Alibaba Cloud
Application Real-time Monitoring Service

Access control

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## Document conventions

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

- Legal disclaimer........................................................................................................ 1
- Document conventions............................................................................................. 1
- 1 Access control overview....................................................................................... 1
- 2 Grant different permissions to RAM users........................................................... 3
- 3 Use RAM roles to access resources across Alibaba cloud accounts....................... 6
1 Access control overview

You can create different permissions for different RAM users, and avoid security risks caused by exposing the accesskey of your Alibaba cloud account.

Scenarios

The following is a typical scenario where RAM is required to control access.

- Grant different permissions to RAM users

  Enterprise A has purchased various Alibaba cloud services, such as Elastic Compute Service (ECS) instances, apsaradb for RDS instances, server load balancer (SLB) instances, and Object Storage Service (OSS) buckets, to migrate A Project-X to the cloud. Certain employees need to perform operations on these cloud resources. Different employees require different permissions to fulfill their duties. Enterprise A has the following requirements:

  - For security reasons, Enterprise A does not want to disclose the accesskey of its Alibaba Cloud account to its employees. Instead, enterprise A prefers to create different Ram user accounts for its employees and grant different permissions to these user accounts.

  - The RAM users can only perform operations on resources after they are granted the corresponding permissions. Enterprise A can revoke the permissions granted to Ram users and delete Ram user accounts at any time.

  - Ram does not need to perform independent metering and billing for Ram users. All expenses are billed to account A.

You can use the authorization management function of RAM to centrally manage user permissions and resources.
• Use RAM roles to enable cross-account resource access

Account A and Account B are created respectively for Enterprise A and Enterprise B. Enterprise A has purchased various Alibaba cloud resources, such as ECS instances, apsaradb for RDS instances, SLB instances, and OSS buckets.

- Enterprise A wants to focus on its business system and entrust tasks such as cloud resource O&M, monitoring, and management to Enterprise B.
- Enterprise B is allowed to grant access permissions for the resources owned by Enterprise A to one or more employees, implementing fine-grained control on the resources of Enterprise A.
- If either party terminates the entrustment agreement, enterprise A can revoke the permissions of Enterprise B at any time.

RAM roles can be used to implement cross-account authorization and resource access control.

Policy

The following figure shows the system permission policies supported by ARMS.

<table>
<thead>
<tr>
<th>Policy</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AliyunARMSFullAccess</td>
<td>System route</td>
<td>Application Real-Time Monitoring Service full access to ARMS</td>
</tr>
<tr>
<td>AliyunARMSReadOnlyAccess</td>
<td>System route</td>
<td>Application Real-Time Monitoring Service ARMS read-only permission</td>
</tr>
</tbody>
</table>

More information

• Grant different permissions to RAM users
• Use RAM roles to access resources across Alibaba cloud accounts
• #unique_6
2 Grant different permissions to RAM users

You can create different permissions for different RAM users, and avoid security risks caused by exposing the accesskey of your Alibaba cloud account.

Background

For security reasons, you can create RAM users (sub-accounts) for your Alibaba Cloud account (primary account) and Grant different permissions to these sub-accounts as needed. In this way, the Ram user can assign their own responsibilities without exposing the CMK. This article assumes that Enterprise A wants to have its employees perform routine O&M work. Then, enterprise A can create A RAM user and grant this RAM user the necessary permissions. Employees can then use the RAM users to log on to the console or call API operations.

The system policies provided by ARMS include:

• AliyunARMSFullAccess: ARMS full permission
• AliyunARMSReadOnlyAccess: ARMS read-only permission.

Prerequisites

• #unique_7
• Activate RAM

Step 1: Create a RAM user

You need to use an Alibaba Cloud account to log on to the RAM console and create a RAM user.

1. Login RAM console. In the left-side navigation pane, choose personnel Management > user, and in user page, click create User.
2. In create User page’s user account information in the area box, enter logon name and display name.

Note:
The logon name can contain lowercase letters, digits, periods (.), underscores (_), and hyphens (-). The length cannot exceed 128 characters. The display name cannot exceed 24 characters or Chinese characters.
3. (Optional) If you want to create multiple RAM users at a time, click Add User, and repeat the previous step.

4. In access Mode in the area box, select console password logon or programmatic access, and click confirm.

   **Note:**
   For security purposes, select only one access mode.

   - If console password logon, complete the settings. You need to determine whether to automatically generate a default password or custom password, whether to require you to reset your password, and whether to enable MFA.
   - If programmatic access, RAM automatically creates an AccessKey for the RAM user (API access key).

   **Notice:**
   For security reasons, the RAM console only provides the opportunity to view or download AccessKeySecret once. Therefore, the AccessKey is created. Keep the AccessKeySecret recorded in a safe place.

5. In mobile phone verification dialog box, click obtain verification code, and enter the received phone verification code, and then click confirm. The created RAM user is displayed in user page.

**Step 2: Grant permissions to the RAM user**

Before using a RAM user, you must grant permissions to the RAM user.

1. In RAM console in the left-side navigation pane, choose personnel Management > user.
2. In user to find the target user, click operation column in the add permissions.
3. In add permissions panel's select permissions in the left-side navigation pane, search for the policy by keyword, and click the Policies tab to add it to selected list, and then click confirm.

   **Note:**
   For more information about the permissions that you can add, see the background information.

4. On the Add Permissions page, view the authorization information summary in the Authorization Result section, and then click Finished.
What to do next

After creating RAM users with an Alibaba Cloud account, you can distribute the logon names and passwords of the RAM users or AccessKey pair information to other RAM users. Other employees can log on to the console or call an API operation with the RAM user through the following steps.

- Log on to the console
  1. Open in browser the logon page for RAM users.
  2. In **RAM user logon** page, enter the RAM user logon name, and click **next Step**, and enter the RAM user password, and then click **login**.

  ![Note:](image)

  The logon name of the RAM user is in the format of `<$username>@<$AccountAlias>`, or `<$username>;<$AccountAlias>.onaliyun.com`. `<$AccountAlias>` is the account alias. If no account alias is set, the value defaults to the ID of the Alibaba cloud account.

  3. On the homepage of the **Alibaba Cloud console**, click a product with the permission to access the console.

- Call an API operation with the RAM user’s AccessKey
  
  Use the AccessKeyId and AccessKeySecret of the RAM user in the code.

Related concepts

- **Access control overview**

Related topics

- #unique_6
- #unique_9
- #unique_10
- #unique_11
- #unique_12
3 Use RAM roles to access resources across Alibaba cloud accounts

Use the Alibaba Cloud account of enterprise A to create a RAM role, authorize this role, and assign this role to Enterprise B. You can use the Alibaba Cloud account of Enterprise B or the corresponding RAM users to access the Alibaba Cloud resources of Enterprise A.

Background

Assume that Enterprise A has purchased multiple types of cloud resources to carry out its businesses and needs to grant Enterprise B the permission to carry out certain businesses on behalf of Enterprise A. In this case, you can use the resource access management (RAM) role to perform this task. A RAM role does not have a specific logon password or AccessKey pair. A RAM user can be used only after the RAM user is assumed by a trusted entity. To meet the needs of enterprise A, you can perform the following operations:

1. Create a RAM role for enterprise A
2. Enterprise A attaches the required permissions to the RAM role
3. Enterprise B creates a RAM user
4. Enterprise B adds AliyunSTSAssumeRoleAccess permissions
5. A RAM user of Enterprise B uses the console or API to access the resources of Enterprise A.

The following table lists the ARMS system permission policies that can be attached to a RAM role.

- **AliyunARMSFullAccess**: ARMS full permission
- **AliyunARMSReadOnlyAccess**: ARMS read-only permission.

Step 1: Create a RAM role for enterprise A

You need to use the Alibaba Cloud account of enterprise A to log on to the RAM console and create a RAM role.

1. Login RAM console. In the left-side navigation pane, choose RAM roles, and in RAM roles page, click create a RAM role.
2. In **create a RAM role** in the panel, do the following and click **close**.

   a. In **current trusted entity type** area box, select **alibaba Cloud account**, and click **next** step.
   
   b. In **RAM role name** enter a RAM role name in the text box. **Select Alibaba Cloud account** area box, select **other Alibaba Cloud account** and enter the cloud account of Enterprise B in the textbox. Then click **complete**.

   **Note:**
   The name of the RAM role can contain letters, digits, and hyphens (-). It can be up to 64 characters in length.

**Step 2: enterprise A attaches the required permissions to the RAM role**

A newly created ram role does not have any permissions. Therefore, enterprise A must grant permissions to this role.

1. In **RAM console** in the left-side navigation pane, choose **RAM roles**.
2. In **RAM roles** click the target role on the page. **Operation** column in the **add permissions**.
3. In **add permissions** panel's **select permissions** in the left-side navigation pane, search for the policy by keyword, and click the Policies tab to add it to **selected** list, and then click **confirm**.

   **Note:**
   For more information about the permissions that you can add, see the background information.

4. In the **Authorization Result** section of the **Add Permissions** pane, view the authorized permission information, and click **Complete**.

**Step 3: Enterprise B creates a RAM user**

Use the Alibaba Cloud account of Enterprise B to log on to the RAM console and create a RAM user.

1. Login **RAM console**. In the left-side navigation pane, choose **personnel Management > user**, and in **user** page, click **create User**.
2. In **create User** page's **user account information** in the area box, enter **logon name** and **display name**.

   **Note:**
The logon name can contain lowercase letters, digits, periods (.), underscores (_), and hyphens (-). The length cannot exceed 128 characters. The display name cannot exceed 24 characters or Chinese characters.

3. (Optional) If you want to create multiple RAM users at a time, click Add User, and repeat the previous step.

4. In access Mode in the area box, select console password logon or programmatic access, and click confirm.

   **Note:**
   For security purposes, select only one access mode.

   - If console password logon, complete the settings. You need to determine whether to automatically generate a default password or custom password, whether to require you to reset your password, and whether to enable MFA.
   - If programmatic access, RAM automatically creates an AccessKey for the RAM user (API access key).

   **Notice:**
   For security reasons, the RAM console only provides the opportunity to view or download AccessKeySecret once. Therefore, the AccessKey is created. Keep the AccessKeySecret recorded in a safe place.

5. In mobile phone verification dialog box, click obtain verification code, and enter the received phone verification code, and then click confirm. The created RAM user is displayed in user page.

**Step 4: Enterprise B attaches permissions to the RAM users**

Enterprise B must add AliyunSTSAssumeRoleAccess to allow a RAM user to assume a RAM role created by Enterprise A.

1. In RAM console in the left-side navigation pane, choose personnel Management > user.
2. In user to find the target user, click operation column in the add permissions.
3. In add permissions panel's select permissions area, search by keyword AliyunSTS AssumeRoleAccess policy, and click the policy to add it to the selected list, and then click confirm.
4. On the Add Permissions page, view the authorization information summary in the Authorization Result section, and then click Finished.
What to do next

After completing the preceding operations, the RAM users of Enterprise B can log on to the console to access the cloud resources of Enterprise A or call API operations as follows.

- Log on to the console to access the cloud resources of Enterprise A.

  1. Open in browser the logon page for RAM users.
  2. In RAM user logon page, enter the RAM user logon name, and click next Step, and enter the RAM user password, and then click login.

  **Note:**
  
  The logon name of the RAM user is in the format of <$username>@<$AccountAlias> or <$username>@<$AccountAlias>.onaliyun.com. <$AccountAlias> is the account alias. If no account alias is set, the value defaults to the ID of the Alibaba cloud account.

  3. On the RAM user center page, move the pointer to the portrait in the upper-right corner and click Switch Role.
  4. In alibaba Cloud-role switch page, enter the name of Enterprise A's enterprise alias or default domain and role name, and then click switch.
  5. Perform operations on the Alibaba Cloud resources of Enterprise A.

- Use a RAM user of Enterprise B to access the cloud resources of Enterprise A through APIs

  To use a RAM user of Enterprise B to access the cloud resources of Enterprise A by calling API operations, ensure that the code contains the RAM user's AccessKeyId, AccessKeySecret, and SecurityToken (temporary security token). For more information about how to use STS to obtain a temporary security token, see [get started with STS](#).

Related concepts

Access control overview

Related topics

#unique_6
#unique_9
#unique_13
#unique_14
#unique_10
Access control / 3 Use RAM roles to access resources across Alibaba cloud accounts

#unique_11
#unique_12