

# **Alibaba Cloud Resource Management**

Tutorials

Issue: 20200508

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## Document conventions

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

<b>Style</b>	<b>Description</b>	<b>Example</b>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}



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# 1 Use RAM to create and authorize resource groups

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This topic describes how to use RAM to create and authorize resource groups in Alibaba Cloud. After you create and authorize resource groups, you can manage your own members, permissions, and resources by group.

## Prerequisites

An Alibaba Cloud account is created. To create an Alibaba Cloud account, visit the [account registration page](#).

## Context

A gaming company is developing three gaming projects. Each project requires multiple types of cloud resources. The company has an Alibaba Cloud account and more than 100 Elastic Compute Service (ECS) instances under this account.

The requirements of the company are as follows:

- Independent project management: Project managers can manage their own project members and the permissions that project members require to access cloud resources.
- Separate bills: The financial department of the company requires that each project receives separate bills.
- A shared bottom-layer network: The company requires a shared bottom-layer network for its cloud resources.

The company has the following optional solutions:

- Multi-account solution
  - This solution supports independent project management. The company creates three Alibaba Cloud accounts (one account for each project) and assigns one project manager for each account. Then, project managers can manage their own project members and access permissions of each member.
  - This solution supports separate bills. The accounts receive separate bills by default. The consolidated billing feature provided by Alibaba Cloud for multiple accounts can be used to consolidate the bills and invoices.
  - This solution does not support a shared bottom-layer network. The resources of different accounts are isolated between different networks. Virtual Private Cloud (

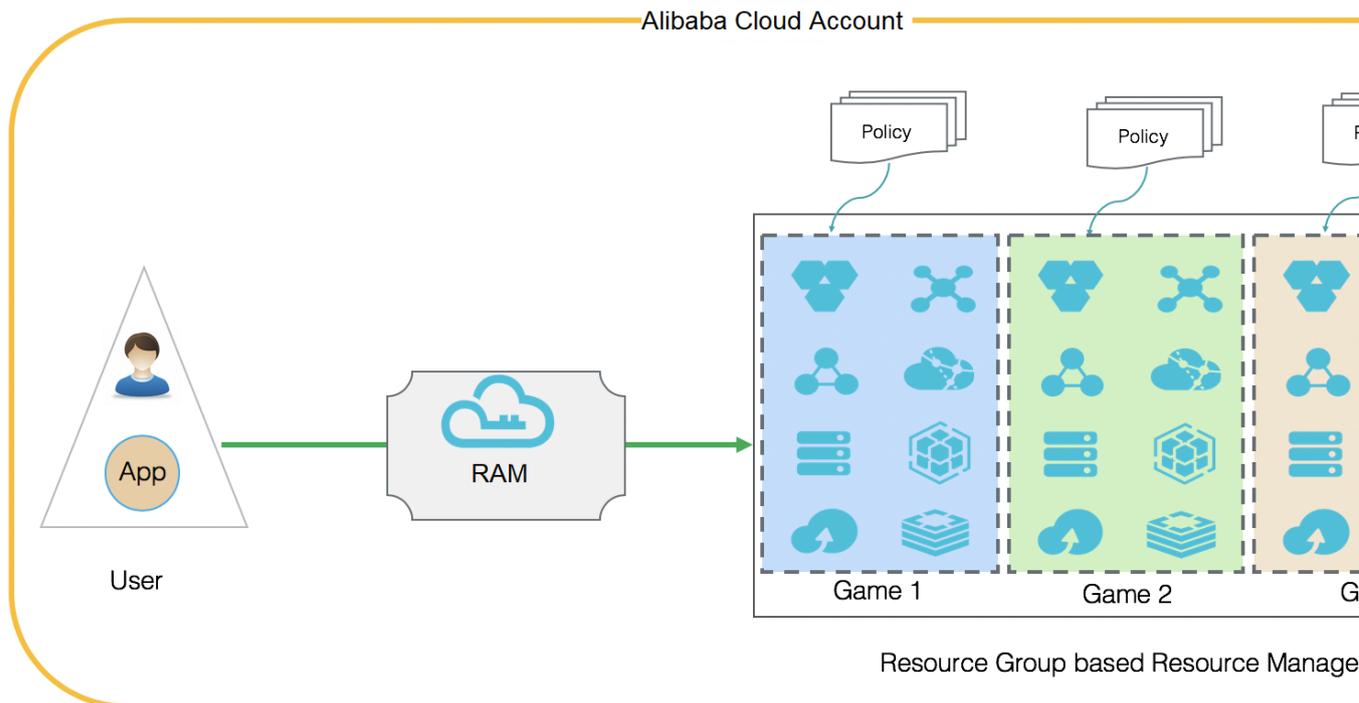
VPC) networks under the accounts can be connected through peering connections.

However, this incurs higher management costs.

- Single-account solution (with tagged resources)
  - This solution does not support independent project management. The company can tag its cloud resources by group, but project managers cannot manage their own members and access permissions of each member.
  - This solution supports separate bills. The company can tag its cloud resources by project. Then, each project can receive separate bills.
  - This solution supports a shared bottom-layer network. The company can use the tag-based policies of RAM to authorize RAM users to access a group of resources. The company does not need to pay for peering connections established between different networks because these resources belong to the same account.
- [Resource group-based management solution](#)
  - This solution supports independent project management. Each resource group has an administrator. Administrators can manage their own group members and access permissions of each member.
  - This solution supports separate bills. Alibaba Cloud provides the consolidated billing feature that allows resource groups to receive separate bills.
  - This solution supports a shared bottom-layer network. Resource groups belong to the same account and can share a VPC. The cost of peering connections is eliminated.

## Solution

The resource group-based management solution can meet all requirements of the company. By using this solution, the company only needs to use one Alibaba Cloud account to create three resource groups that correspond to the three projects.



1. Create three RAM users: `alice@secloud.onaliyun.com`, `bob@secloud.onaliyun.com`, and `charlie@secloud.onaliyun.com`.

For more information, see [#unique\\_5](#).



**Note:**

The following steps use the RAM user Alice as an example. The steps demonstrate how to set a RAM user as a resource group administrator.

2. Log on to the [Resource Management console](#).
3. In the left-side navigation pane, click **Resource Group**. On the Resource Group page, click **Create Resource Group**.
4. Specify the **Resource Group Name** and **Display Name** parameters, and then click **OK**.



**Note:**

Create three resource groups: Game1, Game2, and Game3.

5. Find the target resource group, and click **Manage Permission** in the Actions column.
6. On the **Permissions** tab, click **Grant Permission**.
7. In the **Principal** field, enter Alice, and then select the RAM user from the auto-complete results.
8. In the **Authorization Policy Name** column, click `AdministratorAccess`.

9. Click **OK**.

10. Click **Complete**.



**Note:**

Repeat the preceding steps to set Bob and Charlie as resource group administrators.

**Result**

Alice, Bob, and Charlie are the respective resource group administrators of Game1, Game2, and Game3. The administrators have the following permissions:

- After an administrator logs on to the ECS console, the administrator can view the respective resource group. The administrator can also create and manage ECS instances.
- After an administrator logs on to the Resource Management console, the administrator can add RAM users and grant resource access permissions to RAM users.

## 2 View billing statements by resource group

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To manage billing statements by resource group after you create your resource groups, you can create cost centers and allocate the resource groups to the cost centers.

### Context

A gaming company (Company A) has three gaming projects under development. Each project requires multiple types of cloud resources. Company A has only one Alibaba Cloud account but more than 100 Elastic Compute Service (ECS) instances under this account.

The finance department of Company A wants each project to receive separate bills.

### Procedure

#### 1. Create resource groups.

- a) Log on to the [Resource Management console](#).
- b) Create one resource group for each project.  
For more information, see [#unique\\_7](#).
- c) Move resources to the appropriate resource groups.  
For more information, see [#unique\\_8](#).

#### 2. Create cost centers.

- a) In the top navigation bar, click **Billing** to go to the **User Center** console.
- b) In the left-side navigation pane, choose **All Menus > Cost Center**.
- c) In the navigation tree, click **Add** to create cost centers.

**Note:**

To simplify management, the names of the cost centers and resource groups can be the same.

#### 3. Map resource groups to cost centers.

- a) In the navigation tree, click **Resources Not Allocated**. The right-side section then shows all resources that have not been allocated.
- b) Filter the resources by **Resource Group** to show all resources in a resource group. Select all the resources and click **Allocate**.
- c) In the dialog box that appears, select a cost center and click **OK**.
- d) In the navigation tree, click the cost center name to view all resources that belong to the cost center.

**4. View billing statements by cost center.**

- a) In the left-side navigation pane of the **User Center** console, click **Bill**. On the page that appears, click the **Details** tab.
- b) Filter the billing statements by cost center to view the billing statements of each resource group.

## 3 Use ActionTrail to record operations on resource groups

This topic describes how to use ActionTrail to record the operations that RAM users or the owners of Alibaba Cloud accounts perform on resource groups.

### Procedure

1. Log on to the [ActionTrail console](#).
2. In the left-side navigation pane, choose **ActionTrail** > **History Search**. On the page that appears, set **EventType** and **Time** to filter events.



#### Note:

You can also click Advance Search next to the Time field and set the following parameters to perform a precise search: **Username**, **Event Name**, **Resource Name**, **Resource Type**, **Product Type**, and **Access Key**.

3. In the event list, click the + icon next to an event to view information about the event.
4. Then, click **View Event** to view details.

### Result

```
{
  "eventId": "B1CFCA37-83FA-4288-B623-01994CF8****",
  "eventVersion": "1",
  "requestParameters": {
    "RequestId": "B1CFCA37-83FA-4288-B623-01994CF8BDD2",
    "DisplayName": "actiontrail",
    "HostId": "resourcemanager-share.aliyuncs.com",
    "Name": "action"
  },
  "eventSource": "resourcemanager-share.aliyuncs.com",
  "sourceIpAddress": "42.120.XX.XX",
  "userIdentity": {
    "sessionContext": {
      "attributes": {
        "mfaAuthenticated": "false",
        "creationDate": "2019-03-08T07:00:04Z"
      }
    }
  },
  "accountId": "123456789012****",
  "principalId": "111749508818****",
  "userName": "root",
  "type": "root-account"
},
"eventType": "ApiCall",
"serviceName": "ResourceManager",
"apiVersion": "2016-11-11",
"requestId": "B1CFCA37-83FA-4288-B623-01994CF8BDD2",
"eventTime": "2019-03-08T07:00:04Z",
```

```
"acsRegion": "cn-hangzhou",  
"eventName": "CreateResourceGroup"  
}
```