Resource Access Manager

User Guide

Issue 01

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Contents

1 Sharing Your Resources

1.1 Overview of Sharing Your Resources

Resource Access Manager (RAM) helps you securely share resources across accounts. If you have several accounts, you can create resources once in one account and use RAM to share those resources with the other accounts. If your account is managed by Organizations, you can directly share resources with member accounts, OUs, or the entire organization. You can also specify an account ID to share resources with that account, regardless of whether the account is part of an organization.

This section describes the following operations:

- **Creating a Resource Share**
- **Updating a Resource Share**
- **Viewing a Resource Share**
- **Deleting a Resource Share**
- **Viewing Your Shared Resources**
- **Viewing Principals You Share With**

1.2 Creating a Resource Share

Scenario

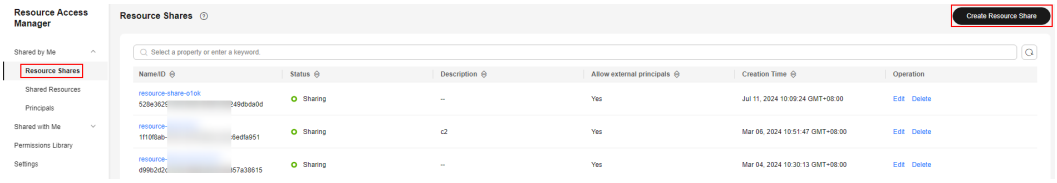
To share resources with other accounts, you need to first create a resource share. During the creation, you need to specify the resources to share, associate permissions with each resource type, specify the principals to grant access, and confirm the configuration details.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click  in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.

3. Choose **Shared by Me** > **Resource Shares**.
4. Click **Create Resource Share** in the upper right corner.

Figure 1-1 Creating a resource share

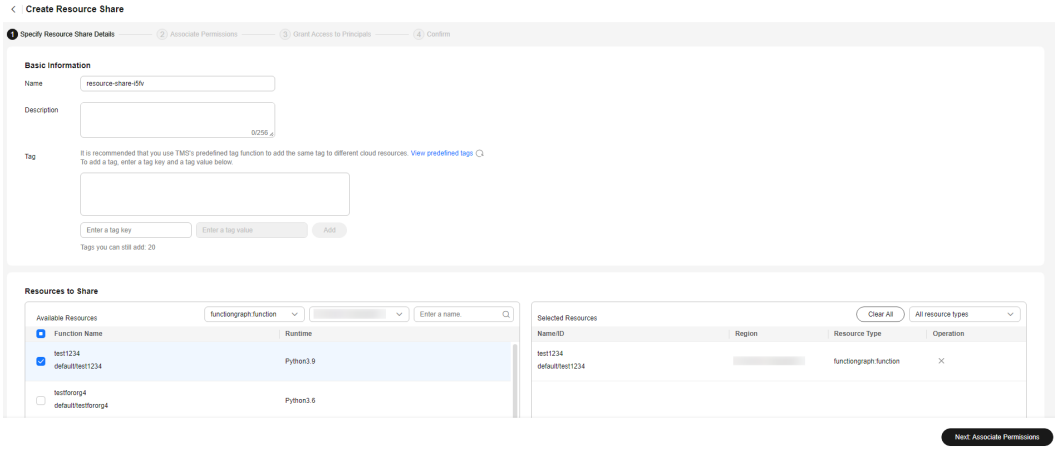


5. On the displayed **Specify Resource Share Details** page, configure basic information and specify the resources to share, and then click **Next: Associate Permissions** in the lower right corner.

NOTE

When creating a resource share, you can specify up to 20 resources to share at a time. However, you can update the resource share you created to add more resources. For details, see **Updating a Resource Share**.

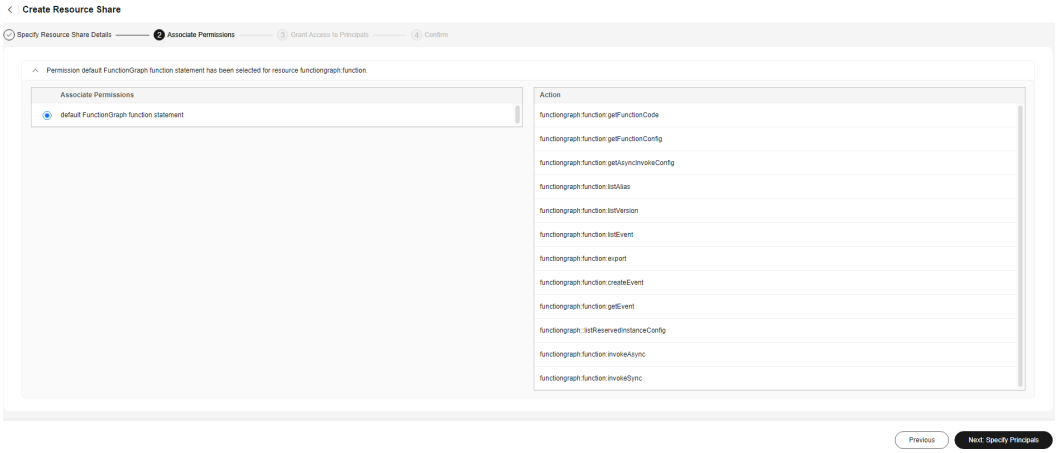
Figure 1-2 Specifying resources to share



6. On the **Associate Permissions** page, associate a RAM managed permission with each resource type, and then click **Next: Specify Principals** in the lower right corner.

   RAM managed permissions available for your selection are system permissions predefined by RAM. Some resource types may have multiple permissions available. You can select as needed. For the details of each permission, see **Viewing the RAM Permissions Library**.

Figure 1-3 Associating permissions



7. On the **Grant Access to Principals** page, specify the principals that you want to have access to the resources, and then click **Next: Confirm** in the lower right corner.

   In this step, you can select either **Allow sharing with any Huawei Cloud principal** or **Allow sharing only within your organization**. If you select the latter, choose any principals that are within your organization.

   You can set **Principal Type** to **Organization** or **Huawei Cloud account ID**. The **Organization** option is available only when the toggle key **Sharing with Organizations** is turned on. For details, see **Enabling Sharing with Organizations**.

Figure 1-4 Granting access to any Huawei Cloud principal

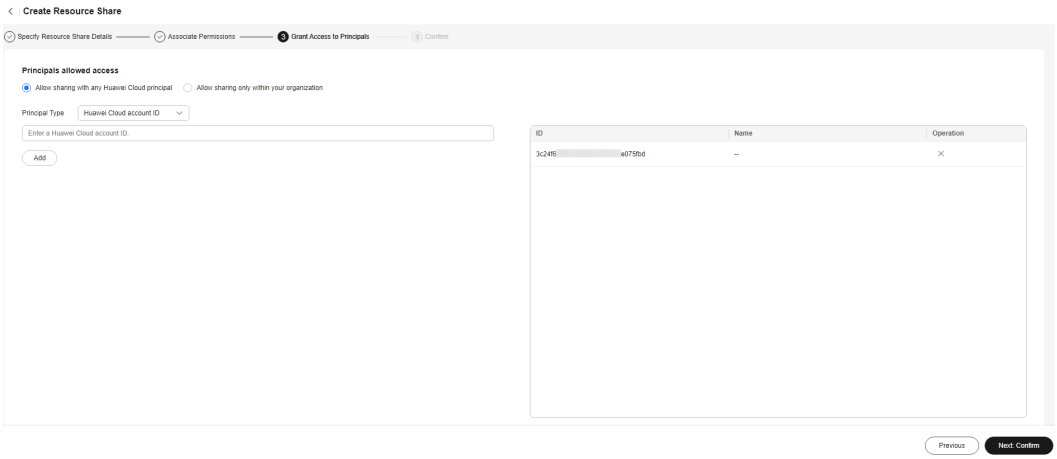
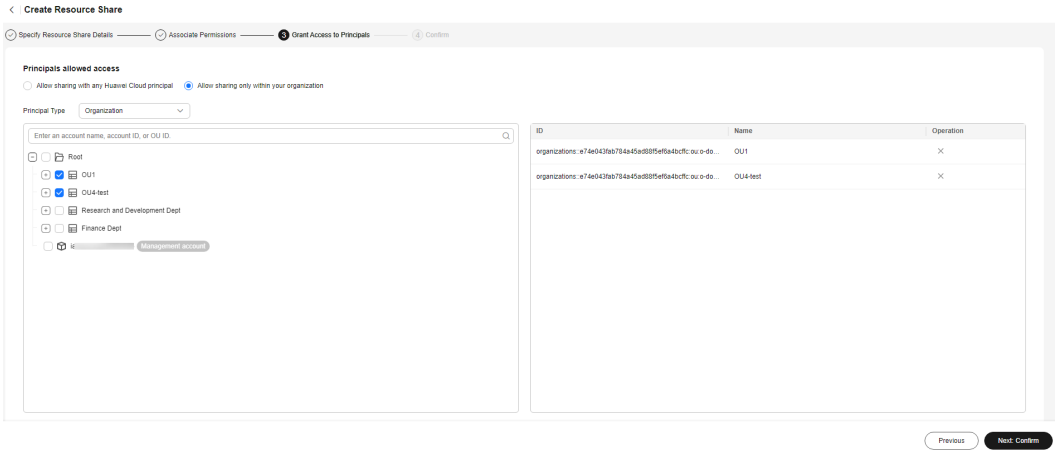
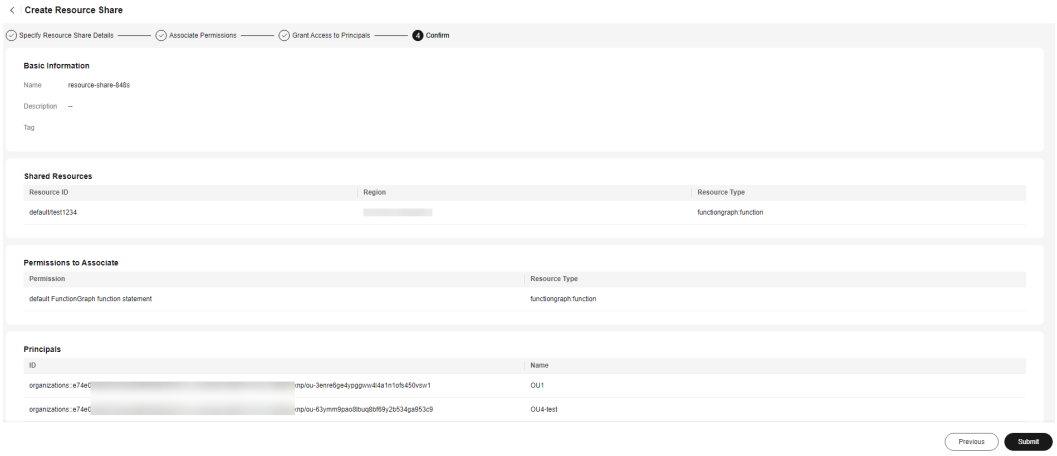


Figure 1-5 Granting access to principals within your organization



8. Review and confirm the configuration details of your resource share and select **I have read and agree to *Privacy Statement*** on the **Confirm** page. Then, click **Submit** in the lower right corner.

Figure 1-6 Confirming configurations



After a resource share is created, RAM sends a sharing invitation to the specified principals. The principals can access and use the shared resources only after they accept the invitation. If the specified principals are within your organization and sharing with Organizations is enabled, the principals can access and use the shared resources without accepting the invitation.

NOTE

Each principal can be shared with a maximum of 100 VPC subnets.

1.3 Updating a Resource Share

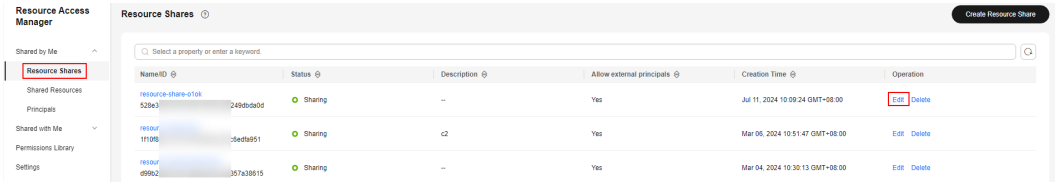
Scenario

You can update a resource share at any time, including updating its name, description, tags, shared resources, RAM managed permissions, and principals.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Resource Shares**.
4. Select the resource share to be updated and click **Edit** in the **Operation** column.

Figure 1-7 Updating a resource share



5. On the displayed **Specify Resource Share Details** page, update the resource share. You can modify its name, description, tags, or you can add or delete shared resources. Then, click **Next: Associate Permissions** in the lower right corner.

   NOTE

   You can remove a maximum of 20 shared resources at a time. If you want to remove more resources, select 20 resources at most for each batch or **remove them on the share details page**.

6. On the **Associate Permissions** page, add or delete the RAM managed permissions for the specified resource type, and then click **Next: Specify Principals** in the lower right corner.
7. On the **Grant Access to Principals** page, you can change the principals (either **Allow sharing with any Huawei Cloud principal** or **Allow sharing only within your organization**), and you can also add or delete principals. Then, click **Next: Confirm** in the lower right corner of the page.
8. On the **Confirm** page, review and confirm your updates, and then click **Submit** in the lower right corner.

1.4 Viewing a Resource Share

Scenario

You can view the details of a resource share you created, and you can also query, edit, and delete specified resource shares from the share list.

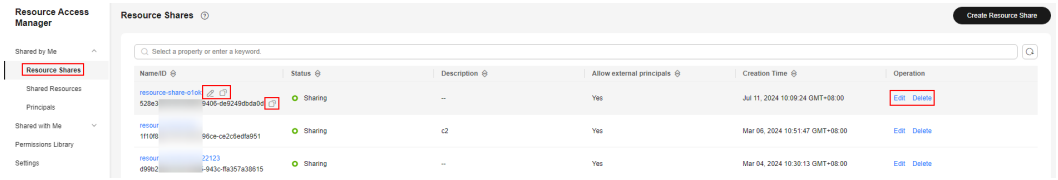
Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.

3. Choose **Shared by Me** > **Resource Shares**.
4. On the **Resource Shares** page, view the list of all resource shares you created.

   You can search for resource shares by name, ID, status, or tag in the search box above the table.
5. Click **Edit** or **Delete** in the **Operation** column. In the **Name/ID** column, you can modify and copy the resource share name, and also copy the resource share ID.

Figure 1-8 Resource shares

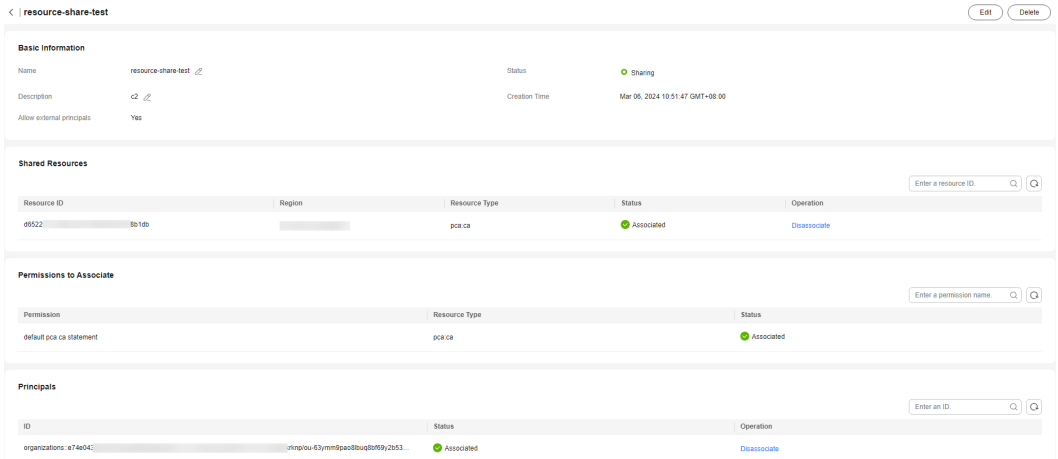


6. Click the name of the resource share you want to view, and you will see its detailed configurations on the displayed details page.

   You can modify the resource share name and description, delete shared resources and principals from the resource share, and add, delete, or update the tags of the resource share.

   In the upper right corner of the page, you can click **Edit** to go to the **Modify Resource Share** page, or you can click **Delete** to delete the resource share.

Figure 1-9 Resource share details



1.5 Deleting a Resource Share

Scenario

You can delete a resource share at any time if you no longer need it. After the resource share is deleted, all principals associated with the resource share lose access to the resources in the share. Deleting a resource share does not delete its shared resources.

Deleted resource shares remain visible on the **Resource Shares** page of the RAM console within 48 hours after deletion, but their status changes to **Deleted**. 48 hours later, those resource shares will be automatically deleted.

Prerequisites

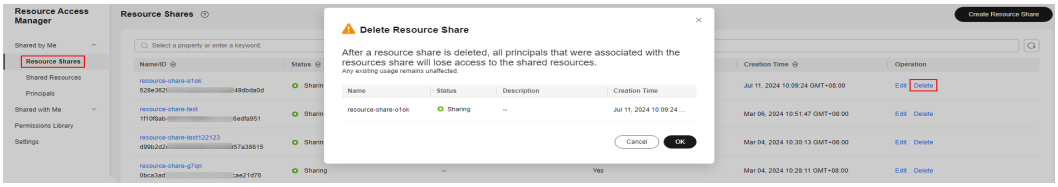
Before deleting a resource share, you need to disassociate all resources from the share.

Specifically, click the name of the resource share you want to delete. On the displayed share details page, delete all of its shared resources.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Resource Shares**.
4. Select the resource share to be deleted and click **Delete** in the **Operation** column.
5. Click **Delete** in the displayed **Delete Resource Share** dialog box.

Figure 1-10 Deleting a resource share



1.6 Viewing Your Shared Resources

Scenario

You can view a list of all the resources that you have shared. This list helps you determine which resources you are currently sharing, the number of resource shares that the resources are included in, and the number of principals that have access to them.

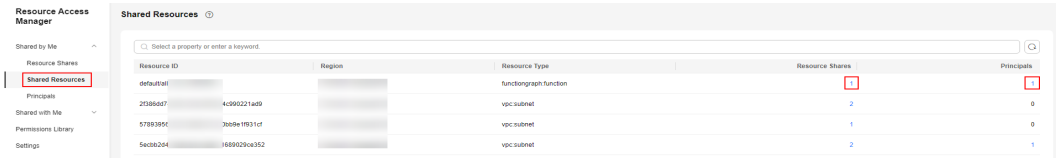
Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Shared Resources**.
4. View the resource ID, region, resource type, number of resource shares, and number of principals you share with.

   In the search box in the upper part of the page., you can enter a resource ID or region to quickly search for the resources you want to view.
5. Select the resource you want to view and click the number in the **Resource Shares** column. On the displayed **Resource Shares** page, you can view the resource shares that contain the resource.

6. Go back to the **Shared Resources** page, select the resource you want to view and click the number in the **Principals** column. On the displayed **Principals** page, you can view the principals associated with the resource.

Figure 1-11 Viewing the list of resources shared by you



1.7 Viewing Principals You Share With

Scenario

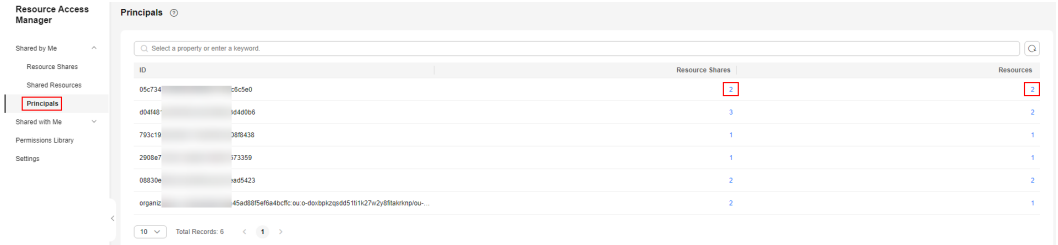
You can view a list of all the principals you share your resources with. This list helps you determine the principals that have access to your shared resources, the numbers of resource shares, and the number of shared resources associated with the principals.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Principals**.
4. View the ID of the principal you share with, number of resource shares, and number of shared resources.

   In the search box in the upper part of the page, you can enter the ID of a specific principal you share with to quickly search for the principal you want to view.
5. Select the principal you want to view and click the number in **Resource Shares** column. On the displayed **Resource Shares** page, you can view the resource shares associated with the principal.
6. Select the principal you want to view and click the number in **Resources** column. On the displayed **Shared Resources** page, you can view the shared resources associated with the principal.

Figure 1-12 Viewing the list of principals you share with



2 Using Shared Resources

2.1 Overview of Using Shared Resources

When a principal shares resources with your account and you accept the sharing invitation, you can access and use the shared resources as if they were your own resources in your own account. The principal can assign different RAM managed permissions as needed to grant you minimum access required for the shared resources, improving the security of resource access.

This section describes the following operations:

- **Responding to a Resource Sharing Invitation**
- **Leaving a Resource Share**
- **Viewing Resources Shared with You**
- **Viewing Principals Sharing with You**

2.2 Responding to a Resource Sharing Invitation

Scenario

To access shared resources, the owner of the resource share must add you as a principal.

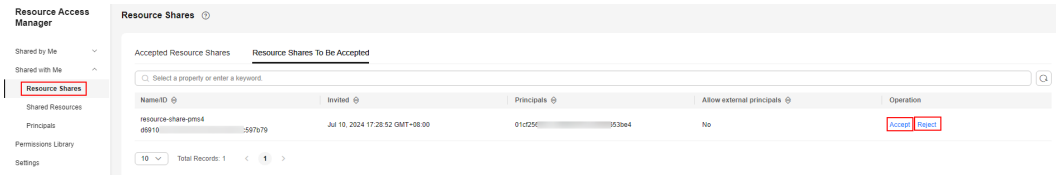
- If you are in the same organization as the principal sharing with you, and if sharing with Organizations is enabled, you are automatically granted access to the shared resources without having to accept an invitation.
- If you are in a different organization from the principal sharing with you, or if you two are in the same organization but sharing with Organizations is not enabled, you will receive an invitation to join the resource share.
- If you receive an invitation to join a resource share, you must accept it so that you can access and use the shared resources. These resources are directly available in their respective management consoles. If you reject the invitation, you cannot access the shared resources.

> **NOTE**
>
> By default, you have seven days to determine whether to accept an invitation from a resource share. If you do not accept the invitation before it expires, the invitation is automatically declined. If you still need to use the resources, the resource owner must create a resource share again to generate a new invitation.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click  in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared with Me** > **Resource Shares**.
4. Click the **Resource Shares To Be Accepted** tab, and select the resource share for which you are invited. Then, click **Accept** or **Reject** in the **Operation** column.

   Figure 2-1 Responding to a resource sharing invitation

5. Click **OK** in the displayed dialog box.

   After you accept invitations from certain resource shares, you can view them on the **Accepted Resource Shares** page. You can click a resource share name to view its configuration details.

   > **NOTE**
   >
   > Each principal can accept the invitations to resource shares involving a maximum of 100 VPC subnets.

2.3 Leaving a Resource Share

Scenario

If you no longer need to access resources that are shared with you, you can leave a resource share at any time. After you leave a resource share, you lose access to the shared resources.

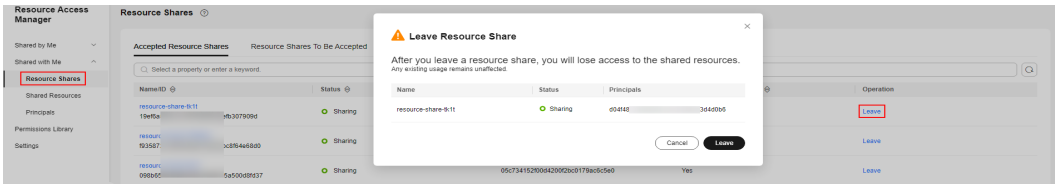
You can leave a resource share only if it was shared with you as an individual account and not in the context of an organization. If you were added to a resource share by an account inside your organization and sharing with Organizations is enabled, you cannot leave the resource share. This is because access to resource shares within an organization is automatic, without involving any invitations.

Procedure

1. Log in to the **Huawei Cloud management console**.

2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared with Me** > **Resource Shares**.
4. Click the **Accepted Resource Shares** tab, and select the resource share that you want to leave. Then, click **Leave** in the **Operation** column.
5. Click **Leave** in the displayed dialog box.

Figure 2-2 Leaving a resource share



2.4 Viewing Resources Shared with You

Scenario

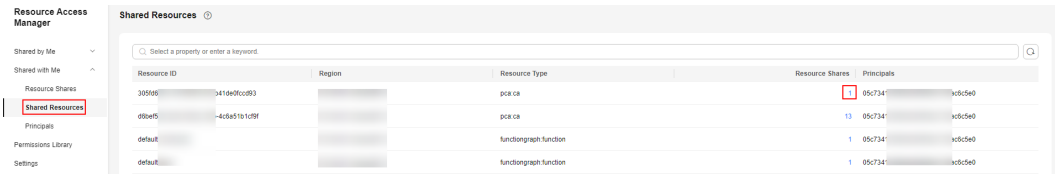
You can view a list of all the resources shared with you, the principals sharing with you, and the resource shares that contain these resources.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared with Me** > **Shared Resources**.
4. View the resource ID, region, resource type, number of resource shares, and principals sharing with you.

   In the search box in the upper part of the page., you can enter a resource ID or region to quickly search for the resources you want to view.
5. Select the resource you want to view and click the number in the **Resource Shares** column. On the displayed **Resource Shares** page, you can view the resource shares that contain the resource.

Figure 2-3 Viewing the list of resources shared with you



2.5 Viewing Principals Sharing with You

Scenario

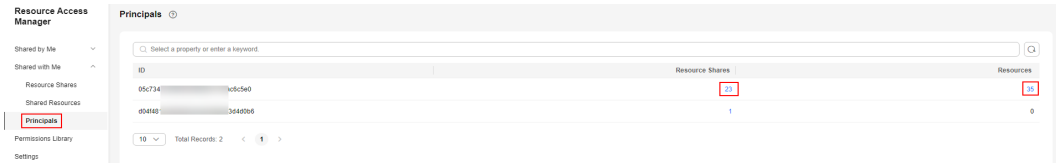
You can view a list of all the principals that are sharing resources with you. This list helps you determine the number of principals sharing with you and the number of shared resources.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click  in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared with Me** > **Principals**.
4. View the ID of the principal sharing with you, number of resource shares, and number of shared resources.

   In the search box in the upper part of the page, you can enter the ID of a specific principal sharing with you to quickly search for the principal you want to view.
5. Select the principal you want to view and click the number in **Resource Shares** column. On the displayed **Resource Shares** page, you can view the resource shares that the principal shared with you.
6. Go back to the **Principals** page, select the principal you want to view and click the number in **Resources** column. On the displayed **Shared Resources** page, you can view the shared resources associated with the principal.

Figure 2-4 Viewing the list of principals sharing with you



3 Viewing the RAM Permissions Library

Scenario

In the RAM permissions library, you can view details about all RAM permissions available for different resource types.

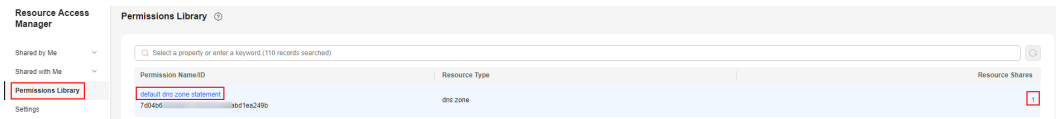
A RAM permission that defines the actions that principals with access to the resources in a resource share are allowed to perform on those resources. There is at least one RAM permission for each shareable resource type. Multiple permissions are defined for certain resource types. To ensure security, when you create a resource share, grant different permissions based on the principle of least privilege.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click  in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. In the navigation pane, choose **Permissions Library**.
4. On the **Permissions Library** page, view the permission name/ID, resource type, and the number of resource shares.

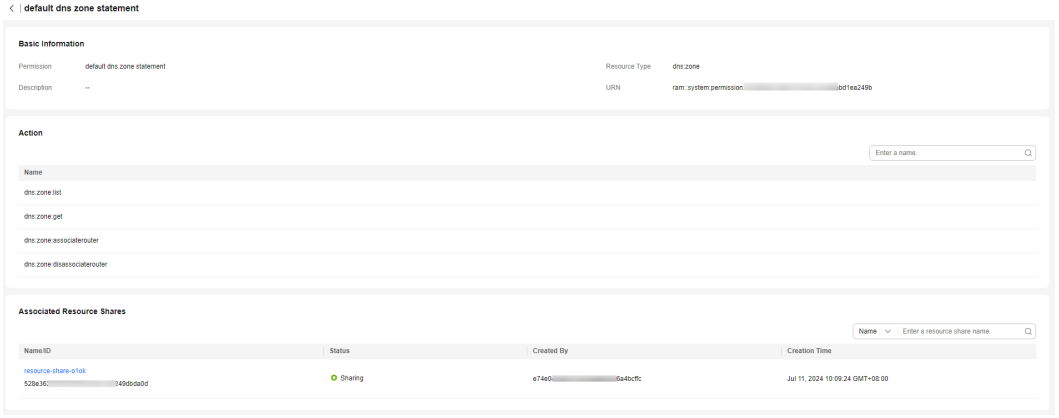
   You can quickly search for permissions by permission name, ID, resource type, and number of resource shares in the search box.
5. Go back to the **Permissions Library** page, select the permission you want to view and click the number in the **Resource Shares** column. On the displayed **Resource Shares** page, you can view the resource shares that are associated with the permission.

   Figure 3-1 Viewing the permissions library

6. Select the permission you want to view and click the permission name to view its details, including basic information, actions, and associated resource shares.

Figure 3-2 Viewing permission details



4 Enabling Sharing with Organizations

Scenario

If you use Huawei Cloud **Organizations** to manage your accounts, you can enable sharing with Organizations to share resources more easily. If your account is in an organization, you can share resources either with individual accounts or with all accounts in an organization unit (OU) or in the entire organization without having to enumerate each account.

To share resources within your organization, you first need to use the RAM console to enable sharing with Organizations. When you share resources in your organization, the accounts in your organization can access and use the shared resources without exchanging invitations.

If you no longer need to share resources with the entire organization or OUs, you can disable sharing with Organizations. After this function is disabled, you cannot set the principal type to an organization when you create a resource share.

Only the organization administrator can enable or disable Sharing with Organizations.

NOTE

When sharing with Organizations is enabled:

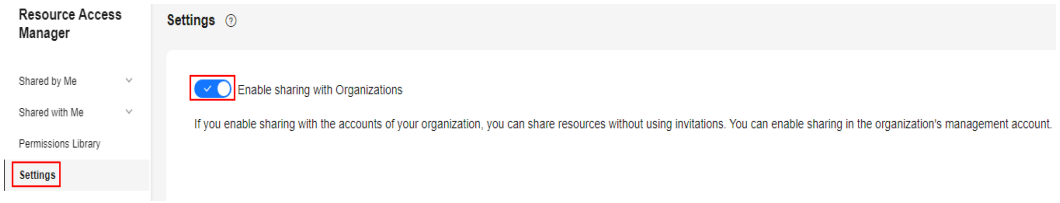
- If a member account exits the organization or is removed from the organization by the organization administrator, the principals within the organization will be disassociated from all resource shares that the member account has created. In addition, the member account will be disassociated from any resource shares that are shared with the member account within the organization.
- If the organization administrator deletes an OU from the organization, the OU will be disassociated from all resource shares that are shared with the OU.
- If the organization administrator deletes the entire organization, all accounts in the organization will be disassociated from any resource shares that are shared with the organization.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click  in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.

3. In the navigation pane, choose **Settings** and turn on the toggle key **Enable sharing with Organizations**.

Figure 4-1 Enabling sharing with Organizations



NOTE

- The toggle switch **Sharing with Organizations** of RAM is associated with the **Trusted Service** switch of Organizations. Specifically, if RAM is enabled as a trusted service in the Organizations service, sharing with Organizations will be automatically enabled, and vice versa. For details about how to enable a trusted service, see **Enabling or Disabling a Trusted Service**.
- If you disable RAM from being a trusted service in your organization, the organization, OUs, and member accounts will lose access to the previously shared resources.

5 Tag Management

5.1 Overview of a Tag

Tag Introduction

Tags help you to identify your cloud resources. When you have many cloud resources of the same type, you can use tags to classify them by dimension (for example, by purpose, owner, or environment).

RAM allows you to add tags to resource shares. You can quickly search for and filter specific resource shares by tag to easily and efficiently identify and manage resource shares.

You can add tags while creating a resource share. Alternatively, you can add, update, view, or delete any existing resource shares on the resource share details page. You can add up to 20 tags for each resource share.

Constraints on Using Tags

- Each cloud resource can have a maximum of 20 tags.
- For each resource, each tag key must be unique, and each tag key can have only one tag value.

5.2 Adding a Tag

Scenario

RAM allows you to add tags to resource shares.

You can add tags to new resource shares or to any existing resource shares on the resource share details page.

For details about how to use predefined tags, see **Using Predefined Tags**.

Adding a Tag to a New Resource Share

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Resource Shares**.
4. Click **Create Resource Share** in the upper right corner of the page. Under **Basic Information** area on the displayed page, enter a tag key and a tag value, and click **Add**.

Figure 5-1 Creating a resource share

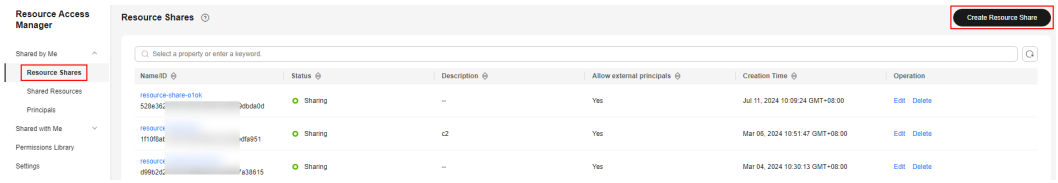
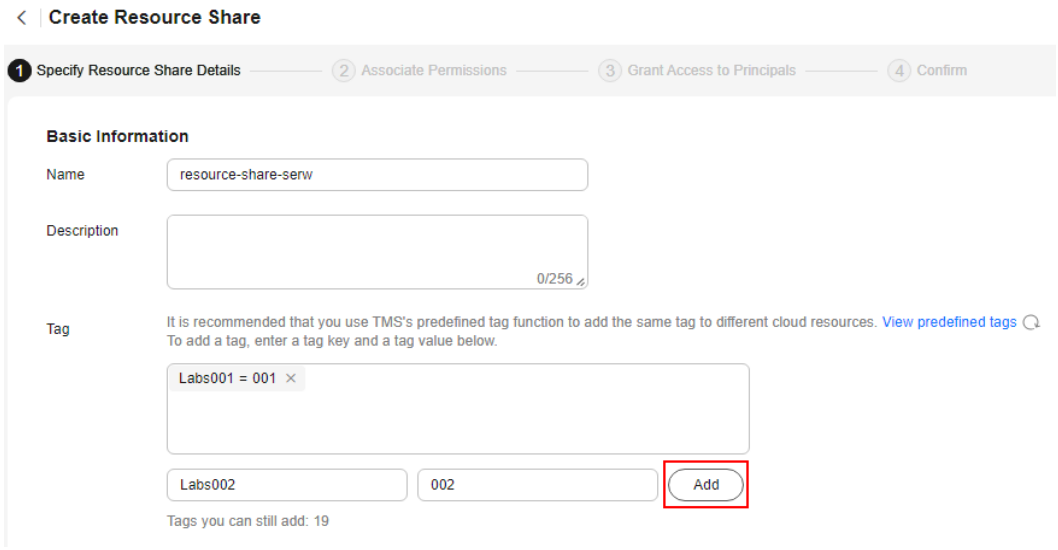


Figure 5-2 Adding a tag

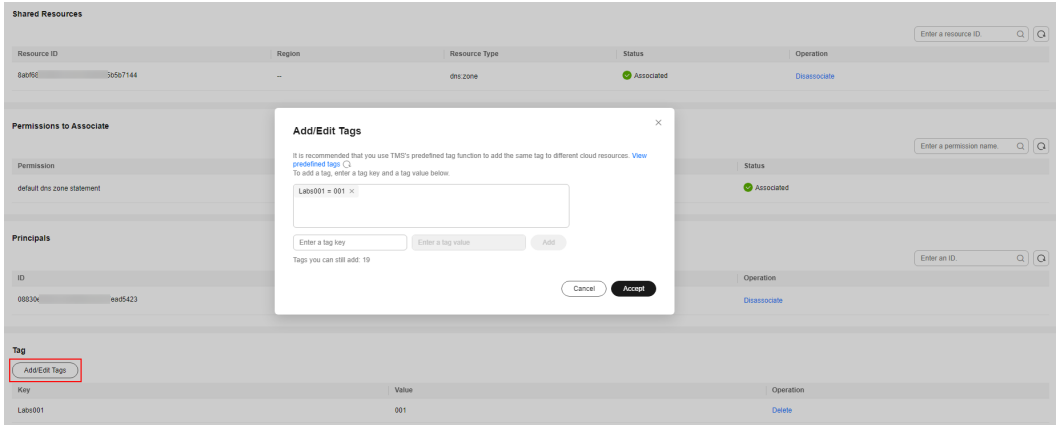


5. Complete other configurations of the resource share. For details, see **Creating a Resource Share**.

Adding a Tag to an Existing Resource Share

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Resource Shares**.
4. Click the name of the resource share you want to view. The resource share details page is displayed.
5. Click **Add/Edit Tags**. The **Add/Edit Tags** dialog box is displayed.
6. Enter a tag key and a tag value, click **Add**, and click **OK**.

Figure 5-3 Adding a tag on the details page



Using Predefined Tags

With predefined tags, you can plan and create tags in advance to meet service requirements, import or export them in batches, and quickly associate them with cloud resources. For details, see **Predefined Tags**.

If you want to add the same tag to multiple resource shares or resources, you can create a predefined tag on the TMS console and select the tag for the resource shares or resources. This frees you from having to repeatedly enter tag keys and values. You can perform the following steps to use predefined tags:

1. Log in to the **Huawei Cloud management console**.
2. Click in the upper left corner of the page and choose **Management & Governance** > **Tag Management Service**. The **Tag Management Service** page is displayed.
3. Choose **Predefined Tags** in the navigation pane. In the right pane, click **Create Tag**. In the displayed dialog box, enter a tag key and a tag value. Then, click **OK**. A predefined tag is created successfully.
4. Click in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
5. Select the predefined tag from the tag key and tag value drop-down lists for a resource share.

5.3 Searching for Resources by Tag

Scenario

After adding tags to resource shares, you can quickly filter specific resource shares by tag.

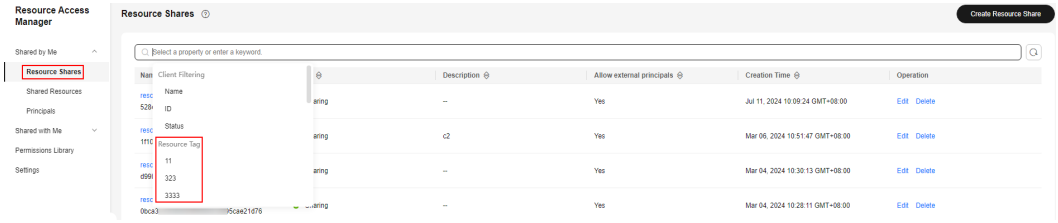
Procedure

1. Log in to the **Huawei Cloud management console**.

2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Resource Shares**.
4. In the upper part of the displayed page, select the tag key and tag value you want to view from the search box.

   Resource shares that match the search criteria will be displayed.

Figure 5-4 Searching for resource shares by tag



5.4 Deleting a Tag

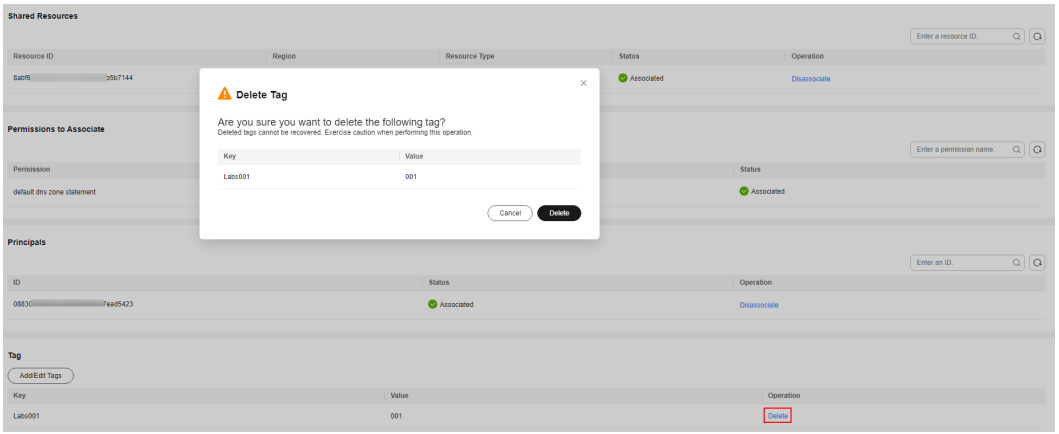
Scenario

If you no longer need tags, you can delete them from resource shares.

Procedure

1. Log in to the **Huawei Cloud management console**.
2. Click ☰ in the upper left corner and choose **Management & Governance** > **Resource Access Manager**. The **Resource Access Manager** page is displayed.
3. Choose **Shared by Me** > **Resource Shares**.
4. Click the name of the resource share you want to view. The resource share details page is displayed.
5. Click **Delete** in the **Operation** column of the row that contains the tag you want to delete.
6. Click **Delete** in the displayed dialog box.

Figure 5-5 Deleting a tag



6 Permissions Management

6.1 Creating a User and Granting RAM Permissions

You can use **Identity and Access Management (IAM)** to implement fine-grained permissions control for your RAM resources. With IAM, you can:

- Create IAM users for personnel based on your enterprise's organizational structure. Each IAM user has their own identity credentials for accessing RAM resources.
- Grant users only the permissions required to perform a given task based on their job responsibilities.
- Entrust an account or a cloud service to perform professional and efficient O&M on your RAM resources.

If your account meets your permissions requirements, you can skip this section.

Figure 6-1 the process flow of user authorization.

Prerequisites

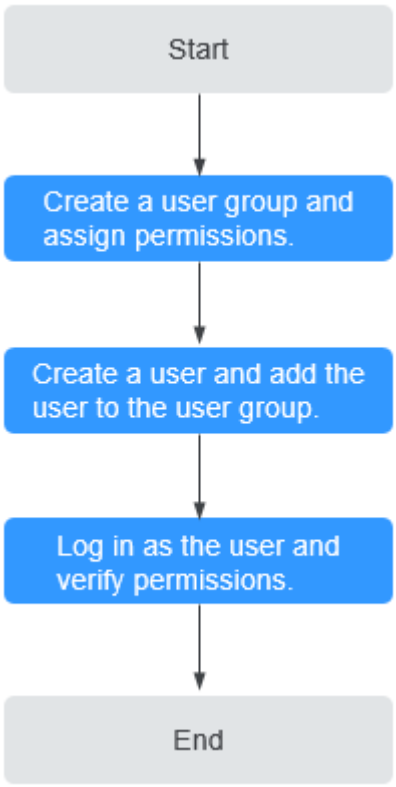
Before granting permissions to user groups, learn about the system-defined permissions for RAM described in **Table 6-1**. To grant permissions for other services, learn about all **system-defined permissions** supported by IAM.

Table 6-1 System-defined permissions for RAM

Permission	Description
RAM FullAccess	Full permissions for RAM.
RAM ReadOnlyAccess	Read-only permissions for RAM.
RAM ResourceSharePartici-pantAccess	Permissions for accepting or reject a resource sharing invitation.

Process Flow

Figure 6-1 Process of granting RAM permissions



1. On the IAM console, **create a user group and assign permissions** (RAM FullAccess as an example).

   Create a user group on the IAM console to assign the RAM FullAccess permissions to the group.
2. **Create an IAM user and add it to the user group**.

   Create a user on the IAM console and add it to the user group created in **1**.
3. **Log in** and verify permissions.

   Log in to the RAM console as each of the created users, and verify that they each have the **RAM FullAccess** permission.

6.2 Creating Custom Policies

You can use IAM to create custom policies to supplement system-defined RAM policies. For the actions supported by custom policies, see **Permissions and Supported Actions**..

To create a custom policy, choose either visual editor or JSON.

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Create a JSON policy or edit an existing one.

For details, see **Creating a Custom Policy**. The following lists examples of custom policies for RAM.

Example Custom Policies

- Example 1: Grant permission to accept resource sharing invitations.

```
{
   "Version": "1.0",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "ram:resourceShareInvitations:accept",
         ],
         "Resource": "*"
      }
   ]
}
```

- Example 2: Grant permission to view the list of permissions and get permission details.

```
{
   "Version": "1.0",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "ram:permissions:list",
            "ram:permissions:get",
         ],
         "Resource": "*"
      }
   ]
}
```


7 Auditing

7.1 Key Operations Supported by CTS

Scenario

Cloud Trace Service (CTS) is available on the cloud platform. With CTS, you can record RAM-related operations for further query, audit, and backtracking.

Prerequisites

CTS has been enabled. For details about how to enable CTS, see **Enabling CTS**.

Key RAM Operations

Table 7-1 Key RAM operations recorded by CTS

Operation	Resource Type	Event Name
Creating a permission	Permission	createPermission
Deleting a permission	Permission	deletePermission
Updating a permission	Permission	updatePermission
Creating a resource share	ResourceShare	createResourceShare
Deleting a resource share	ResourceShare	deleteResourceShare
Updating a resource share	ResourceShare	updateResourceShare
Associating RAM permissions with the resource types specified in a resource share	ResourceShare	associateResourceShare-Permission

Operation	Resource Type	Event Name
Disassociating RAM permissions from a resource share	ResourceShare	disassociateResource-SharePermission
Associating principals and resources with a resource share	ResourceShare	associateResourceShare
Disassociating principals and resources from a resource share	ResourceShare	disassociateResource-Share
Accepting an invitation from a resource share	ResourceShare	acceptResourceShareInvi-tation
Rejecting an invitation from a resource share	ResourceShare	rejectResourceShareInvi-tation
Enabling sharing with Organizations	ResourceShare	enableShareWithOrgani-zation
Disabling sharing with Organizations	ResourceShare	disableShareWithOrgani-zation
Adding a tag to a resource share	ResourceShare	tagResource
Removing a tag from a resource share	ResourceShare	untagResource

7.2 Querying Real-Time Traces

Scenarios

After you enable CTS and the management tracker is created, CTS starts recording operations on cloud resources. After a data tracker is created, the system starts recording operations on data in OBS buckets. CTS stores operation records generated in the last seven days.

This section describes how to query and export operation records of the last seven days on the CTS console.

- **Viewing Real-Time Traces in the Trace List of the New Edition**
- **Viewing Real-Time Traces in the Trace List of the Old Edition**

Constraints

- Traces of a single account can be viewed on the CTS console. Multi-account traces can be viewed only on the **Trace List** page of each account, or in the OBS bucket or the **CTS/system** log stream configured for the management tracker with the organization function enabled.

- You can only query operation records of the last seven days on the CTS console. To store operation records for more than seven days, you must configure an OBS bucket to transfer records to it. Otherwise, you cannot query the operation records generated seven days ago.
- After performing operations on the cloud, you can query management traces on the CTS console 1 minute later and query data traces on the CTS console 5 minutes later.

Viewing Real-Time Traces in the Trace List of the New Edition

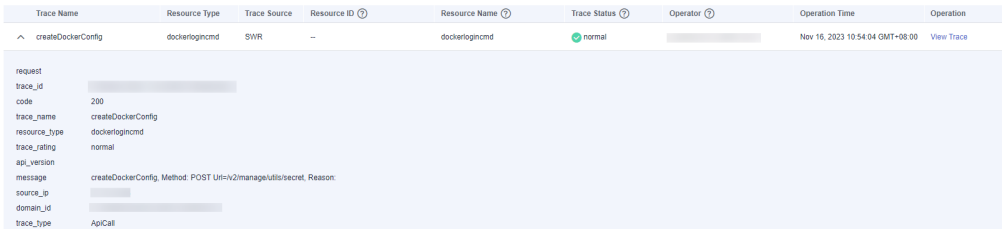
1. Log in to the management console.
2. Click  in the upper left corner and choose **Management & Governance** > **Cloud Trace Service**. The CTS console is displayed.
3. Choose **Trace List** in the navigation pane on the left.
4. On the **Trace List** page, use advanced search to query traces. You can combine one or more filters.
   - **Trace Name**: Enter a trace name.
   - **Trace ID**: Enter a trace ID.
   - **Resource Name**: Enter a resource name. If the cloud resource involved in the trace does not have a resource name or the corresponding API operation does not involve the resource name parameter, leave this field empty.
   - **Resource ID**: Enter a resource ID. Leave this field empty if the resource has no resource ID or if resource creation failed.
   - **Trace Source**: Select a cloud service name from the drop-down list.
   - **Resource Type**: Select a resource type from the drop-down list.
   - **Operator**: Select one or more operators from the drop-down list.
   - **Trace Status**: Select **normal**, **warning**, or **incident**.
     - **normal**: The operation succeeded.
     - **warning**: The operation failed.
     - **incident**: The operation caused a fault that is more serious than the operation failure, for example, causing other faults.
   - **Enterprise Project ID**: Enter an enterprise project ID.
   - **Access Key**: Enter an access key ID, including temporary access credentials and permanent access keys.
   - Time range: Select **Last 1 hour**, **Last 1 day**, or **Last 1 week**, or specify a custom time range.
5. On the **Trace List** page, you can also export and refresh the trace list, and customize the list display settings.
   - Enter any keyword in the search box and press Enter to filter desired traces.
   - Click **Export** to export all traces in the query result as an .xlsx file. The file can contain up to 5000 records.

- Click to view the latest information about traces.
- Click to customize the information to be displayed in the trace list. If **Auto wrapping** is enabled ( ), excess text will move down to the next line; otherwise, the text will be truncated. By default, this function is disabled.

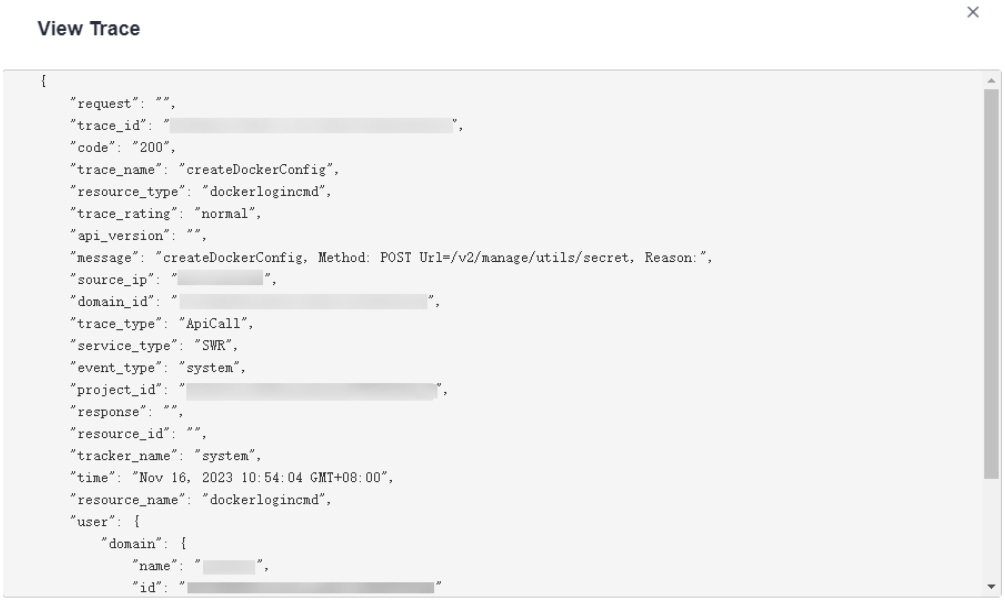
6. For details about key fields in the trace structure, see **Trace Structure** and **Example Traces**.
7. (Optional) On the **Trace List** page of the new edition, click **Go to Old Edition** in the upper right corner to switch to the **Trace List** page of the old edition.

Viewing Real-Time Traces in the Trace List of the Old Edition

1. Log in to the management console.
2. Click in the upper left corner and choose **Management & Governance** > **Cloud Trace Service**. The CTS console is displayed.
3. Choose **Trace List** in the navigation pane on the left.
4. Each time you log in to the CTS console, the new edition is displayed by default. Click **Go to Old Edition** in the upper right corner to switch to the trace list of the old edition.
5. Set filters to search for your desired traces. The following filters are available:
   - **Trace Type**, **Trace Source**, **Resource Type**, and **Search By**: Select a filter from the drop-down list.
     - If you select **Resource ID** for **Search By**, specify a resource ID.
     - If you select **Trace name** for **Search By**, specify a trace name.
     - If you select **Resource name** for **Search By**, specify a resource name.
   - **Operator**: Select a user.
   - **Trace Status**: Select **All trace statuses**, **Normal**, **Warning**, or **Incident**.
   - Time range: You can query traces generated during any time range in the last seven days.
   - Click **Export** to export all traces in the query result as a CSV file. The file can contain up to 5000 records.
6. Click **Query**.
7. On the **Trace List** page, you can also export and refresh the trace list.
   - Click **Export** to export all traces in the query result as a CSV file. The file can contain up to 5000 records.
   - Click to view the latest information about traces.
8. Click on the left of a trace to expand its details.



9. Click **View Trace** in the **Operation** column. The trace details are displayed.



10. For details about key fields in the trace structure, see **Trace Structure** and **Example Traces** in the *CTS User Guide*.
11. (Optional) On the **Trace List** page of the old edition, click **New Edition** in the upper right corner to switch to the **Trace List** page of the new edition.

8 Quotas

What Is a Quota?

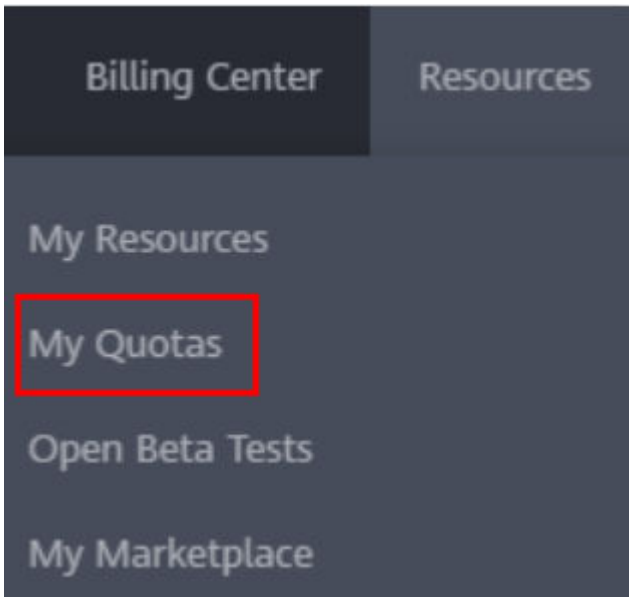
A quota is a limit on the quantity or capacity of a certain type of service resources available to you. Examples of RAM quotas include the maximum number of resource shares that you can create. Quotas are put in place to prevent excessive resource usage.

If the current resource quota cannot meet your service requirements, you can apply for a higher quota.

How Do I View My Quotas?

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. Choose **Resources** > **My Quotas** in the upper right corner of the page.
   The **Service Quota** page is displayed.

Figure 8-1 My Quotas



4. View the used and total quotas of each type of resources on the displayed page.

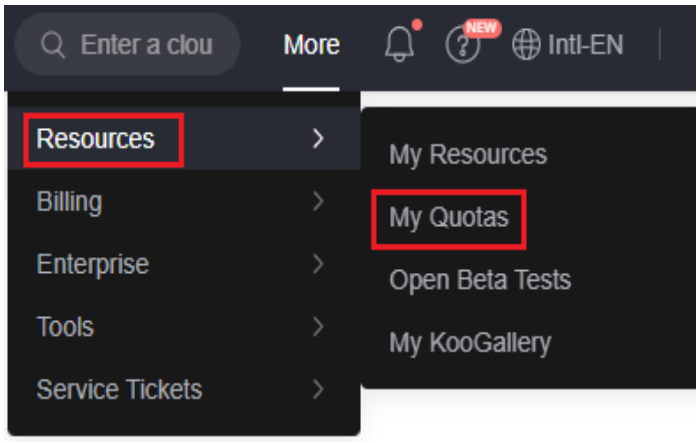
   If a quota cannot meet your service requirements, apply for a higher quota.

How Do I Increase My Quota?

1. Log in to the management console.
2. In the upper right corner of the page, choose **Resources** > **My Quotas**.

   The **Quotas** page is displayed.

   Figure 8-2 My Quotas



3. Click **Increase Quota**.
4. On the **Create Service Ticket** page, set the parameters.

   In the **Problem Description** area, enter the required quota and the reason for the quota adjustment.
5. Read the agreements and confirm that you agree to them, and then click **Submit**.

9 Appendixes

9.1 Sharable Resources

Table 9-1 Sharable cloud services and resource types

Cloud Service	Resource Type	Leaving a Resource Share	Application Scenario
Virtual Private Cloud (VPC)	Subnets	Supported	VPC sharing allows multiple accounts to create and manage cloud resources, such as ECSs, load balancers, and RDS instances, in one VPC. The owner of a VPC can share subnets in the VPC with one or more accounts. With VPC sharing, you can centrally manage resources in multiple accounts, improving the resource management efficiency and reducing O&M costs. For more information, see **VPC Sharing Overview**.

Cloud Service	Resource Type	Leaving a Resource Share	Application Scenario
Domain Name Service (DNS)	Private zones	Supported	Working with RAM, DNS allows you to share private zones across accounts if you are the owner of these private zones. When a resource owner shares private zones with you and you accept the resource sharing invitation, you can access and use the private zones. For more information, see **Sharing a Private Zone**.
	Resolver rules	Supported	Working with RAM, DNS allows you to share endpoint rules across accounts if you are the owner of these endpoint rules. When a resource owner shares endpoint rules with you and you accept the resource sharing invitation, you can access and use the endpoint rules. For more information, see **Sharing an Endpoint Rule**.

Cloud Service	Resource Type	Leaving a Resource Share	Application Scenario
SSL Certificate Manager (SCM)	Certificates	Supported	SCM allows you to share an SSL certificate with all member accounts in the same organizational unit. These member accounts can then deploy the shared certificate on services such as ELB, WAF, and CDN to enable HTTPS. For more information, see **Certificate Sharing Overview**.
Private Certificate Authority (PCA)	Private CAs	Supported	PCA allows you to share a private CA with all member accounts in the same organizational unit. These member accounts can then use the shared CA to issue certificates. For more information, see **Private CA Sharing Overview**.
Enterprise Router	Instances	Supported	None

Cloud Service	Resource Type	Leaving a Resource Share	Application Scenario
FunctionGraph	Functions	Supported	Working with RAM, FunctionGraph allows you to share functions across accounts if you are the owner of these functions. When a resource owner shares functions with you and you accept the sharing invitation, you can access and use the functions. For more information, see **Function Sharing Overview**.

