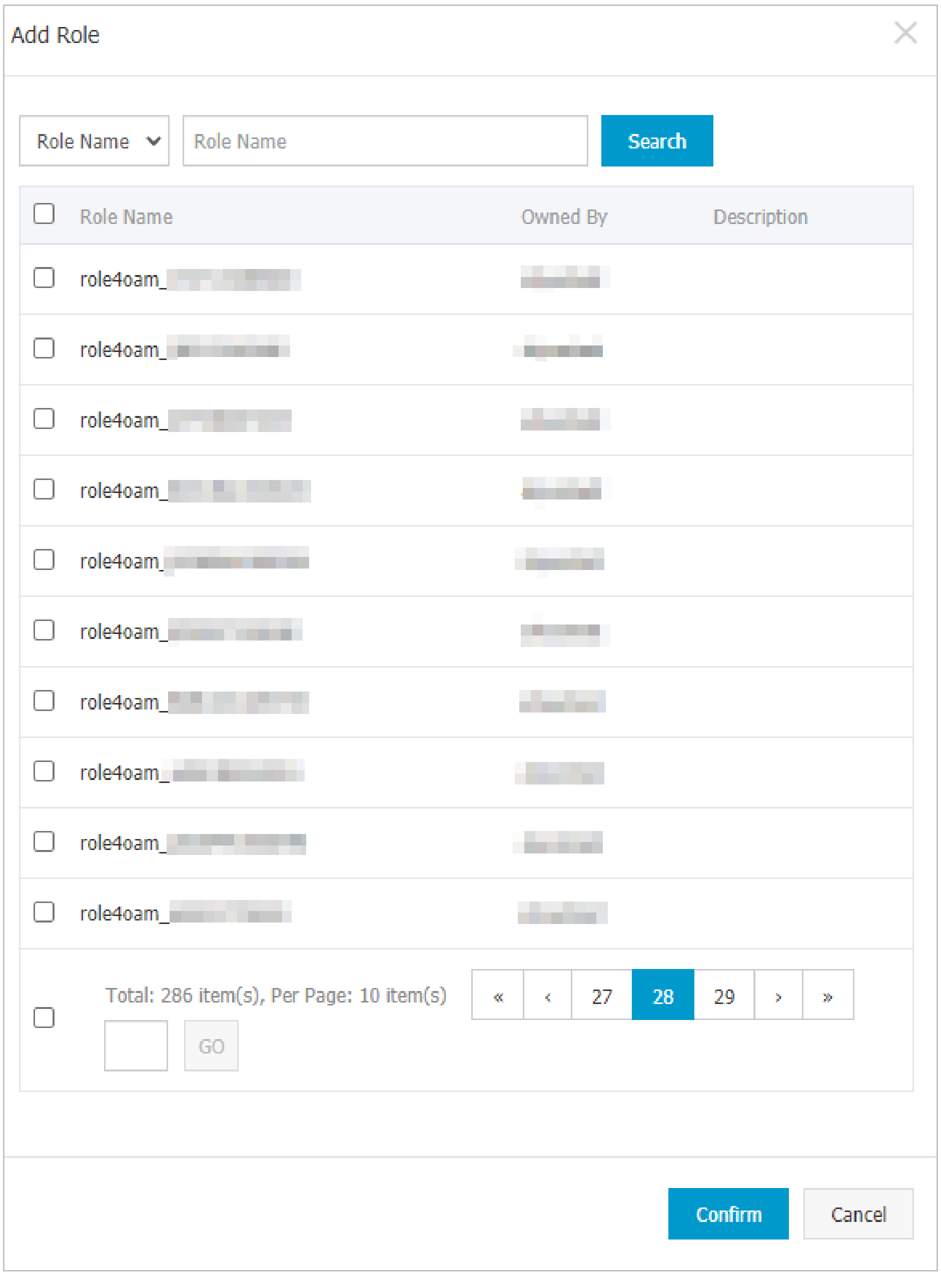
Prerequisites

You are the owner of the current role and the inherited role to be added.

For more information about how to query your owned roles, see Query roles.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. Find the role to which you want to add an inherited role and click **Manage** in the **Actions** column.
4. On the **Role Information** page, click the **Inherited Role** tab.
5. Click **Add Role**. In the **Add Role** dialog box that appears, search for roles by **Role Name**. Select one or more roles.



□	Role Name	Owned By	Description
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	
□	role4oam_[redacted]	[redacted]	

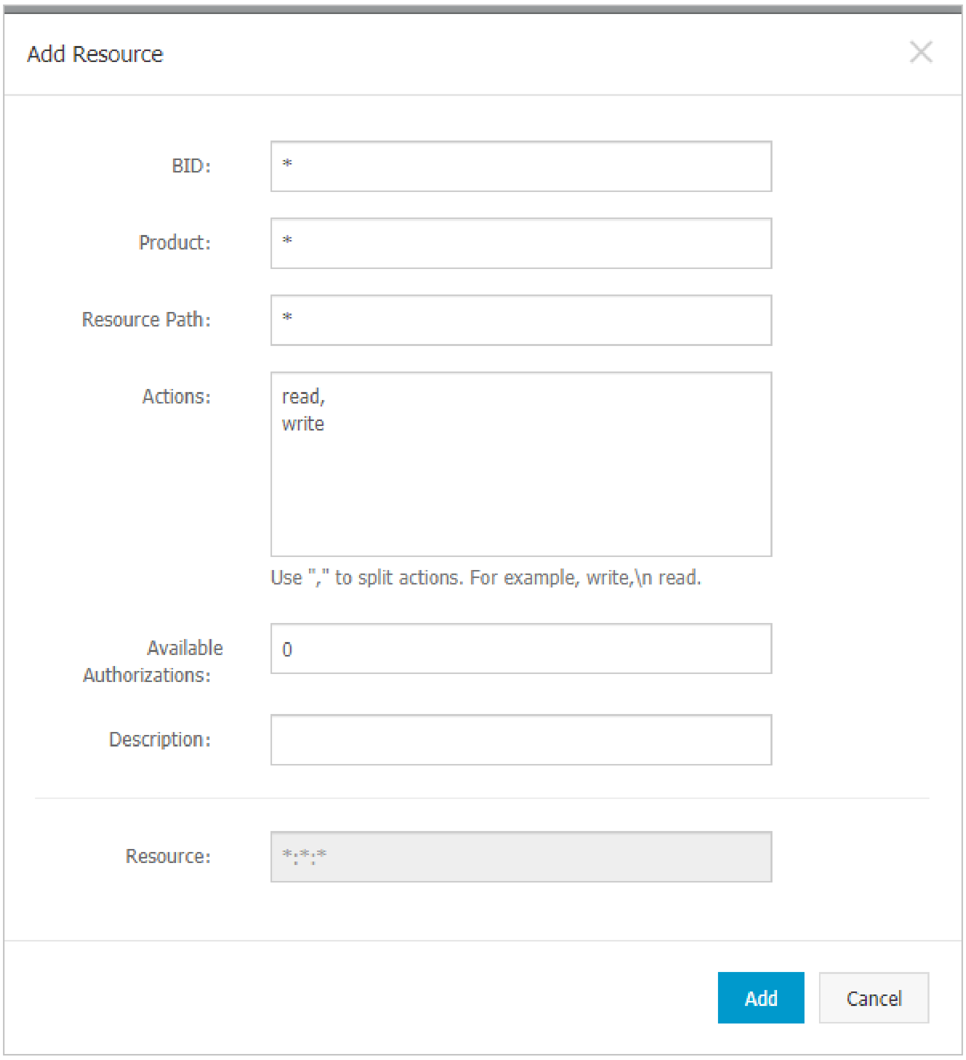
6. Click **Confirm**.

9.1.3.7. Add resources to a role

You must add resources to a created role.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. Find the role to which you want to add a resource and click **Manage** in the **Actions** column.
4. On the **Role Information** page, click the **Resource List** tab.
5. Click **Add Resource**.



Add Resource

BID: *

Product: *

Resource Path: *

Actions: read,
write

Use "," to split actions. For example, write,\n read.

Available Authorizations: 0

Description:

Resource: *:*:*

6. In the **Add Resource** dialog box, complete the configurations. For more information, see Parameters.

Parameters

Parameter	Description
BID	The deployment region ID.
Product	The cloud product to be added, such as rds. **Note** The cloud product name must be lowercase. For example, enter **rds** instead of **RDS**.
Resource Path	The resources of the cloud product. For more information about resources of the O&M platforms, see Permission lists of operations platforms.

Parameter	Description
Actions	An action set, which can contain multiple actions. For more information about actions on the O&M platforms, see Permission lists of operations platforms.
Available Authorizations	The maximum number of authorizations in cascaded authorization, which must be an integer greater than or equal to zero. If the value is not zero, the permission can be granted. If the value is zero, the permission cannot be granted.
Description	The description of the resource.

7. Click **Add**.

9.1.3.8. Assign a role to authorized users

You can assign an existing role to users or user groups.

Prerequisites

The corresponding users or user groups are created. Users are created in the Apsara Uni-manager console. For more information about how to create a user group, see Create groups.

Procedure

1. Log on to OAM
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. Find the role that you want to assign to a user and click **Manage** in the **Actions** column.
4. On the Role Information page, click the **Authorized Users** tab.
5. Click **Add User** in the upper-right corner.
6. Select a search mode and enter corresponding information to search for the user to which you want to assign the role.

   Four search modes are available:

   - **RAM User Account**: Enter a RAM user in the format of *RAM user@Apsara Stack tenant account ID* to search for the RAM user.
   - **Account Primary Key**: Search by using the unique ID of the Apsara Stack tenant account.
   - **Logon Account Name**: Search by using the logon name of the Apsara Stack tenant account.
   - **Group Name**: Search by group name.

   > **Note** You can search for a single user or user group. For more information about how to create a user group, see Create groups.

7. Set Expiration Time.When the specified expiration time is due, the user no longer has the permissions of the role. To authorize the user again, the role creator must click **Renew** in the Actions column corresponding to the authorized user on the **Authorized Users** tab to modify the expiration time.

8. Click **Add** to assign the role to the user.To cancel the authorization, click **Remove** in the Actions column corresponding to the authorized user on the **Authorized Users** tab.

9.1.4. Manage groups

Group management allows you to view, modify, and delete groups.

9.1.4.1. Modify group information

After you create a group, you can modify the group name and description on the Group Information page.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management** > **Owned Groups**.
3. Find the group whose name and description you want to modify and click **Manage** in the **Actions** column.
4. On the **Group Information** page, click **Modify** in the upper-right corner.
5. In the **Modify Group** dialog box that appears, modify the group name and description.
6. Click **Confirm**.

9.1.4.2. View group role details

You can view information about the inherited roles, resource list, and inheritance tree of a group role.

Prerequisites

A role is added to the group.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management** > **Owned Groups**.
3. Find the group whose name and description you want to modify and click **Manage** in the **Actions** column.
4. In **Role List** section, click **Details** in the Actions column corresponding to a role.
5. On the **Role Information** page, perform the following operations:
   - Click the **Inherited Role** tab to view the information about the inherited roles of the role.

     To view the detailed information of an inherited role, click **Details** in the **Actions** column corresponding to the inherited role.
   - Click the **Resource List** tab to view the resource information of the role.

     For information about how to add other resources to this role, see Add resources to a role.
   - Click the **Inheritance Tree** tab to view the basic information and resource information of the role and its inherited roles by using the inheritance tree on the left.

9.1.4.3. Delete groups

You can delete groups that are no longer needed.

Prerequisites

The group to be deleted does not contain members.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management > Owned Groups**.
3. Find the group to be deleted and click **Delete** in the **Actions** column.

9.1.4.4. View authorized groups

You can view the groups to which you are added on the Authorized Groups page.

Context

You can view only the groups to which you belong, but cannot view groups of other users.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Group Management > Authorized Groups**.
3. On the **Authorized Groups** page, view the name, owner, description, and modification time of the group to which you belong.

9.1.5. Manage roles

Role management allows you to view, modify, transfer, and delete roles.

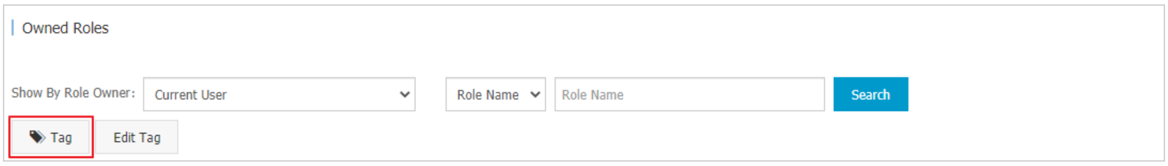
9.1.5.1. Query roles

You can view your owned roles on the Owned Roles page.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. Enter a role name in the Role Name field and click **Search** to search for roles that meet the search criteria.

   > ? **Note** If the role you want to search for has a tag, you can click **Tag** and select the tag key to search for the role based on the tag.



Owned Roles

Show By Role Owner: Current User

9.1.5.2. Modify role information

After you create a role, you can modify the role information.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. Find the role whose information you want to modify and click **Manage** in the **Actions** column.
4. On the **Role Information** page, click **Modify** in the upper-right corner.
5. In the **Modify Role** dialog box that appears, set **Role Name**, **Description**, **Role Type** and **Tag**.
6. Click **Confirm**.

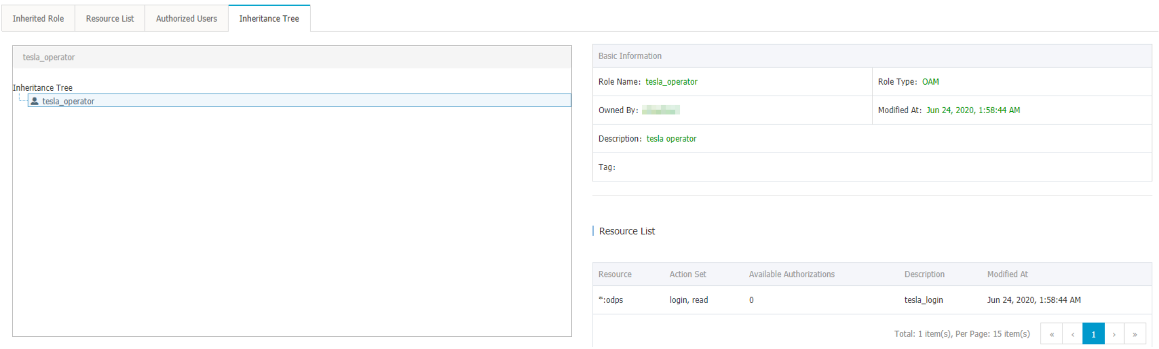
9.1.5.3. View the role inheritance tree

You can view the role inheritance tree to learn about the basic information and resource information of a role and its inherited roles.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. Find the role whose information you want to modify and click **Manage** in the **Actions** column.
4. On the **Role Information** page, click the **Inheritance Tree** tab.

   View the basic information and resource information of the role and its inherited roles by using the inheritance tree on the left.



Basic Information

Role Name: tesla_operator

Role Type: OAM

Owned By: [redacted]

Modified At: Jun 24, 2020, 1:58:44 AM

Description: tesla operator

Tag:

Resource List

Resource	Action Set	Available Authorizations	Description	Modified At
*:odps	login, read	0	tesla_login	Jun 24, 2020, 1:58:44 AM

Total: 1 item(s), Per Page: 15 item(s)

9.1.5.4. Transfer roles

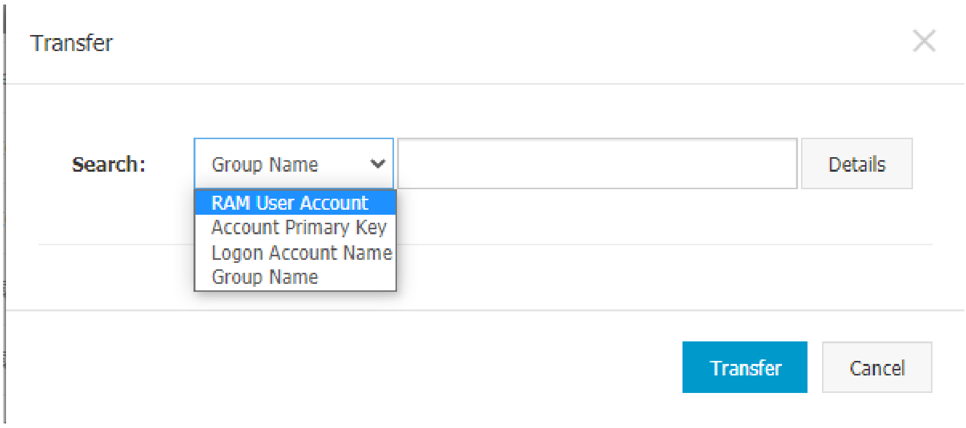
You can transfer roles to other groups or users based on business requirements.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. On the **Owned Roles** page, configure the search condition and search for the roles to be transferred.
4. Select one or more roles in the search results and click **Transfer** in the lower-left corner.
5. In the **Transfer** dialog box that appears, select a search mode, enter the corresponding information, and then click **Details**. Details of the user or group are displayed.

   Four search modes are available:

   - **RAM User Account**: Search in the format of RAM user@Apsara Stack tenant account ID.
   - **Account Primary Key**: Search by using the unique ID of the Apsara Stack tenant account.
   - **Logon Account Name**: Search by using the logon name of the Apsara Stack tenant account.
   - **Group Name**: Search by group name.



6. Click **Transfer**.

9.1.5.5. Delete a role

You can delete a role that is no longer in use according to business requirements.

Prerequisites

The role to be deleted does not contain inherited roles, resources, or authorized users.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > Owned Roles**.
3. At the right of the role to be deleted and then click **Delete**.

9.1.5.6. View assigned roles

You can view the roles assigned to you and permissions granted to the roles.

Procedure

1. Log on to OAM.

2. In the left-side navigation pane, choose **Role Management > Authorized Roles**.
3. On the **Authorized Roles** page, you can view the name, owner, description, modification time, and expiration time of each role assigned to you.You can also click **Details** in the **Actions** column corresponding to a role to view the inherited roles, resources, and inheritance tree of the role.

9.1.5.7. View all roles

You can view all roles in Operation Administrator Manager (OAM) on the All Roles page.

Procedure

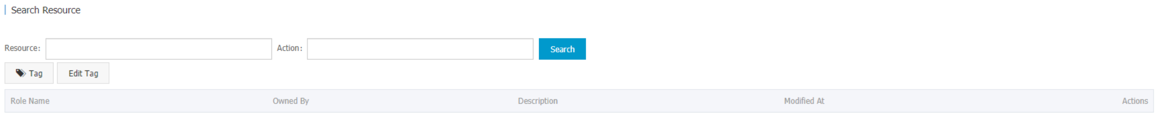
1. Log on to OAM.
2. In the left-side navigation pane, choose **Role Management > All Roles**.
3. On the **All Roles** page, view all the roles in the system.You can search for roles by **Role Name**.
4. Click **Details** in the Actions column corresponding to a role to view the inherited roles, resources, and inheritance tree of the role.

9.1.6. Search for resources

You can search for resources to view the roles to which the resources are assigned.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, click **Search Resource**.
3. Set **Resource** and **Action**, and click **Search** to search for the roles that meet the specified conditions.



Search Resource

Resource:

Action:

Role Name	Owned By	Description	Modified At	Actions

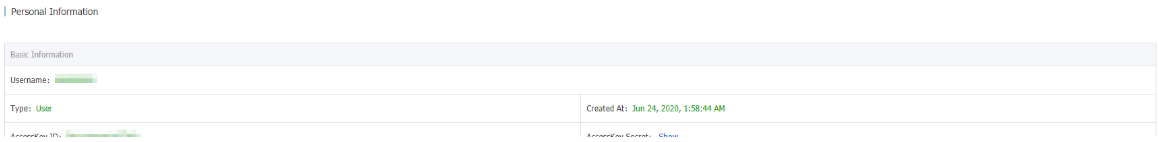
4. Click **Details** in the **Actions** column corresponding to a role to view the inherited roles, resources, and inheritance tree of the role.

9.1.7. View personal information

You can view the personal information of the current user on the Personal Information page and test the user permissions.

Procedure

1. Log on to OAM.
2. In the left-side navigation pane, click **Personal Information**.
3. In the **Basic Information** section, you can view the username, type, creation time, AccessKey ID, and AccessKey secret of the current user.



Personal Information

Basic Information

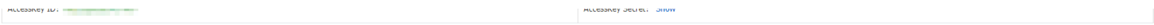
Username: [redacted]

Type: User

Created At: Jun 24, 2020, 1:58:44 AM

AccessKey ID: [redacted]

AccessKey Secret: Show



AccessKey ID: [redacted]

AccessKey Secret: Show

> ⓘ **Note** You can click **Show** or **Hide** to show or hide the AccessKey secret.

4. In the **Test Permission** section, you can check whether the current user has a specific permission.
   i. Enter the resource information in the **Resource** field.

      > ⓘ **Note** Use the English input method when you enter values in the **Resource** and **Action** fields.

   ii. Enter the permissions such as create, read, and write in the **Action** field. Separate multiple permissions with commas (,).

9.1.8. Default roles and permissions

9.1.8.1. Default roles and their functions

This topic describes the default roles in Operation Access Manager (OAM) and their functions.

9.1.8.1.1. Default role of OAM

This topic describes the default role of Operation Access Manager (OAM) and the corresponding available authorizations.

Role name	Role description	Resource	Actions	Available authorizations
Super administrator	An administrator with root permissions	*:*	*	10

9.1.8.1.2. Default roles of Apsara Infrastructure Management Framework

This topic describes the default roles of Apsara Infrastructure Management Framework and the corresponding available authorizations.

Apsara Infrastructure Management Framework is a distributed data center management system, used to manage applications on clusters containing multiple machines, and provides basic functions such as deployment, upgrade, expansion, contraction, and configuration change.

For more information about the default roles of Apsara Infrastructure Management Framework and the corresponding available authorizations, see the following table.

Role name	Role description	Resource	Actions	Available authorizations

Role name	Role description	Resource	Actions	Available authorizations
Tianji_Project read-only	Has the read-only permission to Apsara Infrastructure Management Framework projects, which allows you to view the configurations and statuses of all projects and clusters	*:tianji:projects	["read"]	0
Tianji_Project administrator	Has all the permissions to Apsara Infrastructure Management Framework projects, which allows you to view and modify the configurations and statuses of all projects and clusters	*:tianji:projects	["*"]	0
Tianji_Service read-only	Has the read-only permission to Apsara Infrastructure Management Framework services, which allows you to view the configurations and templates of all services	*:tianji:services	["read"]	0

Role name	Role description	Resource	Actions	Available authorizations
Tianji_Service administrator	Has all the permissions to Apsara Infrastructure Management Framework services, which allows you to view and modify the configurations and templates of all services	*:tianji:services	["*"]	0
Tianji_IDC administrator	Has all the permissions to Apsara Infrastructure Management Framework data centers, which allows you to view and modify the data center information	*:tianji:idcs	["*"]	0
Tianji administrator	Has all the permissions to Apsara Infrastructure Management Framework, which allows you to perform operations on all Apsara Infrastructure Management Framework configurations	*:tianji	["*"]	0

9.1.8.1.3. Default role of Tianjimon

This topic describes the default role of Tianjimon and the corresponding available authorizations.

Tianjimon, as the monitoring module of Apsara Infrastructure Management Framework, is used for the basic monitoring function of physical machines and services deployed based on Apsara Infrastructure Management Framework.

For more information about the default role of Tianjimon and the corresponding available authorizations, see the following table.

Role name	Role description	Resource	Actions	Available authorizations
Tianjimon operations	Has all Tianjimon permissions, which allows you to perform basic monitoring and operations	26842:tianjimon:*	["*"]	0

9.1.8.1.4. Default roles of Opsapi

This topic describes the default roles of the Apsara Opsapi Management (Opsapi) system and the corresponding grant options.

Opsapi is a platform that manages O&M APIs and SDKs in the Apsara Stack environment in a centralized manner. This system also manages API and SDK versions.

The following table describes the default roles of Opsapi and the corresponding grant options.

Role	Role description	Resource	Action	Grant option
Opsapi platform administrator	Has all the permissions on Opsapi.	*:opsapi:*	["read","write"]	0
Opsapi platform developer	Has the read permissions on Opsapi and the permissions to call API operations.	*:opsapi:*	["read","invoke"]	0
Opsapi common user	Has the read permissions on Opsapi.	*:opsapi:*	["read"]	0

9.1.8.1.5. Default roles of ASO

This topic describes the default roles of the Apsara Stack Operations (ASO) system and the corresponding grant options.

ASO is a centralized O&M management system that is developed for the Apsara Stack O&M personnel to perform centralized O&M operations.

The following table describes the default roles of ASO and the corresponding grant options.

Role	Role description	Resource	Action	Grant option

Role	Role description	Resource	Action	Grant option
ASO system administrator	Has the permissions to manage platform nodes, physical devices, and virtual resources, back up, restore, and migrate product data, and query and back up system logs.	*:aso:api-adapter:*	["read","write"]	0
		:aso:auth:	["read"]	0
		:aso:backup:	["read","write"]	0
		:aso:cmdb:	["read","write"]	0
		:aso:doc:	["read","write"]	0
		:aso:fullview:	["read","write"]	0
		:aso:init:	["read","write"]	0
		:aso:inventory:	["read","write"]	0
		:aso:itil:	["read","write"]	0
		:aso:lock:	["read","write"]	0
		:aso:physical:	["read","write"]	0
		:aso:psm:	["read","write"]	0
		:aso:scm:	["read","write"]	0
		:aso:serviceWhitelist:	["read","write"]	0
		:aso:slalink:	["read","write"]	0
		:aso:task:	["read","write"]	0
ASO security officer	Has the permissions to manage permissions, security polices, and network security, and review and analyze security logs and activities of security audit officers.	*:aso:auth:*	["read","write"]	0
		:aso:plat-access:	["read","write"]	0
		:aso:twoFactorAuth:	["read","write"]	0

Role	Role description	Resource	Action	Grant option
ASO security auditor	Has the permissions to audit, track, and analyze the activities of the system administrator and security officer.	*:aso:audit:*	["read","write"]	0
		:aso:auth:	["read"]	0
		:aso:serviceWhitelist:	["read"]	0
ASO product O&M officer	Has the permissions to perform O&M operations such as data import and export, modification, configuration, upgrade, and troubleshooting coordination.	*:aso:api-adapter:*	["read"]	0
		:aso:backup:	["read"]	0
		:aso:cmdb:	["read"]	0
		:aso:doc:	["read"]	0
		:aso:fullview:	["read","write"]	0
		:aso:init:	["read"]	0
		:aso:inventory:	["read","write"]	0
		:aso:itil:	["read"]	0
		:aso:lock:	["read"]	0
		:aso:physical:	["read","write"]	0
		:aso:psm:	["read"]	0
		:aso:scm:	["read"]	0
		:aso:slalink:	["read"]	0
		:aso:task:	["read"]	0
ASO common O&M	Has the permissions to perform daily health checks, query service	*:aso:api-adapter:*	["read"]	0
		:aso:backup:	["read"]	0
		:aso:cmdb:	["read"]	0
		:aso:doc:	["read"]	0
		:aso:fullview:	["read"]	0
		:aso:init:	["read"]	0
		:aso:inventory:	["read","write"]	0

Role	Role description	Resource	Action	Grant option
officer	status, query inventory information, and query product usage.	*:aso:itil:*	["read"]	0
		:aso:lock:	["read"]	0
		:aso:physical:	["read","write"]	0
		:aso:psm:	["read"]	0
		:aso:scm:	["read"]	0
		:aso:slalink:	["read"]	0
		:aso:task:	["read"]	0
ASO duty observer	Has the permissions to view and monitor the dashboard, and monitor system alerts.	*:aso:doc:*	["read"]	0
		:aso:fullview:	["read"]	0

9.1.8.1.6. Default roles of PaaS

This topic describes the default roles of the Platform as a Service (PaaS) console and the corresponding grant options.

The PaaS console is an O&M platform designed for the PaaS platform and products, and is used to view, manage, and upgrade the products deployed on the PaaS platform.

The following table describes the default roles of the PaaS console and the corresponding grant options.

Role	Role description	Resource	Action	Grant option
PaaS_Operation_Manager	Has all the permissions in the PaaS console.	*:paas-ops:*	["*"]	0

9.1.8.2. Operation permissions on O&M platforms

This topic describes the operation permissions on O&M platforms.

9.1.8.2.1. Permissions on Apsara Infrastructure Management Framework

This topic describes the operation permissions on Apsara Infrastructure Management Framework.

Resource	Action	Description
*:tianji:services:[sname]:tjmontemplates:[tmplname]	delete	DeleteServiceTjmonTmpl
*:tianji:services:[sname]:tjmontemplates:[tmplname]	write	PutServiceTjmonTmpl
*:tianji:services:[sname]:templates:[tmplname]	write	PutServiceConfTmpl
*:tianji:services:[sname]:templates:[tmplname]	delete	DeleteServiceConfTmpl
*:tianji:services:[sname]:serviceinstances:[siname]:tjmontemplate	read	GetServiceInstanceTjmonTmpl
*:tianji:services:[sname]:serviceinstances:[siname]:tssessions	terminal	CreateTsSessionByService
*:tianji:services:[sname]:serviceinstances:[siname]:template	write	SetServiceInstanceTmpl
*:tianji:services:[sname]:serviceinstances:[siname]:template	delete	DeleteServiceInstanceTmpl
*:tianji:services:[sname]:serviceinstances:[siname]:template	read	GetServiceInstanceTmpl
*:tianji:services:[sname]:serviceinstances:[siname]:tags:[tag]	delete	DeleteServiceInstanceProductTagInService
*:tianji:services:[sname]:serviceinstances:[siname]:tags:[tag]	write	AddServiceInstanceProductTagInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:resources	read	GetServerroleResourceInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]	write	OperateSRMachineInService

Resource	Action	Description
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]	read	GetMachineSRInfoInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]	delete	DeleteSRMachineActionInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:machines	read	GetMachinesSRInfoInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:machines	delete	DeleteSRMachinesActionInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:machines	write	OperateSRMachinesInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:apps:[app]:resources	read	GetAppResourceInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles:[serverrole]:apps:[app]:machines:[machine]:tianjilogs	read	TianjiLogsInService
*:tianji:services:[sname]:serviceinstances:[siname]:serverroles	read	GetServiceInstanceServerrolesInService
*:tianji:services:[sname]:serviceinstances:[siname]:schema	write	SetServiceInstanceSchema
*:tianji:services:[sname]:serviceinstances:[siname]:schema	delete	DeleteServiceInstanceSchema
*:tianji:services:[sname]:serviceinstances:[siname]:rollings:[version]	write	OperateRollingJobInService

Resource	Action	Description
*:tianji:services:[sname]:serviceinstances:[siname]:rollings	read	ListRollingJobInService
*:tianji:services:[sname]:serviceinstances:[siname]:resources	read	GetInstanceResourceInService
*:tianji:services:[sname]:serviceinstances:[siname]:machines:[machine]	read	GetMachineAllSRInfoInService
*:tianji:services:[sname]:serviceinstances:[siname]	write	DeployServiceInstanceInService
*:tianji:services:[sname]:serviceinstances:[siname]	read	GetServiceInstanceConf
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:files:name	read	GetMachineAppFileListInService
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:files:download	read	GetMachineAppFileDownloadInService
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:files:content	read	GetMachineAppFileContentInService
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:filelist	read	GetMachineFileListInService
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:dockerlogs	read	DockerLogsInService
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:debuglog	read	GetMachineDebugLogInService

Resource	Action	Description
*:tianji:services:[sname]:serverroles:[serverrole]:machines:[machine]:apps	read	GetMachineAppListInService
*:tianji:services:[sname]:serverroles:[serverrole]:apps:[app]:dockerinspect	read	DockerInspect
*:tianji:services:[sname]:schemas:[schemaname]	write	PutServiceSchema
*:tianji:services:[sname]:schemas:[schemaname]	delete	DeleteServiceSchema
*:tianji:services:[sname]:resources	read	GetResourceInService
*:tianji:services:[sname]	delete	DeleteService
*:tianji:services:[sname]	write	CreateService
*:tianji:projects:[pname]:machinebuckets:[bname]:machines:[machine]	read	GetMachineBucketMachineInfo
*:tianji:projects:[pname]:machinebuckets:[bname]:machines	read	GetMachineBucketMachines
*:tianji:projects:[pname]:machinebuckets:[bname]	write	CreateMachineBucket
*:tianji:projects:[pname]:machinebuckets:[bname]	write	OperateMachineBucketMachines
*:tianji:projects:[pname]:machinebuckets:[bname]	delete	DeleteMachineBucket
*:tianji:projects:[pname]:machinebuckets:[bname]	read	GetMachineBucketMachinesLegacy
*:tianji:projects:[pname]:machinebuckets	read	GetMachineBucketList

Resource	Action	Description
*:tianji:projects:[pname]:projects:[pname]:clusters:[cname]:tssessions:[tssessionname]:tsses	terminal	UpdateTsSessionTssByCluster
*:tianji:projects:[pname]:projects:[pname]:clusters:[cname]:tssessions	terminal	CreateTsSessionByCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:tjmontemplate	read	GetServiceInstanceTjmonTmplInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:template	delete	DeleteServiceInstanceTmplInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:template	write	SetServiceInstanceTmplInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:template	read	GetServiceInstanceTmplInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:tags:[tag]	write	AddServiceInstanceProductTagInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:tags:[tag]	delete	DeleteServiceInstanceProductTagInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:resources	read	GetServerroleResourceInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:files:name	read	GetMachineAppFileList

Resource	Action	Description
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:files:download	read	GetMachineAppFileDownload
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:files:content	read	GetMachineAppFileContent
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:filelist	read	GetMachineFileList
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:dockerlogs	read	DockerLogsInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps:[app]:debuglog	read	GetMachineDebugLog
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]:apps	read	GetMachineAppList
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]	read	GetMachineSRInfoInCluster

Resource	Action	Description
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]	write	OperateSRMachineInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines:[machine]	delete	DeleteSRMachineActionInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines	write	OperateSRMachinesInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines	delete	DeleteSRMachinesActionInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:machines	read	GetAllMachineSRInfoInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:apps:[app]:resources	read	GetAppResourceInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:apps:[app]:machines:[machine]:tianjilogs	read	TianjiLogsInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles:[serverrole]:apps:[app]:dockerinspect	read	DockerInspectInCluster

Resource	Action	Description
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:serverroles	read	GetServiceInstanceServerrolesInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:schema	delete	DeleteServiceInstanceSchemaInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:schema	write	SetServiceInstanceSchemaInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]:resources	read	GetInstanceResourceInCluster
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]	delete	DeleteServiceInstance
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]	write	CreateServiceInstance
*:tianji:projects:[pname]:clusters:[cname]:serviceinstances:[siname]	read	GetServiceInstanceConfInCluster
*:tianji:projects:[pname]:clusters:[cname]:rollings:[version]	write	OperateRollingJob
*:tianji:projects:[pname]:clusters:[cname]:rollings	read	ListRollingJob
*:tianji:projects:[pname]:clusters:[cname]:resources	read	GetResourceInCluster
*:tianji:projects:[pname]:clusters:[cname]:quota	write	SetClusterQuotas
*:tianji:projects:[pname]:clusters:[cname]:machinesinfo	read	GetClusterMachineInfo

Resource	Action	Description
*:tianji:projects:[pname]:clusters:[cname]:machines:[machine]	read	GetMachineAllSRInfo
*:tianji:projects:[pname]:clusters:[cname]:machines:[machine]	write	SetMachineAction
*:tianji:projects:[pname]:clusters:[cname]:machines:[machine]	delete	DeleteMachineAction
*:tianji:projects:[pname]:clusters:[cname]:machines	write	OperateClusterMachines
*:tianji:projects:[pname]:clusters:[cname]:difflist	read	GetVersionDiffList
*:tianji:projects:[pname]:clusters:[cname]:diff	read	GetVersionDiff
*:tianji:projects:[pname]:clusters:[cname]:deploylogs:[version]	read	GetDeployLogInCluster
*:tianji:projects:[pname]:clusters:[cname]:deploylogs	read	GetDeployLogListInCluster
*:tianji:projects:[pname]:clusters:[cname]:builds:[version]	read	GetBuildJob
*:tianji:projects:[pname]:clusters:[cname]:builds	read	ListBuildJob
*:tianji:projects:[pname]:clusters:[cname]	write	OperateCluster
*:tianji:projects:[pname]:clusters:[cname]	delete	DeleteCluster
*:tianji:projects:[pname]:clusters:[cname]	read	GetClusterConf
*:tianji:projects:[pname]:clusters:[cname]	write	DeployCluster
*:tianji:projects:[pname]	write	CreateProject
*:tianji:projects:[pname]	delete	DeleteProject

Resource	Action	Description
*:tianji:idcs:[idc]:rooms:[room]:racks:[rack]:rackunits:[rackunit]	write	CreateRackunit
*:tianji:idcs:[idc]:rooms:[room]:racks:[rack]:rackunits:[rackunit]	write	SetRackunitAttr
*:tianji:idcs:[idc]:rooms:[room]:racks:[rack]:rackunits:[rackunit]	delete	DeleteRackunit
*:tianji:idcs:[idc]:rooms:[room]:racks:[rack]	write	SetRackAttr
*:tianji:idcs:[idc]:rooms:[room]:racks:[rack]	write	CreateRack
*:tianji:idcs:[idc]:rooms:[room]:racks:[rack]	delete	DeleteRack
*:tianji:idcs:[idc]:rooms:[room]	write	CreateRoom
*:tianji:idcs:[idc]:rooms:[room]	delete	DeleteRoom
*:tianji:idcs:[idc]:rooms:[room]	write	SetRoomAttr
*:tianji:idcs:[idc]	delete	DeleteIdc
*:tianji:idcs:[idc]	write	SetIdcAttr
*:tianji:idcs:[idc]	write	CreateIdc

9.1.8.2.2. Permissions on Monitoring System of Apsara Infrastructure Management Framework

This topic describes the operation permissions on Monitoring System of Apsara Infrastructure Management Framework.

Resource	Action	Description
26842:tianjimon:monitor-manage	manage	Monitoring and O&M