

**ModelArts**

# Preparations

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# 1 Creating a Huawei ID and Enabling Huawei Cloud Services

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Create a Huawei Cloud account. With this account, you can use all services on Huawei Cloud and pay for only the services you used.

Go to the [Huawei Cloud official website](#) and register an account by following the instructions in [Account Registration Process](#).

After the registration, you are automatically logged in to Huawei Cloud.

# 2 Logging In to the ModelArts Management Console

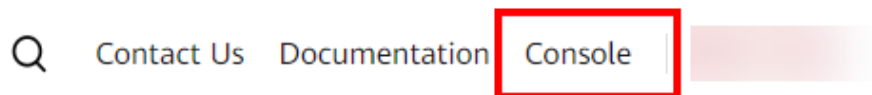
Log in to the ModelArts management console using either of the following methods:

Method 1: Log in to [ModelArts Management Console](#) directly using your Huawei Cloud account.

Method 2: Log in to the Huawei Cloud official website and then access the ModelArts console.

1. Log in to [Huawei Cloud](#).
2. Click **Console** in the upper right corner.

**Figure 2-1** Huawei Cloud console



3. On the displayed page, search for **ModelArts** and click it to access the ModelArts console.

# 3 Configuring Access Authorization (Global Configuration)

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## Scenarios

Exposed ModelArts functions are controlled through IAM permissions. For example, if you as an IAM user need to create a training job on ModelArts, you must have the **modelarts:trainJob:create** permission.

ModelArts must access other services for AI computing. For example, ModelArts must access OBS to read your data for training. For security purposes, ModelArts must be authorized to access other cloud services. This is agency authorization.

ModelArts provides one-click auto authorization. You can quickly configure agency authorization on the **Global Configuration** page of ModelArts. Then, ModelArts will automatically create an agency for you and configure it in ModelArts.

In this mode, the authorization scope is specified based on the preset system policies of dependent services to ensure sufficient permissions for using services. The created agency has almost all permissions of dependent services. If you want to precisely control the scope of permissions granted to an agency, use custom authorization. For more about permissions management, see [Permissions Management](#).

This section introduces one-click auto authorization. This mode allows you to grant permissions to IAM users, federated users (virtual IAM users), agencies, and all users with one click.

## Constraints

- Huawei Cloud account
  - Only a Huawei Cloud account can use an agency to authorize the current account or all IAM users under the current account.
  - Multiple IAM users or accounts can use the same agency.
  - A maximum of 50 agencies can be created under an account.
  - If you use ModelArts for the first time, add an agency. Generally, common user permissions are sufficient for your requirements. If refined permissions management is required, you can apply for customized permissions.

- IAM user
  - If you have obtained the authorization, you can view the authorization information on the **Global Configuration** page.
  - If you have not been authorized, ModelArts will display a message indicating that you have not been authorized when you access the **Add Authorization** page. In this case, contact your administrator to add authorization.

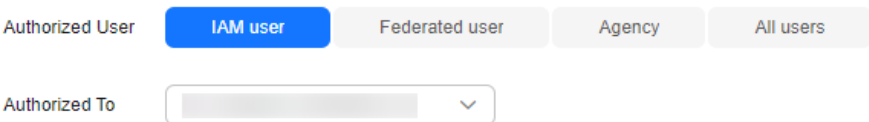
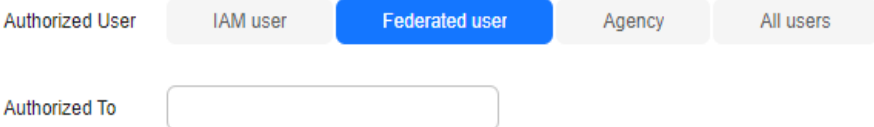
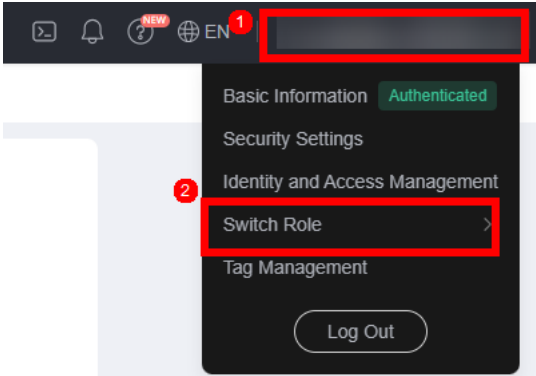
## Adding Authorization

1. Log in to the ModelArts management console. In the navigation pane on the left, choose **Settings**. The **Global Configuration** page is displayed.
2. Click **Add Authorization**. On the **Add Authorization** page that is displayed, configure the parameters.

**Table 3-1** Parameters

Parameter	Description
Authorized User	<p>Options: <b>IAM user</b>, <b>Federated user</b>, <b>Agency</b>, and <b>All users</b></p> <ul style="list-style-type: none"><li>• <b>IAM user</b>: You can use a tenant account to create IAM users and assign permissions for specific resources. Each IAM user has their own identity credentials (password and access keys) and uses cloud resources based on assigned permissions. For details about IAM users, see <a href="#">IAM User</a>.</li><li>• <b>Federated user</b>: A federated user is also called a virtual enterprise user. For details about federated users, see <a href="#">Configuring Federated Identity Authentication</a>.</li><li>• <b>Agency</b>: You can create agencies in IAM. For details about how to create an agency, see <a href="#">Creating an Agency</a>.</li><li>• <b>All users</b>: If you select this option, the agency permissions will be granted to all IAM users under the current account, including those created in the future. For individual users, choose <b>All users</b>.</li></ul>



Parameter	Description
Authorized To	<p>This parameter is not displayed when <b>Authorized User</b> is set to <b>All users</b>.</p> <ul style="list-style-type: none"> <li> <b>IAM user:</b> Select an IAM user and configure an agency for the IAM user.                        <b>Figure 3-1</b> Selecting an IAM user                       </li> <li> <b>Federated user:</b> Enter the username or user ID of the target federated user.                        <b>Figure 3-2</b> Selecting a federated user                       </li> <li> <b>Agency:</b> Select an agency name. You can create an agency under account A and grant the agency permissions to account B. When using account B, you can switch the role in the upper right corner of the console to account A and use the agency permissions of account A.                        <b>Figure 3-3</b> Switch Role                       </li> </ul>
Agency	<ul style="list-style-type: none"> <li> <b>Use existing:</b> If there are agencies in the list, select an available one to authorize the selected user. Click the drop-down arrow next to an agency name to view its permission details.                     </li> <li> <b>Add agency:</b> If there is no available agency, create one. If you use ModelArts for the first time, select <b>Add agency</b>.                     </li> </ul>
Add agency > Agency Name	The system automatically creates a changeable agency name.

Parameter	Description
Add agency > Authorization Method	<ul style="list-style-type: none"> <li>● <b>Role-based:</b> A coarse-grained IAM authorization strategy to assign permissions based on user responsibilities. Only a limited number of service-level roles are available. When using roles to grant permissions, assign other roles on which the permissions depend to take effect. Roles are not ideal for fine-grained authorization and secure access control.</li> <li>● <b>Policy-based:</b> A fine-grained authorization tool that defines permissions for operations on specific cloud resources under certain conditions. This type of authorization is more flexible and ideal for secure access control.</li> </ul> <p>For details about roles and policies, see <a href="#">Basic Concepts</a>.</p>
Add agency > Permissions > Common User	<p><b>Common User</b> provides the permissions to use all basic ModelArts functions. For example, you can access data, and create and manage training jobs. Select this option generally.</p> <p>Click <b>View permissions</b> to view common user permissions.</p>
Add agency > Permissions > Custom	<p>If you need refined permissions management, select <b>Custom</b> to flexibly assign permissions to the created agency. You can select permissions from the permission list as required.</p>

3. Select **I have read and agree to the ModelArts Service Statement**. Click **Create**.

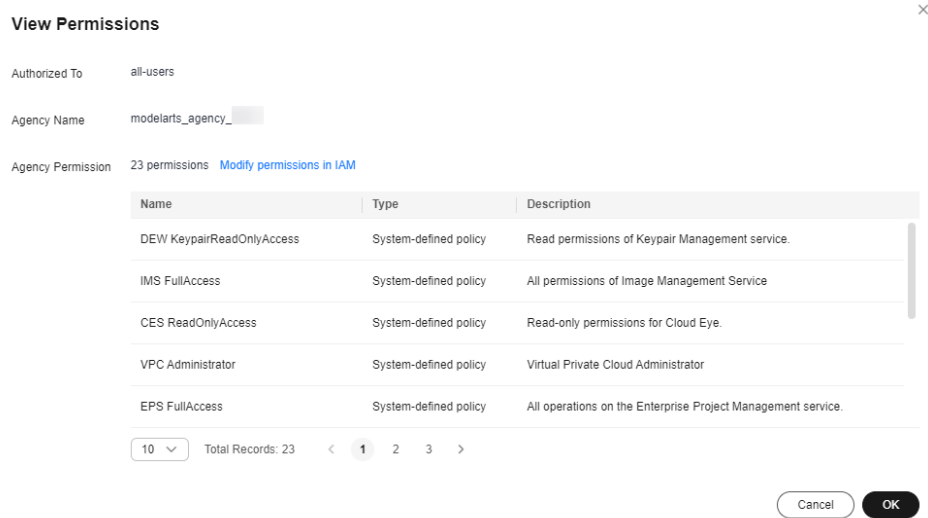
## Viewing Authorized Permissions

You can view the configured authorizations on the **Global Configuration** page. Click **View Permissions** in the **Authorization Content** column to view the permission details.

**Figure 3-4** View Permissions

Authorized To	Authorized User	Authorization Type	Authorization Content	Creation Time	Operation
all-users	All users	Agency	modelarts_agency_0000	Mar 06, 2024 16:27:12 GMT+08:00	<a href="#">View Permissions</a> <a href="#">Delete</a>

**Figure 3-5** Common user permissions



## Changing the Authorization Scope

1. To change the authorization scope, click **Modify permissions in IAM** in the **View Permissions** dialog box.

**Figure 3-6** Modify permissions in IAM



2. Modify the agency information. Select your required validity period.

**Figure 3-7** Agency information

Agencies / modelarts\_agency\_cba5

**Basic Information**      Permissions

Agency Name: modelarts\_agency\_cba5

\* Agency Type: Cloud service

\* Cloud Service: ModelArts

\* Validity Period: Unlimited

Description: Created by ModelArts service. 29/255

OK      Cancel

3. On the **Agencies** page, click **Authorize**, select policies or rules, and click **Next**. Select the scope for minimum authorization and click **OK**.

When setting the minimum authorization scope, you can select either **Global services** or **All resources**. If you select **All resources**, the selected permissions will be applied to all resources.

## Deleting Authorization

To better manage your authorization, you can delete the authorization of an IAM user or delete the authorizations of all users in batches.

- **Deleting the authorization of a user**  
On the **Global Configuration** page, locate the target user. Click **Delete** in the **Operation** column of the target user. Enter **DELETE** and click **OK**. After the deletion takes effect, the user cannot use ModelArts functions.
- **Deleting authorizations in batches**  
On the **Global Configuration** page, click **Clear Authorization** above the authorization list. Enter **DELETE** and click **OK**. After the deletion, the account and all IAM users under the account cannot use ModelArts functions.

## FAQs

1. How do I configure authorization when I use ModelArts for the first time?  
On the **Add Authorization** page, set **Agency** to **Add agency** and select **Common User**, which provides the permissions to use all basic ModelArts

functions. For example, you can access data, and create and manage training jobs. Select this option generally.

2. Where is the entrance for authorization using an access key?

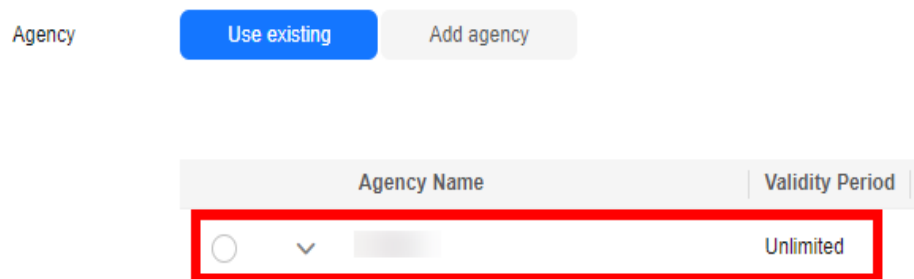
Access key authorization on the global configuration page has been discontinued. If you used an access key for authorization before, switch to agency authorization. To do so, click **Clear Authorization** on the **Global Configuration** page and use an agency for authorization.

3. How do I obtain an access key (AK/SK)?

If you use AK/SK authentication to use certain functions, such as accessing real-time services and logging in using PyCharm Toolkit or VS Code, obtain an access key. For details, see [How Do I Obtain an Access Key?](#)

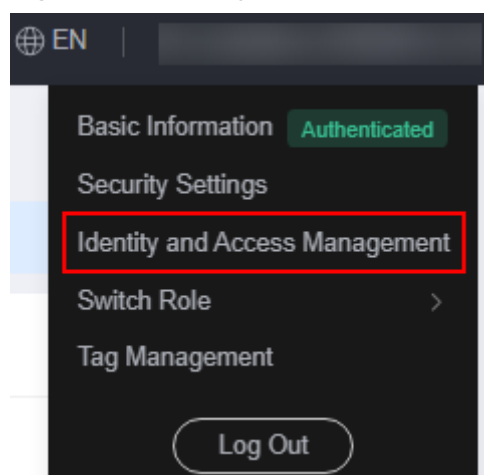
4. How do I delete an existing agency from the agency list?

**Figure 3-8** Use existing



Go to the IAM console, click **Agencies** in the navigation pane, and delete the target agency.

**Figure 3-9** Identity and Access Management



5. Why is a message indicating insufficient permission displayed when I access a page on the ModelArts management console?

Possible causes are insufficient user permissions or changes in module capabilities. To fix this issue, follow the prompts to update the authorization.

# 4 Creating an OBS Bucket

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ModelArts uses OBS to store data and model backups and snapshots, achieving secure, reliable, and low-cost storage. Before using ModelArts, create an OBS bucket and folders for storing data.

## OBS

OBS provides stable, secure, and efficient cloud storage service that lets you store virtually any volume of unstructured data in any format. Bucket and objects are basic concepts in OBS. A bucket is a container for storing objects in OBS. Each bucket is specific to a region and has specific storage class and access permissions. A bucket is accessible through its domain name over the Internet. An object is the basic unit of data storage in OBS.

ModelArts cannot store data and uses OBS as its data storage center. All the input data, output data, and cache data during AI development can be stored in OBS buckets for reading.

Before using ModelArts, create an OBS bucket and folders for storing data.

## Procedure

1. Log in to [OBS Console](#) and click **Create Bucket** in the upper right corner of the page to create an OBS bucket. For example, create an OBS bucket named **c-flowers**.

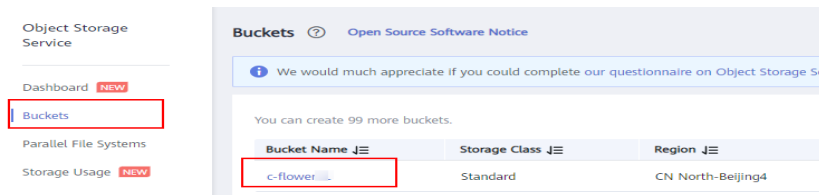
### NOTE

The created OBS bucket and ModelArts are in the same region. For details about how to view the region where the OBS bucket and ModelArts are located, see [Checking Whether the OBS Bucket and ModelArts Are in the Same Region](#).

Do not enable **Default Encryption**. ModelArts cannot read the data from encrypted OBS buckets.

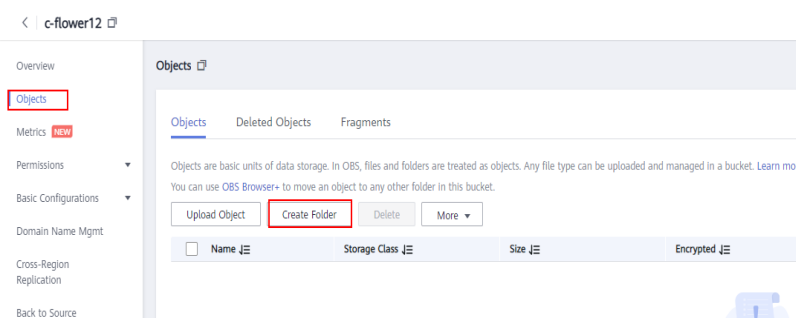
2. On the **Buckets** page, click the bucket name to view its details.

**Figure 4-1 Buckets**



3. Click **Objects** in the navigation pane on the left. On the **Objects** page, click **Create Folder** to create an OBS folder. For example, create a folder named **flowers** in the created **c-flowers** OBS bucket. For details, see [Creating a Folder](#).

**Figure 4-2 Create Folder**



## FAQs

- Why cannot I find my created OBS bucket when I select an OBS path in ModelArts?
- How do I check whether ModelArts and an OBS bucket are in the same region?
- "Error: stat:403" is reported when you perform operations on an OBS bucket.

To resolve the preceding problems or other OBS path exceptions, see [Incorrect OBS Path on ModelArts](#).

# 5 Enabling ModelArts Resources

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## 5.1 ModelArts Resources

ModelArts provides public and dedicated compute resources. You can select proper resources to develop AI applications.

- **Public resource pools:** provide large-scale public computing clusters, which are allocated based on job parameter settings. Resources are isolated by job. You will be billed based on resource flavors, usage duration, and the number of instances used in a public resource pool, regardless of tasks (training, deployment, or development). Public resource pools are provided by ModelArts by default and do not need to be created or configured. You can directly select a public resource pool during AI development.
- **Dedicated resource pools:** provide dedicated compute resources, which can be used for workflows, ExeML, DevEnviron, training jobs, and model deployment. It delivers higher efficiency and cannot be shared with other users. You can create your own dedicated resource pool on the ModelArts console. For details, see [Creating a Dedicated Resource Pool](#).

### Description

- When you use ModelArts for model training and deployment, compute resources are used. For details, see [Pay-Per-Use](#).

## 5.2 Pay-Per-Use

ModelArts resource pools include public resource pools and dedicated resource pools. You can select a resource pool based on service requirements.

- You are billed for using public resource pools provided by ModelArts in pay-per-use mode.
- Dedicated resource pools provided by ModelArts support both pay-per-use and yearly/monthly billing modes, which depend on the pools you purchase. For example, if you purchase a yearly/monthly dedicated resource pool, you will be billed in yearly/monthly mode.



For details about ModelArts resource pool billings, see [How Do I View ModelArts Expenditure Details?](#)

The following sections introduce the scenarios that require compute resources in ModelArts.

### ExeML (old version)

In the model training and deployment phases of ExeML (old version), you can select resources of different specifications.

- Model training: The fee varies for different resource specifications.
- Service deployment: The fee varies for different resource specifications.

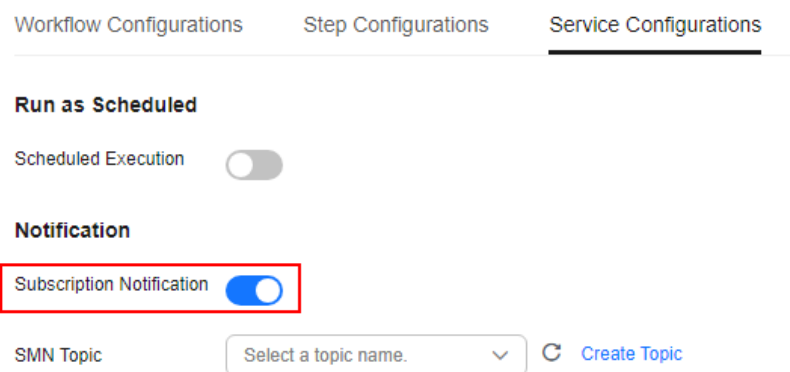
Total fee for using ExeML (old version) = Fees for resources used by training jobs + Fees for resources used by service deployment

### ExeML (New Version)

In the model training and deployment phases of ExeML (new version), you can select resources of different specifications. ExeML (new version) also provides message notification. When an event occurs, a message notification can be sent.

- Model training: The fee varies for different training flavors used by a project.
- Service deployment: The fee varies for different resource pools used for deploying a service.
- Message notification: Message notification is billed according to SMN pricing.

**Figure 5-1** Enabling notifications



Total fee for using ExeML (new version) = Fees for resources used for training + Fees for resources used for service deployment + Fees for message notification

### DevEnviron

In DevEnviron, the billing items include resources and storage. The fees vary according to the resource specifications and storage selected when you create a notebook instance.

- Resource specifications: The fee varies depending on the resource pool specifications.

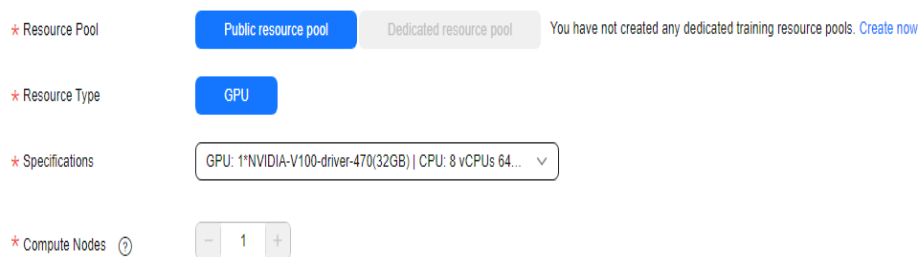
- Storage: If you select EVS, you will be billed.

Total fee for using a notebook instance = Fees for using resources + Fees for using EVS

## Model Training

When creating a training job on ModelArts, you can select different resource specifications. The fee varies depending on resource specifications.

**Figure 5-2** Training job specifications



## Service Deployment

When deploying a model, you can select different resource specifications. The fee varies depending on resource specifications.

**Figure 5-3** Service deployment specifications

