

**ModelArts**

# **API Reference**

**Issue**            01  
**Date**             2022-09-23



**Copyright © Huawei Technologies Co., Ltd. 2022. All rights reserved.**

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

## **Trademarks and Permissions**



HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

## **Notice**

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

## **Huawei Technologies Co., Ltd.**

Address: Huawei Industrial Base  
Bantian, Longgang  
Shenzhen 518129  
People's Republic of China

Website: <https://www.huawei.com>

Email: [support@huawei.com](mailto:support@huawei.com)

---

# Contents

---

<b>1 Before You Start.....</b>	<b>1</b>
1.1 Overview.....	1
1.2 API Calling.....	1
1.3 Endpoint.....	1
1.4 Constraints.....	2
1.5 Basic Concepts.....	2
<b>2 API Overview.....</b>	<b>3</b>
<b>3 Calling APIs.....</b>	<b>7</b>
3.1 Making an API Request.....	7
3.2 Authentication.....	11
3.3 Response.....	16
<b>4 DevEnviron (New Version).....</b>	<b>18</b>
4.1 DevEnviron Instance Management.....	18
4.1.1 Querying Supported Images.....	18
4.1.2 Querying Notebook Instances.....	24
4.1.3 Creating a Notebook Instance.....	32
4.1.4 Querying Details of a Notebook Instance.....	41
4.1.5 Updating a Notebook Instance.....	47
4.1.6 Deleting a Notebook Instance.....	54
4.1.7 Querying Flavors Available for a Notebook Instance.....	60
4.1.8 Querying the Available Duration of a Running Notebook Instance.....	63
4.1.9 Prolonging a Notebook Instance.....	64
4.1.10 Starting a Notebook Instance.....	66
4.1.11 Stopping a Notebook Instance.....	72
<b>5 Training Management (New Version).....</b>	<b>79</b>
5.1 Algorithm Management.....	79
5.1.1 Creating an Algorithm.....	79
5.1.2 Querying the Algorithm List.....	94
5.1.3 Querying Algorithm Details.....	104
5.1.4 Modifying an Algorithm.....	112
5.1.5 Deleting an Algorithm.....	127
5.2 Training Job Management.....	128

5.2.1 Creating a Training Job.....	129
5.2.2 Querying the Details About a Training Job.....	161
5.2.3 Modifying the Description of a Training Job.....	178
5.2.4 Deleting a Training Job.....	179
5.2.5 Terminating a Training Job.....	181
5.2.6 Querying the Logs of a Specified Task in a Given Training Job (Preview).....	197
5.2.7 Querying the Logs of a Specified Taks in a Given Training Job (OBS URL).....	199
5.2.8 Querying the Running Metrics of a Specified Task in a Training Job.....	200
5.2.9 Querying a Training Job List.....	202
5.3 Resource and Engine Specifications.....	221
5.3.1 Querying the Public Flavor List Supported by a Training Job.....	221
5.3.2 Querying the AI Engine List Supported by a Training Job.....	225
<b>6 Model Management.....</b>	<b>228</b>
6.1 Importing a Model.....	228
6.2 Querying a Model List.....	236
6.3 Querying the Details About a Model.....	240
6.4 Deleting a Model.....	246
<b>7 Service Management.....</b>	<b>249</b>
7.1 Deploying a Model as a Service.....	249
7.2 Querying a Service List.....	257
7.3 Querying the Details About a Service.....	262
7.4 Updating Service Configurations.....	269
7.5 Querying Service Monitoring Information.....	274
7.6 Querying Service Update Logs.....	277
7.7 Querying Service Event Logs.....	280
7.8 Deleting a Service.....	283
7.9 Querying Supported Service Deployment Specifications.....	284
7.10 Querying Dedicated Resource Pools.....	286
<b>8 Authorization Management.....</b>	<b>290</b>
8.1 Configuring Authorization.....	290
8.2 Viewing an Authorization List.....	292
8.3 Deleting Authorization.....	295
8.4 Creating a ModelArts Agency.....	296
<b>9 Common Parameters.....</b>	<b>299</b>
9.1 Status Code.....	299
9.2 Error Codes.....	303
9.3 Obtaining a Project ID and Name.....	370
9.4 Obtaining an Account Name and ID.....	370
9.5 Obtaining a Username and ID.....	371

# 1 Before You Start

---

- [1.1 Overview](#)
- [1.2 API Calling](#)
- [1.3 Endpoint](#)
- [1.4 Constraints](#)
- [1.5 Basic Concepts](#)

## 1.1 Overview

Before calling a ModelArts API, ensure that you have fully understood the concepts related to ModelArts. For details, see "Service Overview" in *ModelArts User Guide*.

## 1.2 API Calling

ModelArts supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see [Calling APIs](#).

## 1.3 Endpoint

An endpoint is the request address for calling an API. Endpoints vary depending on services and regions. To obtain the regions and endpoints, contact the enterprise administrator.

---

### NOTICE

If an endpoint uses a domain name, configure the hosts file in the format of "{float-ip} {service\_name}.{region\_id}.{external\_domain\_name}" on the local PC. Contact the system administrator to obtain **float-ip**.

---

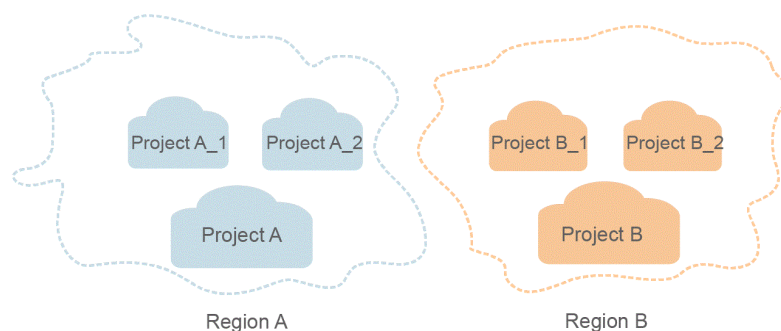
## 1.4 Constraints

- The number of ModelArts resources you can create is determined by your quota.
- For more constraints, see API description.

## 1.5 Basic Concepts

- Account  
An account is created upon successful registration with the cloud platform. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions.
- Region  
A region is a physical location where a cloud service is deployed. Availability zones (AZ) in the same region can communicate with each other over an intranet but AZs in different regions cannot communicate with each other. By creating cloud resources in different regions, you can design applications to better meet customer requirements and comply with local laws and regulations.
- AZ  
An AZ contains one or more physical data centers. It has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow users to build cross-AZ high-availability systems.
- Project  
Projects group and isolate compute, storage, and network resources across physical regions. A default project is provided for each region, and subprojects can be created under each default project. Users can be granted permissions to access all resources in a specific project. For more refined access control, create subprojects under a project and purchase resources in the subprojects. Users can then be assigned permissions to access only specific resources in the subprojects.

**Figure 1-1** Project isolation model



# 2 API Overview

All ModelArts APIs are proprietary.

You can use these APIs to manage training jobs, models, and services, and use ModelArts DevEnviron.

## DevEnviron APIs

**Table 2-1** DevEnviron of the new version

Type	API	Description
Managing DevEnviron instances	<a href="#">Querying Supported Images</a>	Query all images by page based on specified conditions.
	<a href="#">Querying Notebook Instances</a>	Query the list of notebook instances meeting search criteria
	<a href="#">Creating a Notebook Instance</a>	Create a notebook instance based on parameters such as the instance flavor, AI engine, and storage.
	<a href="#">Querying Details About a Notebook Instance</a>	Query details about a notebook instance.
	<a href="#">Updating a Notebook Instance</a>	Modify a notebook instance.
	<a href="#">Deleting a Notebook Instance</a>	Delete the container and all storage resources of a notebook instance.
	<a href="#">Querying Flavors Available for a Notebook Instance</a>	Query the flavors available for a notebook instance.
	<a href="#">Querying the Available Duration of a Running Notebook Instance</a>	Query the available duration of a running notebook instance.
	<a href="#">Prolonging a Notebook Instance</a>	Prolong the available duration of a running notebook instance.

Type	API	Description
	<a href="#">Starting a Notebook Instance</a>	Start a notebook instance.
	<a href="#">Stopping a Notebook Instance</a>	Stop a notebook instance.

## Training Management APIs

Table 2-2 Algorithm management APIs

API	Description
<a href="#">Creating an Algorithm</a>	Create an algorithm.
<a href="#">Querying the Algorithm List</a>	Query the algorithm list.
<a href="#">Querying Algorithm Details</a>	Query a specified algorithm based on the algorithm ID.
<a href="#">Updating an Algorithm</a>	Update an algorithm.
<a href="#">Deleting an Algorithm</a>	Delete an algorithm.

Table 2-3 APIs for managing training jobs

API	Description
<a href="#">Creating a Training Job</a>	Create a training job.
<a href="#">Querying Details About a Training Job</a>	Query details about a training job.
<a href="#">Modifying the Description of a Training Job</a>	Modify the description of a training job.
<a href="#">Deleting a Training Job</a>	Delete a training job.
<a href="#">Terminate a Training Job</a>	Terminate a training job. Only jobs in the creating, awaiting, or running state can be terminated.
<a href="#">Querying the Logs of a Specified Task in a Training Job (Preview)</a>	Query the logs of a specified task in a training job (preview).
<a href="#">Querying the Logs of a Specified Task in a Training Job (OBS Link)</a>	Query the logs of a specified task in a training job (OBS link). You can view all logs or download the logs.



API	Description
<a href="#">Querying the Runtime Metrics of a Specified Task in a Training Job</a>	Query the runtime metrics of a specified task in a training job.
<a href="#">Querying a Training Job List</a>	Query the created training jobs by search criteria.

**Table 2-4** APIs for resources and engine specifications

API	Description
<a href="#">Querying the List of General Specifications Supported by a Training Job</a>	Query the list of general specifications supported by a training job.
<a href="#">Querying the List of AI Engines Supported by a Training Job</a>	Query the list of AI engines supported by a training job.

## Model Management APIs

**Table 2-5** Model management APIs

API	Description
<a href="#">6.1 Importing a Model</a>	Import a model.
<a href="#">6.2 Querying a Model List</a>	Query the models that meet the search criteria.
<a href="#">6.3 Querying the Details About a Model</a>	Query details about a model based on the model ID.
<a href="#">6.4 Deleting a Model</a>	Delete a specified model based on the model ID. All versions of the model can be deleted in cascading mode.

## Service Management APIs

**Table 2-6** Service management APIs

API	Description
<a href="#">7.1 Deploying a Model as a Service</a>	Deploy a model service.

API	Description
<a href="#">7.2 Querying a Service List</a>	Query model services.
<a href="#">7.3 Querying the Details About a Service</a>	Query the details about a model service based on the service ID.
<a href="#">7.4 Updating Service Configurations</a>	Update a model service.
<a href="#">7.5 Querying Service Monitoring Information</a>	Query service monitoring information.
<a href="#">7.6 Querying Service Update Logs</a>	Query the update logs of a real-time service.
<a href="#">7.7 Querying Service Event Logs</a>	Query service event logs, including service operation records, key actions during deployment, and deployment failure causes.
<a href="#">7.8 Deleting a Service</a>	Delete a model service.
<a href="#">7.9 Querying Supported Service Deployment Specifications</a>	Query supported service deployment specifications.

## Authorization Management APIs

Table 2-7 Workspace management APIs

API	Description
<a href="#">Viewing an Authorization List</a>	View an authorization list.
<a href="#">Configuring Authorization</a>	Configure ModelArts authorization. If ModelArts is not authorized, its functions such as training management, development environment, and real-time services cannot be used.
<a href="#">Deleting Authorization</a>	Delete the authorization of a specified user or all users.
<a href="#">Creating a ModelArts Agency</a>	Create a ModelArts agency for dependent services such as OBS, SWR, and IEF.

# 3 Calling APIs

## 3.1 Making an API Request

### 3.2 Authentication

### 3.3 Response

## 3.1 Making an API Request

This section describes the structure of a REST API request, and uses the IAM API for obtaining a user token as an example to demonstrate how to call an API. The obtained token can then be used to authenticate the calling of other APIs.

### Request URI

The format of a request URI is as follows:

**{URI-scheme} :// {Endpoint} / {resource-path} ? {query-string}**

**Table 3-1** Request URI

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server for the REST service endpoint. The endpoint varies depending on services in different regions. It can be obtained in <a href="#">1.3 Endpoint</a> .
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the <b>resource-path</b> of the API used to obtain a user token is <b>/v3/auth/tokens</b> .
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of " <i>Parameter name=Parameter value</i> ". For example, <b>? limit=10</b> indicates that a maximum of 10 data records will be displayed.

For example, to obtain an IAM token in a region, obtain the endpoint of IAM for this region.

 **NOTE**

To simplify the URI display in this document, each API is provided only with a **resource-path** and a request method. The **URI-scheme** of all APIs is **HTTPS**, and the endpoints of all APIs in the same region are identical.

## Request Methods

The HTTP protocol defines the following request methods that can be used to send a request to the server:

**Table 3-2** HTTP methods

Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add resources or perform special operations.
DELETE	Requests the server to delete specified resources, for example, an object.
HEAD	Same as GET except that the server must return only the response header.
PATCH	Requests the server to update partial content of a specified resource. If the resource does not exist, a new resource will be created.

For example, in the case of the API used to obtain a user token, the request method is POST. The request is as follows:

```
POST https://{iam-endpoint}/v3/auth/tokens
```

## Request Header

You can also add additional header fields to a request, such as the fields required by a specified URI or HTTP method. For example, to request for the authentication information, add **Content-Type**, which specifies the request body type.

**Table 3-3** describes the common request header fields to be added to the request.

**Table 3-3** Common request header fields

Header	Description	Mandatory	Example
Content-type	Request body type or format. The default value is <b>application/json</b> .	Yes	application/json
Content-Length	Length of the request body. The unit is byte.	Mandatory for POST and PUT requests but must be left blank for GET requests	3495
X-Project-Id	Project ID. This parameter is used to obtain the token for each project.	No	e9993fc787d94b6c886cbaa340f9c0f4
X-Auth-Token	User token. It is a response to the API used to obtain a user token. This API is the only one that does not require authentication.	Mandatory for token-based authentication	None
X-Sdk-Date	Time when the request is sent. The time is in <i>YYYYMMDD'T'HHMMSS'Z'</i> format. The value is the current Greenwich Mean Time (GMT) time of the system.	Mandatory for AK/SK-based authentication, optional for PKI token-based authentication	20190307T101459Z
Authorization	Authentication information. The value is obtained from the request signature result and is required when the AK/SK are used to encrypt the signature. Type: string Default value: none	Mandatory for AK/SK-based authentication	SDK-HMAC-SHA256 Credential=ZIRRKMT WPTQFQI1WKNKB/ 20150907//ec2/ sdk_request, SignedHeaders=content-type;host;x-sdk-date, Signature=55741b610f3c9fa3ae40b5a8021ebf7ebc2a28a603fc62d25cb3bfe6608e1994

Header	Description	Mandatory	Example
Host	<p>Information about the requested server. The value can be obtained from the URL of the service API.</p> <p>This value is <i>host name[:port number]</i>.</p> <p>If the port number is not specified, the default port is used. The default port number for <b>https</b> is <b>443</b>.</p>	Mandatory for AK/SK-based authentication	code.test.com or code.test.com:443

 NOTE

In addition to supporting authentication using tokens, APIs support authentication using AK/SK, which uses SDK to sign a request. During the signature, the **Authorization** (signature authentication) and **X-Sdk-Date** (time when a request is sent) headers are automatically added to the request.

The API for obtaining a user token does not require authentication. Therefore, this API only requires adding the **Content-Type** field. The request with the added **Content-Type** header is as follows:

```
POST https://{iam-endpoint}/v3/auth/tokens
Content-Type: application/json
```

## Request Body

The body of a request is often sent in a structured format as specified in the Content-Type header field. The request body transfers content except the request header. If the request body contains Chinese characters, these characters must be encoded in UTF-8.

The request body varies between APIs. Some APIs do not require the request body, such as the APIs requested using the GET and DELETE methods.

If an API is used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace *user\_name*, *domain\_name*, and *user\_password* with the actual username, account name, and login password, respectively. *project\_name* is the project name. For details, see [Obtaining a Username](#), [9.4 Obtaining an Account Name and ID](#), and [Obtaining a Project Name](#).

 NOTE

The **scope** parameter specifies where a token takes effect. In the example, the token takes effect only for the resources in a specified project. ModelArts uses a region-specific endpoint to call this API. Set **scope** to **project**. You can set **scope** to an account or a project under an account. In the following example, the token takes effect only for the resources in a specified project. For more information about this API, see [Obtaining a User Token Through Password Authentication](#).

```
POST https://{iam-endpoint}/v3/auth/tokens
Content-Type:application/json
{
  "auth": {
    "identity": {
      "methods": ["password"],
      "password": {
        "user": {
          "name": "Username",
          "password": "User password",
          "domain": {
            "name": "Domain name"
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "Project name"
      }
    }
  }
}
```

If all data required for the API request is available, you can send the request to call the API through [curl](#), [Postman](#), or coding. In the response to the API used to obtain a user token, **x-subject-token** is the desired user token. This token can then be used to authenticate the calling of other APIs.

## 3.2 Authentication

Requests for calling an API can be authenticated using either of the following methods: AK/SK-based authentication: Requests are authenticated by encrypting the request body using an AK/SK pair.

- Token-based authentication: Requests are authenticated using a token.
- AK/SK authentication: Requests are encrypted using the access key ID (AK) and secret access key (SK).

### Token-based Authentication

#### NOTE

The validity period of a token is 24 hours. When using a token for authentication, cache it to prevent frequently calling the IAM API used to obtain a user token.

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to requests to get permissions for calling the API.

In [3.1 Making an API Request](#), the process of calling the API used to obtain a user token is described.

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
```

```

        "name": "user_name",
        "password": "user_password",
        "domain": {
            "name": "domain_name"
        }
    },
    "scope": {
        "project": {
            "name": "project_name"
        }
    }
}

```

After a token is obtained, the **X-Auth-Token** header field must be added to requests to specify the token when calling other APIs. For example, if the token is **ABCDEFJ....**, **X-Auth-Token: ABCDEFJ....** can be added to a request as follows:

```

POST https://{endpoint}/v1/{project_id}/services
Content-Type: application/json
X-Auth-Token: ABCDEFJ....

```

## AK/SK-based Authentication

An AK/SK is used to verify the identity of a request sender. In AK/SK-based authentication, a signature needs to be obtained and then added to requests.

### NOTE

AK: access key ID, which is a unique identifier used in conjunction with a secret access key to sign requests cryptographically.

SK: secret access key used in conjunction with an AK to sign requests cryptographically. It identifies a request sender and prevents the request from being modified.

The following uses a demo project to show how to sign a request and use an HTTP client to send an HTTPS request.

Download the demo project at <https://github.com/api-gate-way/SdkDemo>.

### NOTE

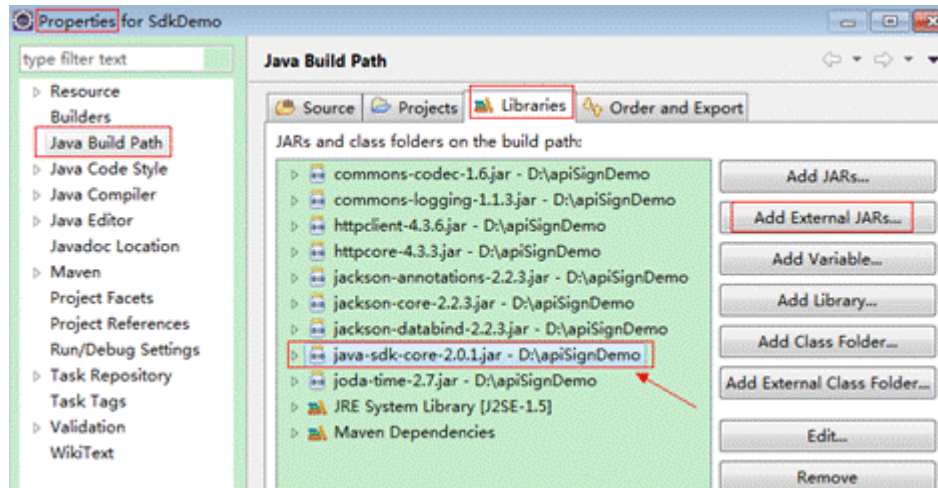
ModelArts is a regional service. Specify the project ID when calling the API. Therefore, before running the demo project, add the project ID (**X-Project-Id**) in line 110 of `access()` in `AccessServiceImpl.java`. For details about how to obtain a project ID, see [9.3 Obtaining a Project ID and Name](#).

If you do not need the demo project, visit the following URL to download the API Gateway signing SDK:

Obtain the API Gateway signing SDK from the enterprise administrator.

Decompress the downloaded package and reference the obtained JAR files as dependencies, as highlighted in the following figure.





**Step 1** Generate an AK/SK. (If an AK/SK file has already been obtained, skip this step and locate the downloaded AK/SK file. Generally, the file name will be **credentials.csv**.)

1. Log in to the console, enter the **My Credentials** page, and choose **Access Keys > Create Access Key**.
2. In the **Create Access Key** dialog box that is displayed, use the login password for verification.
3. Click **OK**, open the **credentials.csv** file, and save the key file as prompted. The access key file is saved in the default downloads folder of the browser. Then, the access key (**Access Key Id** and **Secret Access Key**) is obtained.

**Step 2** Download and decompress the demo project.

**Step 3** Import the demo project to Eclipse.

**Figure 3-1** Selecting Existing Projects into Workspace

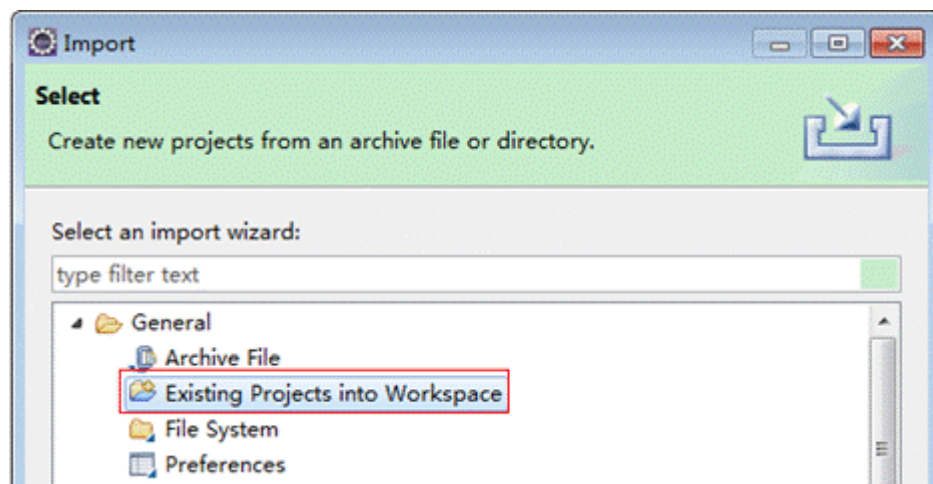


Figure 3-2 Selecting the demo project

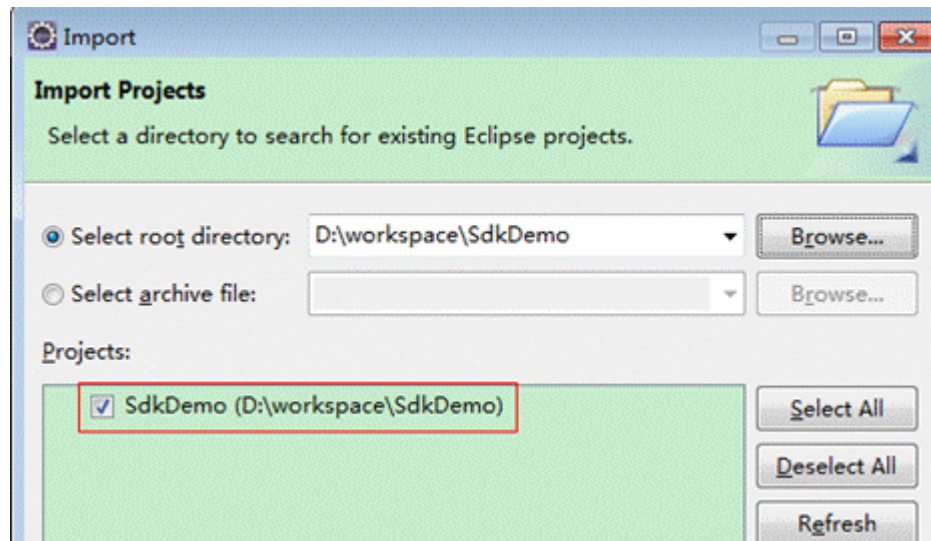
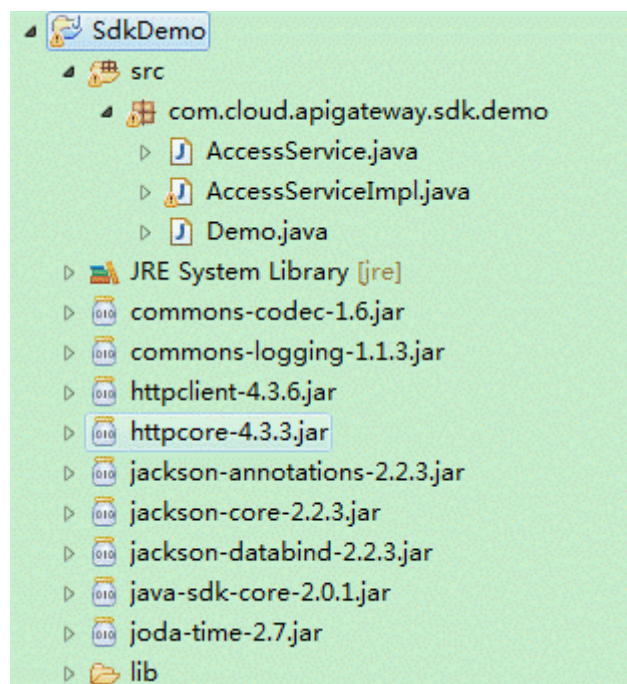


Figure 3-3 Structure of the demo project



**Step 4** Sign the request.

The request signing method is integrated in the JAR files imported in [Step 3](#). The request needs to be signed before it is sent. The signature will then be added as part of the HTTP header to the request.

The demo code is classified into the following classes to demonstrate signing and sending the HTTP request:

- **AccessService**: abstract class that merges the GET, POST, PUT, and DELETE methods into the **access** method
- **Demo**: execution entry used to simulate the sending of GET, POST, PUT, and DELETE requests

- **AccessServiceImpl**: implementation of the **access** method, which contains the code required for communication with API Gateway

The following describes how to call a POST method to sign the request.

1. Add the request header.

Comment out the following second line of code in the **AccessServiceImpl.java** file, and specify the project ID.

```
//TODO: Add special headers.
//request.addHeader("X-Project-Id", "xxxxx");
```

2. Edit the **main()** method in the Demo.java file, and replace the bold text with actual values.

As shown in the following code, if you use other methods such as POST, PUT, and DELETE, see the corresponding comment. Replace the values of **region**, **serviceName**, **ak**, **sk**, and **url**. The URL for obtaining the VPC is used in the sample project. Replace it with the actual URL. For details about how to obtain the endpoint, see [Regions and Endpoints](#).

```
//TODO: Replace the value of region with the actual region where the service to be accessed is located.
```

```
private static final String region = "";
```

```
//TODO: Replace vpc with the name of the service you want to access. For example, ecs, vpc, iam, and elb.
```

```
private static final String serviceName = "";
```

```
public static void main(String[] args) throws UnsupportedEncodingException
{
```

```
//TODO: Replace the values of ak and sk with the AK/SK obtained on the My Credentials page.
```

```
String ak = "ZIRRKMTWP*****1WKNKB";
```

```
String sk = "Us0mdMNHk*****YrCnW0ecfzl";
```

```
//TODO: To specify a project ID (multi-project scenarios), add the X-Project-Id header.
```

```
//TODO: To access a global service, such as IAM, DNS, CDN, and TMS, add the X-Domain-Id header to specify an account ID.
```

```
//TODO: To add a header, find "Add special headers" in the AccessServiceImpl.java file.
```

```
//TODO: Test the API.
```

```
String url = "https://{Endpoint}/v1/{project_id}/vpcs";
```

```
get(ak, sk, url);
```

```
//TODO: When creating a VPC, replace {project_id} in postUrl with the actual value.
```

```
//String postUrl = "https://serviceEndpoint/v1/{project_id}/cloudservers";
```

```
//String postbody = "{\"vpc\": {\"name\": \"vpc\", \"cidr\": \"192.168.0.0/16\"}}";
```

```
//post(ak, sk, postUrl, postbody);
```

```
//TODO: When querying a VPC, replace {project_id} in url with the actual value.
```

```
//String url = "https://serviceEndpoint/v1/{project_id}/vpcs/{vpc_id}";
```

```
//get(ak, sk, url);
```

```
//TODO: When updating a VPC, replace {project_id} and {vpc_id} in putUrl with the actual values.
```

```
//String putUrl = "https://serviceEndpoint/v1/{project_id}/vpcs/{vpc_id}";
```

```
//String putbody = "{\"vpc\": {\"name\": \"vpc1\", \"cidr\": \"192.168.0.0/16\"}}";
```

```
//put(ak, sk, putUrl, putbody);
```

```
//TODO: When deleting a VPC, replace {project_id} and {vpc_id} in deleteUrl with the actual values.
```

```
//String deleteUrl = "https://serviceEndpoint/v1/{project_id}/vpcs/{vpc_id}";
```

```
//delete(ak, sk, deleteUrl);
}
```

3. Compile the code and call the API.

In the **Package Explorer** area on the left, right-click **Demo.java** and choose **Run AS > Java Application** from the shortcut menu to run the demo code.

You can view the API call logs on the console.

----End

## 3.3 Response

After sending a request, you will receive a response, including the status code, response header, and response body.

### Status Code

A status code is a group of digits, ranging from 1xx to 5xx. It indicates the status of a request. For more information, see [9.1 Status Code](#).

For example, if status code **201** is returned for calling the API used to obtain a user token, the request is successful.

### Response Header

Similar to a request, a response also has a header, for example, **Content-type**.

**Figure 1** shows the response header fields for the API used to obtain a user token.

**x-subject-token** is the desired user token. This token can then be used to authenticate the calling of other APIs.

**Figure 3-4** Header fields of the response to the request for obtaining a user token

```
connection → keep-alive
content-type → application/json
date → Tue, 12 Feb 2019 06:52:13 GMT
server → Web Server
strict-transport-security → max-age=31536000; includeSubdomains;
transfer-encoding → chunked
via → proxy A
x-content-type-options → nosniff
x-download-options → noopen
x-frame-options → SAMEORIGIN
x-iam-trace-id → 218d45ab-d674-4995-af3a-2d0255ba41b5
x-subject-token
→ MIIVXQVJKoZlIhvcNAQcCoIITJCCGEoCAQEExDTALBglghkgBZQMEAgEwgharBgkqhkiG9w0BBwGgghacBIIWmHsidG9rZW4iOnsiZXhwaXJlc19hdCI6ijlwMTktMDItMTNUMC
fj3KJs6YgKnpVNRbW2eZ5eb78SZOkqjACgkqO1wi4JlGzrpdl8LGXK5tdffq4lqHCYb8P4NaY0NyejcAgz/VeFYtLWT1GSO0zxKZmlQHqJ82HBqHdglZO9fuEbL5dMhdavj+33wEl
xHRCe9I87o+k9-
j+CMZSEB7bUGd5Uj6eRASXI1jipPEGA270g1FruooL6jgglFkNPQuFSOU8+uSsttVwRtNfsC+qTp22Rkd5MCqFGQ8LcuUxC3a+9CMBnOintWW7oeRUVhVpxk8pxiX1wTEboX-
RzT6MUbpvGw-oPNFYxJECKnoH3HRozv0vN--n5d6Nbxg==
x-xss-protection → 1; mode=block;
```

## Response Body

The body of a response is often returned in structured format as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following is part of the response body for the API used to obtain a user token.

```
{
  "token": {
    "expires_at": "2019-02-13T06:52:13.855000Z",
    "methods": [
      "password"
    ],
    "catalog": [
      {
        "endpoints": [
          {
            "region_id": "aaa",
            .....

```

If an error occurs during API calling, an error code and a message will be displayed. The following shows an error response body.

```
{
  "error_msg": "The format of message is error",
  "error_code": "AS.0001"
}
```

In the error response body, **error\_code** is an error code, and **error\_msg** provides information about the error. For more details, see [Error Codes](#).

# 4 DevEnviron (New Version)

## 4.1 DevEnviron Instance Management

### 4.1 DevEnviron Instance Management

#### 4.1.1 Querying Supported Images

##### Function

This API is used to query all images by page based on specified conditions.

##### Constraints

None

##### URI

GET /v1/{project\_id}/images

Table 4-1 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

Table 4-2 Query Parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Number of records on each page.
name	No	String	Image name.

Parameter	Mandatory	Type	Description
namespace	No	String	Image organization.
offset	No	Integer	Start offset of the records on each page.
sort_dir	No	String	Sorting order. The options are <b>ASC</b> (ascending order) and <b>DESC</b> (descending order).
sort_key	No	String	Sorting fields. Separate multiple fields with commas (,).
type	No	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image.</li> <li>• <b>DEDICATED</b>: image saved by the user.</li> </ul>
workspace_id	No	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 4-3** Response body parameters

Parameter	Type	Description
current	Integer	Current page
data	Array of <b>Image</b> objects	Data
pages	Integer	Total pages
size	Integer	Number of records on each page
total	Long	Total records

**Table 4-4** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address
type	String	Image type. Options: <ul style="list-style-type: none"> <li>● <b>BUILD_IN</b>: built-in system image</li> <li>● <b>DEDICATED</b>: image saved by the user</li> </ul>

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "current": 0,
  "data": [ {
    "arch": "x86_64",
    "description": "CPU and GPU general algorithm development and training, preconfigured with AI engine PyTorch1.4",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "e1a07296-22a8-4f05-8bc8-e936c8e54099",
    "name": "pytorch1.4-cuda10.1-cudnn7-ubuntu18.04",
    "resource_categories": [ "CPU", "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-pytorch-1.4-kernel-cp37:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "update_at": 1632415390765,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "CPU and GPU general algorithm development and training, preconfigured with AI engine TensorFlow2.1",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "e1a07296-22a8-4f05-8bc8-e936c8e54100",
    "name": "tensorflow2.1-cuda10.1-cudnn7-ubuntu18.04",
    "resource_categories": [ "CPU", "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-tensorflow-2.1-kernel-cp37:3.3.3-B005-20211227",
    "tag": "3.3.3-B005-20211227",
    "type": "BUILD_IN",
    "update_at": 1632415555548,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "GPU algorithm development and training, preconfigured with the AI engine MindSpore-GPU",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "89de30ec-6871-4f22-84af-be37ef28335d",
    "name": "mindspore1.2.0-cuda10.1-cudnn7-ubuntu18.04",
    "resource_categories": [ "GPU" ],
```



```

    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mindspore-kernel-gpu-cp37:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "update_at": 1632502757168,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "CPU algorithm development and training, preconfigured with the AI engine MindSpore-CPU",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "65f636a0-56cf-49df-b941-7d2a07ba8c8c",
    "name": "mindspore1.2.0-openmpi2.1.1-ubuntu18.04",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mindspore-kernel-cpu-cp37:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "update_at": 1632415234204,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "CPU algorithm development and training, including the MLStudio tool for graphical ML algorithm development, and preconfigured PySpark 2.3.2",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "0e5f9a41-c9c2-4d9a-a190-4e1b17a7782f",
    "name": "mlstudio-pyspark2.3.2-ubuntu16.04",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mlstudio-cp36:3.3.1.9",
    "tag": "3.3.1.9",
    "type": "BUILD_IN",
    "update_at": 1632415063632,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "CPU algorithm development and training, including the MLStudio tool for graphical ML algorithm development, and preconfigured PySpark 2.4.5",
    "dev_services": [ "NOTEBOOK" ],
    "id": "0b2d0728-4c01-11ec-994f-001a7dda7111",
    "name": "mlstudio-pyspark2.4.5-ubuntu18.04",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mlstudio-cp37:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "AI inference application development, preconfigured ModelBox, AI engine PyTorch, TensorRT and TensorFlow, only SSH connection supported.",
    "dev_services": [ "AI_FLOW", "SSH" ],
    "id": "e1a07296-22a8-4f05-8bc8-e936c8e54101",
    "name": "modelbox1.1.1.5-tensorrt7.1.3-pytorch1.9.1-cuda10.2-cudnn8-euler2.9.6",
    "resource_categories": [ "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/modelarts-aiflow-gpu-x86:1.1.2.1",
    "tag": "1.1.2.1",
    "type": "BUILD_IN",
    "update_at": 1636451722844,
    "workspace_id": "0"
  },
  {
    "arch": "x86_64",
    "description": "pytorch_1.4-move-modelarts_develop",
    "dev_services": [ "NOTEBOOK" ],
    "id": "9dcaa52c-5bc8-4030-96a7-62f099ec2003",
    "name": "pytorch_1.4-move-modelarts_develop",
    "resource_categories": [ "CPU" ],

```

```

    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-pytorch-1-4-kernel-cp37:devel-pytorch_1.4-move-modelarts_develop-v4",
    "tag": "devel-pytorch_1.4-move-modelarts_develop-v4",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "tensorflow-1.13-cuda10.0",
    "dev_services": [ "NOTEBOOK" ],
    "id": "34644333-e2f0-4fa3-915f-7c783ddc004d",
    "name": "tensorflow-1.13-cuda10.0",
    "resource_categories": [ "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-tensorflow-1.13-kernel-cp37:3.3.1.release",
    "tag": "3.3.1.release",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "CPU and GPU general algorithm development and training, preconfigured with AI engine PyTorch1.8",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "278e88d1-5b71-4766-8502-b3ba72e824d9",
    "name": "pytorch1.8-cuda10.2-cudnn7-ubuntu18.04",
    "resource_categories": [ "CPU", "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-pytorch-1.8-kernel-cp37:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "update_at": 1638234504492,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "MXNet-1.2.1, PySpark-2.3.2, Pytorch-1.0.0, TensorFlow-1.13.1, TensorFlow-1.8, XGBoost-Sklearn",
    "dev_services": [ ],
    "id": "e1a07296-22a8-4f05-8bc8-e936c8e54091",
    "name": "notebook2.0-mul-kernel-cpu-cp36",
    "resource_categories": [ "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-gpu-cp36:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "GPU algorithm development and training, preconfigured with AI engine TensorFlow1.13.1",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "b80bbf3d-a7af-42f6-ad12-33ff9116ab0d",
    "name": "tensorflow1.13-cuda10.0-cudnn7-ubuntu18.04",
    "resource_categories": [ "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-tensorflow-1.13-kernel-cp37:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "update_at": 1638234923985,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "user_define_base",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "e2f03e58-b743-41fb-bd18-00ba814fbe82",
    "name": "user_define_base",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/user_defined_base:ubuntu_18.04-x86_64-20211028190608-439572b",

```

```

    "tag": "ubuntu_18.04-x86_64-20211028190608-439572b",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "user_define_base_cuda10.2",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "ee8e6602-5462-43ec-ac84-a08a78e41cfb",
    "name": "user_define_base_cuda10.2",
    "resource_categories": [ "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/user_defined_base:cuda_10.2-ubuntu_18.04-
x86_64-20211028190608-439572b",
    "tag": "cuda_10.2-ubuntu_18.04-x86_64-20211028190608-439572b",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "MXNet-1.2.1, PySpark-2.3.2, Pytorch-1.0.0, TensorFlow-1.13.1, TensorFlow-1.8, XGBoost-
Sklearn",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name": "notebook2.0-mul-kernel-cpu-cp36",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.3-B003-20211220",
    "tag": "3.3.3-B003-20211220",
    "type": "BUILD_IN",
    "update_at": 1604442650857,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "create_at": 1615264782906,
    "description": "CPU operations research development, preconfigured with cylv, cbcpy, ortools,
cplex(community).",
    "dev_services": [ "NOTEBOOK", "SSH" ],
    "id": "daf39542-ebe5-4073-a3a4-353efd519691",
    "name": "cylv0.91.4-cbcpy2.10-ortools9.0-cplex20.1.0-ubuntu18.04",
    "namespace": "rl-dev",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/rl-dev/or-cpu:1.0.8",
    "tag": "1.0.8",
    "type": "BUILD_IN",
    "update_at": 1615404250789,
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "description": "CPU and GPU algorithm development and training, preconfigured with AI engine ray for
reinforcement learning.",
    "dev_services": [ "NOTEBOOK" ],
    "id": "706e03fb-650b-44da-a3ba-6191ba7e62c7",
    "name": "rlstudio1.0.0-ray1.3.0-cuda10.1-ubuntu18.04 ",
    "resource_categories": [ "CPU", "GPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-rl-1.0.0-kernel-cp37:rl-v220211130",
    "tag": "rl-v220211130",
    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "dev_services": [ "NOTEBOOK" ],
    "id": "1d1b1327-b243-425b-ad81-2689584c1acc",
    "name": "mls-feature-engineering",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-mls-feature-engineering-cpu-
py37:3.2.01090103",
    "tag": "3.2.01090103",

```

```

    "type": "BUILD_IN",
    "workspace_id": "0"
  }, {
    "arch": "x86_64",
    "dev_services": [],
    "id": "88bd7bcd-0c91-45b2-ad0e-ef65553d19c5",
    "name": "dls-feature-engineering",
    "resource_categories": [ "CPU" ],
    "status": "ACTIVE",
    "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-dls-feature-engineering-cpu-py37:2.0.109",
    "tag": "2.0.109",
    "type": "BUILD_IN",
    "workspace_id": "0"
  } ],
  "pages": 1,
  "size": 200,
  "total": 28
}

```

## Status Codes

Status Code	Description
200	OK
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

## 4.1.2 Querying Notebook Instances

### Function

This API is used to query notebook instances based on specified search criteria.

### Constraints

None

### URI

GET /v1/{project\_id}/notebooks

**Table 4-5** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

**Table 4-6** Query Parameters

Parameter	Mandatory	Type	Description
feature	No	String	Instance type. The default value is <b>NOTEBOOK</b> . Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
limit	No	Integer	Number of records on each page.
name	No	String	Instance name, which contains a maximum of 128 characters and can consist of uppercase and lowercase letters, digits, hyphens (-), and underscores (_). Fuzzy match is supported.
offset	No	Integer	Start offset of the records on each page.
owner	No	String	User ID of the instance, which contains 32 characters, including lowercase letters and digits. This parameter is valid only when the account is a big account or has the admin permission. Generally, the value is the ID of the current login user.
sort_dir	No	String	Sorting order. The options are <b>ASC</b> (ascending order) and <b>DESC</b> (descending order).
sort_key	No	String	Sorting fields. Separate multiple fields with commas (,).

Parameter	Mandatory	Type	Description
status	No	String	Instance status. Options: <ul style="list-style-type: none"> <li>• <b>INIT</b>: The instance is being initialized.</li> <li>• <b>CREATING</b>: The instance is being created.</li> <li>• <b>STARTING</b>: The instance is starting.</li> <li>• <b>STOPPING</b>: The instance is stopping.</li> <li>• <b>DELETING</b>: The instance is being deleted.</li> <li>• <b>RUNNING</b>: The instance is running.</li> <li>• <b>STOPPED</b>: The instance is stopped.</li> <li>• <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>• <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>• <b>START_FAILED</b>: The instance fails to be started.</li> <li>• <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>• <b>ERROR</b>: An error occurs.</li> <li>• <b>DELETED</b>: The instance is deleted.</li> <li>• <b>FROZEN</b>: The instance is frozen.</li> </ul>
workspaceId	No	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 4-7** Response body parameters

Parameter	Type	Description
current	Integer	Current page
data	Array of <b>NotebookResp</b> objects	Data
pages	Integer	Total pages
size	Integer	Number of records on each page
total	Long	Total records

**Table 4-8** NotebookResp

Parameter	Type	Description
action_progress	Array of <b>JobProgress</b> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <b>EndpointsResp</b> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<b>Image</b> object	Instance image
lease	<b>Lease</b> object	Countdown to automatic instance stop.
name	String	Instance name
pool	<b>Pool</b> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.

Parameter	Type	Description
status	String	Instance status Options: <ul style="list-style-type: none"> <li>● <b>INIT</b>: The instance is being initialized.</li> <li>● <b>CREATING</b>: The instance is being created.</li> <li>● <b>STARTING</b>: The instance is starting.</li> <li>● <b>STOPPING</b>: The instance is stopping.</li> <li>● <b>DELETING</b>: The instance is being deleted.</li> <li>● <b>RUNNING</b>: The instance is running.</li> <li>● <b>STOPPED</b>: The instance is stopped.</li> <li>● <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>● <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>● <b>START_FAILED</b>: The instance fails to be started.</li> <li>● <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>● <b>ERROR</b>: An error occurs.</li> <li>● <b>DELETED</b>: The instance is deleted.</li> <li>● <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-9** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>● <b>WAITING</b>: The job is waiting to begin.</li> <li>● <b>PROCESSING</b>: The job is being processed.</li> <li>● <b>FAILED</b>: The job failed.</li> <li>● <b>COMPLETED</b>: The task is complete.</li> </ul>



Parameter	Type	Description
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>• 1: Storage preparation.</li> <li>• 2: Computing resource preparation.</li> <li>• 3: Network configurations.</li> <li>• 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-10** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>• <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-11** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address
type	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image</li> <li>• <b>DEDICATED</b>: image saved by the user</li> </ul>

**Table 4-12** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-13** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-14** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>• <b>MANAGED</b>: Resources are managed by services.</li> <li>• <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>

Parameter	Type	Description
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "current" : 0,
  "data" : [ {
    "create_at" : 1638841805440,
    "data_volumes" : [ ],
    "endpoints" : [ {
      "service" : "NOTEBOOK",
      "uri" : "https://authoring-modelarts-cnnorth7.ulanqab.xxxx.com/f9937afa-ca78-45b6-bc12-7ecf42553c48/lab"
    } ],
    "feature" : "DEFAULT",
    "flavor" : "modelarts.vm.cpu.free",
    "id" : "f9937afa-ca78-45b6-bc12-7ecf42553c48",
    "image" : {
      "description" : "description",
      "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
      "name" : "notebook2.0-mul-kernel-cpu-cp36",
      "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.2-release_v1",
      "tag" : "3.3.2-release_v1",
      "type" : "BUILD_IN"
    },
    "lease" : {
      "create_at" : 1638841805439,
      "duration" : 3600000,
      "enable" : true,
      "update_at" : 1638841805439
    },
    "name" : "notebook_5ee4bf0e",
    "status" : "RUNNING",
    "token" : "58ba50c6-e8ff-245c-4840-49e51aa70737",
    "update_at" : 1638841838725,
    "url" : "https://authoring-modelarts-cnnorth7.ulanqab.xxxx.com/f9937afa-ca78-45b6-bc12-7ecf42553c48/lab",
    "volume" : {
      "category" : "EFS",
      "ownership" : "MANAGED",
      "mount_path" : "/home/ma-user/work/",
      "capacity" : 50,
      "usage" : -1
    },
    "workspace_id" : "0"
  } ], {
    "create_at" : 1638841744521,
    "data_volumes" : [ ],
    "description" : "api-test",
    "endpoints" : [ {
      "service" : "NOTEBOOK",
```

```

    "uri" : "https://authoring-modelarts-cnnorth7.ulanhqab.xxx.com/f9937afa-4451-42db-
a76b-72d624749f66/lab"
  }],
  "feature" : "NOTEBOOK",
  "flavor" : "modelarts.vm.cpu.2u",
  "id" : "f9937afa-4451-42db-a76b-72d624749f66",
  "image" : {
    "description" : "description",
    "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name" : "notebook2.0-mul-kernel-cpu-cp36",
    "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.2-release_v1",
    "tag" : "3.3.2-release_v1",
    "type" : "BUILD_IN"
  },
  "lease" : {
    "create_at" : 1638841744515,
    "duration" : 3600000,
    "enable" : true,
    "update_at" : 1638841744515
  },
  "name" : "notebooks_test",
  "status" : "RUNNING",
  "token" : "3eff13f2-3d70-5456-6dc7-e3f99f562022",
  "update_at" : 1638841776582,
  "url" : "https://authoring-modelarts-cnnorth7.ulanhqab.xxx.com/f9937afa-4451-42db-
a76b-72d624749f66/lab",
  "volume" : {
    "category" : "EFS",
    "ownership" : "MANAGED",
    "mount_path" : "/home/ma-user/work/",
    "capacity" : 50,
    "usage" : -1
  },
  "workspace_id" : "0"
}],
"pages" : 1,
"size" : 10,
"total" : 2
}

```

## Status Codes

Status Code	Description
200	OK
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

### 4.1.3 Creating a Notebook Instance

#### Function

This API is used to create a notebook instance based on the specified flavor, AI engine images, and storage. You can access the instance through a web page or

SSH client. Calling this API is an asynchronous operation. The notebook instance status can be obtained by calling the API for querying the details about this instance.

## Constraints

None

## URI

POST /v1/{project\_id}/notebooks

**Table 4-15** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

## Request Parameters

**Table 4-16** Request body parameters

Parameter	Mandatory	Type	Description
description	No	String	Instance description. The value can contain a maximum of 512 characters and cannot contain the following special characters: &<>"/. By default, this parameter is left blank.
duration	No	Long	Running duration calculated from the current time, in milliseconds. The instance automatically stops when the duration expires.
endpoints	No	Array of <a href="#">EndpointsRequest</a> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
feature	No	String	Instance type. The default value is <b>NOTEBOOK</b> . Options: <ul style="list-style-type: none"> <li><b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li><b>NOTEBOOK</b>: billed instance.</li> </ul>

Parameter	Mandatory	Type	Description
flavor	Yes	String	<p>Instance flavor. Currently, the following flavors are supported:</p> <ul style="list-style-type: none"> <li>• <b>modelarts.vm.cpu.2u:</b> General-purpose Intel CPU flavors, ideal for rapid data exploration and tests.</li> <li>• <b>modelarts.vm.cpu.8u:</b> General computing-plus Intel CPU flavors, ideal for compute-intensive applications.</li> <li>• <b>modelarts.bm.gpu.v100NV32:</b> One NVIDIA V100 GPU with 32 GB of memory, ideal for training and debugging deep learning algorithms.</li> </ul> <p>The preceding flavors are for reference only. The actual flavors depend on the region.</p>
image_id	Yes	String	<p>ID of the image used for creating notebook instances. The ID is in Universally Unique Identifier (UUID) format. For details, see <a href="#">Querying Supported Images</a>.</p>
name	Yes	String	<p>Instance name, which contains a maximum of 64 characters that can be duplicate. The name can contain uppercase letters, lowercase letters, digits, hyphens (-), and underscores (_).</p>
pool_id	No	String	<p>ID of a dedicated resource pool, for example, <b>pool41664192</b>. This parameter is mandatory if a dedicated resource pool needs to be specified for creating an instance.</p>
volume	Yes	<a href="#">VolumeReq</a> object	Storage volume.

Parameter	Mandatory	Type	Description
workspace_id	No	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-17** EndpointsReq

Parameter	Mandatory	Type	Description
allowed_access_ips	No	Array of strings	Public IP addresses that can remotely access the notebook instance. A maximum of five public IP addresses are supported.
dev_service	No	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>• <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	No	Array of strings	Name of the SSH key pair, which can be created and viewed on the <b>Key Pair</b> page of the Elastic Cloud Server (ECS) console.

**Table 4-18** VolumeReq

Parameter	Mandatory	Type	Description
capacity	No	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	Yes	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>

Parameter	Mandatory	Type	Description
ownership	Yes	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>• <b>MANAGED</b>: Resources are managed by services.</li> <li>• <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>
uri	No	String	URI of the EFS. This parameter is mandatory only when the instance category is <b>EFS</b> and ownership is <b>DEDICATED</b> . An example URI is <b>192.168.0.1:/user-9sfdsgdfgh5ea4d56871e75d6966aa274/mount/</b> .

## Response Parameters

Status code: 200

Table 4-19 Response body parameters

Parameter	Type	Description
action_progress	Array of <b>JobProgress</b> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <b>EndpointsRes</b> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<b>Image</b> object	Instance image
lease	<b>Lease</b> object	Countdown to automatic instance stop.



Parameter	Type	Description
name	String	Instance name
pool	<b>Pool</b> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.
status	String	Instance status Options: <ul style="list-style-type: none"> <li>• <b>INIT</b>: The instance is being initialized.</li> <li>• <b>CREATING</b>: The instance is being created.</li> <li>• <b>STARTING</b>: The instance is starting.</li> <li>• <b>STOPPING</b>: The instance is stopping.</li> <li>• <b>DELETING</b>: The instance is being deleted.</li> <li>• <b>RUNNING</b>: The instance is running.</li> <li>• <b>STOPPED</b>: The instance is stopped.</li> <li>• <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>• <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>• <b>START_FAILED</b>: The instance fails to be started.</li> <li>• <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>• <b>ERROR</b>: An error occurs.</li> <li>• <b>DELETED</b>: The instance is deleted.</li> <li>• <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-20** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.

Parameter	Type	Description
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>● <b>WAITING</b>: The job is waiting to begin.</li> <li>● <b>PROCESSING</b>: The job is being processed.</li> <li>● <b>FAILED</b>: The job failed.</li> <li>● <b>COMPLETED</b>: The task is complete.</li> </ul>
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>● 1: Storage preparation.</li> <li>● 2: Computing resource preparation.</li> <li>● 3: Network configurations.</li> <li>● 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-21** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>● <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>● <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-22** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address

Parameter	Type	Description
type	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image</li> <li>• <b>DEDICATED</b>: image saved by the user</li> </ul>

**Table 4-23** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-24** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-25** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>

Parameter	Type	Description
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>● <b>MANAGED</b>: Resources are managed by services.</li> <li>● <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

```
{
  "name" : "notebooks_test",
  "feature" : "NOTEBOOK",
  "workspace_id" : "0",
  "description" : "api-test",
  "flavor" : "modelarts.vm.cpu.2u",
  "image_id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
  "volume" : {
    "category" : "efs",
    "ownership" : "managed",
    "capacity" : 50
  }
}
```

## Example Responses

**Status code: 200**

OK

```
{
  "action_progress" : [ {
    "step" : 1,
    "status" : "WAITING",
    "description" : "Prepare the storage."
  }, {
    "step" : 2,
    "status" : "WAITING",
    "description" : "Prepare the compute resource."
  }, {
    "step" : 3,
    "status" : "WAITING",
    "description" : "Configuring the network."
  }, {
    "step" : 4,
    "status" : "WAITING",
    "description" : "Initialize the notebook instance."
  } ],
  "create_at" : 1638841744521,
  "description" : "api-test",
  "feature" : "NOTEBOOK",
  "flavor" : "modelarts.vm.cpu.2u",
```

```

{id": "f9937afa-4451-42db-a76b-72d624749f66",
"image": {
  "description": "description",
  "id": "e1a07296-22a8-4f05-8bc8-e936c8e54090",
  "name": "notebook2.0-mul-kernel-cpu-cp36",
  "swr_path": "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.2-release_v1",
  "tag": "3.3.2-release_v1",
  "type": "BUILD_IN"
},
"lease": {
  "create_at": 1638841744515,
  "duration": 3600000,
  "enable": true,
  "update_at": 1638841744515
},
"name": "notebooks_test",
"status": "CREATING",
"token": "3eff13f2-3d70-5456-6dc7-e3f99f562022",
"update_at": 1638841744522,
"workspace_id": "0"
}

```

## Status Codes

Status Code	Description
200	OK
201	Created
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

### 4.1.4 Querying Details of a Notebook Instance

#### Function

This API is used to query details about a notebook instance, including its ID, name, flavor, image, status, and accessible URLs.

#### Constraints

None

#### URI

GET /v1/{project\_id}/notebooks/{id}

**Table 4-26** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 4-27** Response body parameters

Parameter	Type	Description
action_progress	Array of <a href="#">JobProgress</a> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <a href="#">EndpointsRes</a> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<a href="#">Image</a> object	Instance image
lease	<a href="#">Lease</a> object	Countdown to automatic instance stop.
name	String	Instance name
pool	<a href="#">Pool</a> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.

Parameter	Type	Description
status	String	Instance status Options: <ul style="list-style-type: none"> <li>● <b>INIT</b>: The instance is being initialized.</li> <li>● <b>CREATING</b>: The instance is being created.</li> <li>● <b>STARTING</b>: The instance is starting.</li> <li>● <b>STOPPING</b>: The instance is stopping.</li> <li>● <b>DELETING</b>: The instance is being deleted.</li> <li>● <b>RUNNING</b>: The instance is running.</li> <li>● <b>STOPPED</b>: The instance is stopped.</li> <li>● <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>● <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>● <b>START_FAILED</b>: The instance fails to be started.</li> <li>● <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>● <b>ERROR</b>: An error occurs.</li> <li>● <b>DELETED</b>: The instance is deleted.</li> <li>● <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-28** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>● <b>WAITING</b>: The job is waiting to begin.</li> <li>● <b>PROCESSING</b>: The job is being processed.</li> <li>● <b>FAILED</b>: The job failed.</li> <li>● <b>COMPLETED</b>: The task is complete.</li> </ul>

Parameter	Type	Description
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>• 1: Storage preparation.</li> <li>• 2: Computing resource preparation.</li> <li>• 3: Network configurations.</li> <li>• 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-29** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>• <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-30** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address
type	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image</li> <li>• <b>DEDICATED</b>: image saved by the user</li> </ul>



**Table 4-31** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-32** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-33** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>• <b>MANAGED</b>: Resources are managed by services.</li> <li>• <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>

Parameter	Type	Description
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "create_at" : 1638778344314,
  "description" : "api-test",
  "endpoints" : [ {
    "service" : "NOTEBOOK",
    "uri" : "https://authoring-modelarts-cnnorth7.ulanqab.xxxx.com/f9937afa-631e-4a8f-a8f7-3b6c800585f0/lab"
  } ],
  "feature" : "NOTEBOOK",
  "flavor" : "modelarts.vm.cpu.2u",
  "id" : "f9937afa-631e-4a8f-a8f7-3b6c800585f0",
  "image" : {
    "arch" : "X86_64",
    "currentTag" : "3.3.1.B007_V2",
    "feature" : "DEFAULT",
    "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name" : "notebook2.0-mul-kernel-cpu-cp36",
    "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.1.B007_V2",
    "type" : "BUILD_IN"
  },
  "lease" : {
    "create_at" : 1638778344300,
    "duration" : 3600000,
    "enable" : true,
    "update_at" : 1638778344300
  },
  "name" : "notebooks_test",
  "status" : "CREATE_FAILED",
  "token" : "7b22482a-a4cb-4b46-e3b3-6a793a47967e",
  "update_at" : 1638778346131,
  "url" : "https://authoring-modelarts-cnnorth7.ulanqab.xxxx.com/f9937afa-631e-4a8f-a8f7-3b6c800585f0/lab",
  "workspace_id" : "0"
}
```

## Status Codes

Status Code	Description
200	OK
401	Unauthorized

Status Code	Description
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

## 4.1.5 Updating a Notebook Instance

### Function

This API is used to update the name, description, flavor, and image ID of a stopped notebook instance.

### Constraints

None

### URI

PUT /v1/{project\_id}/notebooks/{id}

**Table 4-34** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

### Request Parameters

**Table 4-35** Request body parameters

Parameter	Mandatory	Type	Description
description	No	String	Instance description. The value can contain a maximum of 512 characters and cannot contain the following special characters: &<>"/.

Parameter	Mandatory	Type	Description
endpoints	No	Array of <a href="#">EndpointsReq</a> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
flavor	No	String	Instance flavor. For details, see <a href="#">Querying Flavors Available for a Notebook Instance</a> .
image_id	No	String	Image ID. For details, see <a href="#">Querying Supported Images</a> .
name	No	String	Instance name, which contains a maximum of 64 characters and can contain letters, digits, hyphens (-), and underscores (_).
storage_new_size	No	Integer	EVS instance capacity that can be expanded, in GB. The maximum value is 4,096 GB.

**Table 4-36** EndpointsReq

Parameter	Mandatory	Type	Description
allowed_access_ips	No	Array of strings	Public IP addresses that can remotely access the notebook instance. A maximum of five public IP addresses are supported.
dev_service	No	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK:</b> You can access the notebook instance using HTTPS.</li> <li>• <b>SSH:</b> You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	No	Array of strings	Name of the SSH key pair, which can be created and viewed on the <b>Key Pair</b> page of the Elastic Cloud Server (ECS) console.

## Response Parameters

**Status code: 200**

**Table 4-37** Response body parameters

Parameter	Type	Description
action_progress	Array of <b>JobProgress</b> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <b>EndpointsRes</b> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<b>Image</b> object	Instance image
lease	<b>Lease</b> object	Countdown to automatic instance stop.
name	String	Instance name
pool	<b>Pool</b> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.

Parameter	Type	Description
status	String	Instance status Options: <ul style="list-style-type: none"> <li>• <b>INIT</b>: The instance is being initialized.</li> <li>• <b>CREATING</b>: The instance is being created.</li> <li>• <b>STARTING</b>: The instance is starting.</li> <li>• <b>STOPPING</b>: The instance is stopping.</li> <li>• <b>DELETING</b>: The instance is being deleted.</li> <li>• <b>RUNNING</b>: The instance is running.</li> <li>• <b>STOPPED</b>: The instance is stopped.</li> <li>• <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>• <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>• <b>START_FAILED</b>: The instance fails to be started.</li> <li>• <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>• <b>ERROR</b>: An error occurs.</li> <li>• <b>DELETED</b>: The instance is deleted.</li> <li>• <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-38** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>• <b>WAITING</b>: The job is waiting to begin.</li> <li>• <b>PROCESSING</b>: The job is being processed.</li> <li>• <b>FAILED</b>: The job failed.</li> <li>• <b>COMPLETED</b>: The task is complete.</li> </ul>

Parameter	Type	Description
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>• 1: Storage preparation.</li> <li>• 2: Computing resource preparation.</li> <li>• 3: Network configurations.</li> <li>• 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-39** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>• <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-40** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address
type	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image</li> <li>• <b>DEDICATED</b>: image saved by the user</li> </ul>

**Table 4-41** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-42** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-43** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>• <b>MANAGED</b>: Resources are managed by services.</li> <li>• <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>



Parameter	Type	Description
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

```
{
  "description" : "update"
}
```

## Example Responses

**Status code: 200**

OK

```
{
  "create_at" : 1638841805440,
  "data_volumes" : [ ],
  "description" : "update",
  "endpoints" : [ {
    "service" : "NOTEBOOK",
    "uri" : "https://authoring-modelarts-cn-north7-ulanqab.xxxx.com/f9937afa-ca78-45b6-bc12-7ecf42553c48/lab"
  } ],
  "feature" : "DEFAULT",
  "flavor" : "modelarts.vm.cpu.free",
  "id" : "f9937afa-ca78-45b6-bc12-7ecf42553c48",
  "image" : {
    "description" : "description",
    "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name" : "notebook2.0-mul-kernel-cpu-cp36",
    "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.2-release_v1",
    "tag" : "3.3.2-release_v1",
    "type" : "BUILD_IN"
  },
  "lease" : {
    "create_at" : 1638841805439,
    "duration" : 3600000,
    "enable" : true,
    "update_at" : 1638841805439
  },
  "name" : "notebook_5ee4bf0e",
  "status" : "STOPPED",
  "token" : "58ba50c6-e8ff-245c-4840-49e51aa70737",
  "update_at" : 1638842445117,
  "url" : "https://authoring-modelarts-cn-north7-ulanqab.xxxx.com/f9937afa-ca78-45b6-bc12-7ecf42553c48/lab",
  "volume" : {
    "category" : "EFS",
    "ownership" : "MANAGED",
    "mount_path" : "/home/ma-user/work/",
    "capacity" : 50,
    "usage" : -1
  },
  "workspace_id" : "0"
}
```

## Status Codes

Status Code	Description
200	OK
201	Created
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

## 4.1.6 Deleting a Notebook Instance

### Function

This API is used to delete the container and all storage resources of a notebook instance.

### Constraints

None

### URI

DELETE /v1/{project\_id}/notebooks/{id}

**Table 4-44** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

### Request Parameters

None

### Response Parameters

**Status code: 200**

**Table 4-45** Response body parameters

Parameter	Type	Description
action_progress	Array of <b>JobProgress</b> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <b>EndpointsRes</b> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<b>Image</b> object	Instance image
lease	<b>Lease</b> object	Countdown to automatic instance stop.
name	String	Instance name
pool	<b>Pool</b> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.

Parameter	Type	Description
status	String	Instance status Options: <ul style="list-style-type: none"> <li>● <b>INIT</b>: The instance is being initialized.</li> <li>● <b>CREATING</b>: The instance is being created.</li> <li>● <b>STARTING</b>: The instance is starting.</li> <li>● <b>STOPPING</b>: The instance is stopping.</li> <li>● <b>DELETING</b>: The instance is being deleted.</li> <li>● <b>RUNNING</b>: The instance is running.</li> <li>● <b>STOPPED</b>: The instance is stopped.</li> <li>● <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>● <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>● <b>START_FAILED</b>: The instance fails to be started.</li> <li>● <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>● <b>ERROR</b>: An error occurs.</li> <li>● <b>DELETED</b>: The instance is deleted.</li> <li>● <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-46** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>● <b>WAITING</b>: The job is waiting to begin.</li> <li>● <b>PROCESSING</b>: The job is being processed.</li> <li>● <b>FAILED</b>: The job failed.</li> <li>● <b>COMPLETED</b>: The task is complete.</li> </ul>

Parameter	Type	Description
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>• 1: Storage preparation.</li> <li>• 2: Computing resource preparation.</li> <li>• 3: Network configurations.</li> <li>• 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-47** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>• <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-48** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address
type	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image</li> <li>• <b>DEDICATED</b>: image saved by the user</li> </ul>

**Table 4-49** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-50** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-51** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>• <b>MANAGED</b>: Resources are managed by services.</li> <li>• <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>

Parameter	Type	Description
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "create_at" : 1638841805440,
  "description" : "update",
  "feature" : "DEFAULT",
  "flavor" : "modelarts.vm.cpu.free",
  "id" : "f9937afa-ca78-45b6-bc12-7ecf42553c48",
  "image" : {
    "description" : "description",
    "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name" : "notebook2.0-mul-kernel-cpu-cp36",
    "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.2-release_v1",
    "tag" : "3.3.2-release_v1",
    "type" : "BUILD_IN"
  },
  "lease" : {
    "create_at" : 1638841805439,
    "duration" : 3600000,
    "enable" : true,
    "update_at" : 1638841805439
  },
  "name" : "notebook_5ee4bf0e",
  "status" : "DELETING",
  "token" : "58ba50c6-e8ff-245c-4840-49e51aa70737",
  "update_at" : 1638842504178,
  "workspace_id" : "0"
}
```

## Status Codes

Status Code	Description
200	OK
204	No Content
401	Unauthorized
403	Forbidden

## Error Codes

See [Error Codes](#).

## 4.1.7 Querying Flavors Available for a Notebook Instance

### Function

This API is used to query the flavors available for a notebook instance.

### Constraints

None

### URI

GET /v1/{project\_id}/notebooks/{id}/flavors

**Table 4-52** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

### Request Parameters

None

### Response Parameters

Status code: 200

**Table 4-53** Response body parameters

Parameter	Type	Description
flavors	Array of <a href="#">NotebookFlavor</a> objects	Flavor list



**Table 4-54** NotebookFlavor

Parameter	Type	Description
arch	String	Architecture type. Options: <ul style="list-style-type: none"> <li>• X86_64</li> <li>• AARCH64</li> </ul>
billing	<b>BillingInfo</b> object	Billing information
category	String	Processor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
description	String	Instance flavor description
feature	String	Flavor category. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: CodeLab</li> <li>• <b>NOTEBOOK</b>: Notebook</li> </ul>
free	Boolean	Free flavor or not
gpu	<b>GPUInfo</b> object	GPU information
id	String	Flavor ID
memory	Long	Memory size
name	String	Flavor name
sold_out	Boolean	Whether the flavor is sold out. Options: <ul style="list-style-type: none"> <li>• <b>true</b>: The flavor is sold out.</li> <li>• <b>false</b>: The flavor is not sold out.</li> </ul>
storages	Array of strings	Storage type supported by the flavor. Options: <ul style="list-style-type: none"> <li>• EVS</li> <li>• EFS</li> </ul>
vcpus	Integer	Number of vCPUs

**Table 4-55** BillingInfo

Parameter	Type	Description
code	String	Billing code
unit_num	Integer	Billing unit

**Table 4-56 GPUInfo**

Parameter	Type	Description
gpu	Integer	Number of GPUs
gpu_memory	String	GPU memory
type	String	GPU type

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "flavors": [ {
    "arch": "X86_64",
    "feature": "NOTEBOOK",
    "free": false,
    "storages": [ "EFS" ],
    "id": "modelarts.vm.cpu.8u",
    "category": "CPU",
    "vcpus": 1,
    "memory": 1048576,
    "name": "CPU: 8vCPUs 32GB",
    "description": "General computing-plus Intel CPU specifications, ideal for compute-intensive applications.",
    "billing": {
      "code": "modelarts.vm.cpu.2u",
      "unitNum": 4
    },
    "sold_out": false
  } ]
}
```

## Status Codes

Status Code	Description
200	OK
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

## 4.1.8 Querying the Available Duration of a Running Notebook Instance

### Function

This API is used to query the available duration of a running notebook instance.

### Constraints

None

### URI

GET /v1/{project\_id}/notebooks/{id}/lease

**Table 4-57** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

### Request Parameters

None

### Response Parameters

**Status code: 200**

**Table 4-58** Response body parameters

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

## Example Requests

None

## Example Responses

Status code: 200

OK

```
{  
  "create_at" : 1638841744515,  
  "duration" : 3600000,  
  "enable" : true,  
  "update_at" : 1638842905925  
}
```

## Status Codes

Status Code	Description
200	OK
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

## 4.1.9 Prolonging a Notebook Instance

### Function

This API is used to prolong a notebook instance.

### Constraints

None

### URI

PATCH /v1/{project\_id}/notebooks/{id}/lease

**Table 4-59** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

**Table 4-60** Query Parameters

Parameter	Mandatory	Type	Description
duration	Yes	Long	Renewal duration, in milliseconds

## Request Parameters

None

## Response Parameters

**Status code: 200**

**Table 4-61** Response body parameters

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "create_at" : 1638841744515,
```

```
"duration" : 3600000,
"enable" : true,
"update_at" : 1638843018759
}
```

## Status Codes

Status Code	Description
200	OK
204	No Content
401	Unauthorized
403	Forbidden

## Error Codes

See [Error Codes](#).

## 4.1.10 Starting a Notebook Instance

### Function

This API is used to start a notebook instance.

### Constraints

None

### URI

POST /v1/{project\_id}/notebooks/{id}/start

**Table 4-62** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

**Table 4-63** Query Parameters

Parameter	Mandatory	Type	Description
duration	No	Long	Running duration after startup, in milliseconds Default: <b>0</b>

## Request Parameters

**Table 4-64** Request body parameters

Parameter	Mandatory	Type	Description
-	No	Object	notebookStartRequest

## Response Parameters

**Status code: 200**

**Table 4-65** Response body parameters

Parameter	Type	Description
action_progress	Array of <a href="#">JobProgress</a> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <a href="#">EndpointsRes</a> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<a href="#">Image</a> object	Instance image
lease	<a href="#">Lease</a> object	Countdown to automatic instance stop.
name	String	Instance name

Parameter	Type	Description
pool	<b>Pool</b> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.
status	String	Instance status Options: <ul style="list-style-type: none"> <li>● <b>INIT</b>: The instance is being initialized.</li> <li>● <b>CREATING</b>: The instance is being created.</li> <li>● <b>STARTING</b>: The instance is starting.</li> <li>● <b>STOPPING</b>: The instance is stopping.</li> <li>● <b>DELETING</b>: The instance is being deleted.</li> <li>● <b>RUNNING</b>: The instance is running.</li> <li>● <b>STOPPED</b>: The instance is stopped.</li> <li>● <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>● <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>● <b>START_FAILED</b>: The instance fails to be started.</li> <li>● <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>● <b>ERROR</b>: An error occurs.</li> <li>● <b>DELETED</b>: The instance is deleted.</li> <li>● <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-66** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.



Parameter	Type	Description
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>● <b>WAITING</b>: The job is waiting to begin.</li> <li>● <b>PROCESSING</b>: The job is being processed.</li> <li>● <b>FAILED</b>: The job failed.</li> <li>● <b>COMPLETED</b>: The task is complete.</li> </ul>
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>● 1: Storage preparation.</li> <li>● 2: Computing resource preparation.</li> <li>● 3: Network configurations.</li> <li>● 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-67** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>● <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>● <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-68** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address

Parameter	Type	Description
type	String	Image type. Options: <ul style="list-style-type: none"> <li>● <b>BUILD_IN</b>: built-in system image</li> <li>● <b>DEDICATED</b>: image saved by the user</li> </ul>

**Table 4-69** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-70** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-71** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>● <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>● <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>

Parameter	Type	Description
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>● <b>MANAGED</b>: Resources are managed by services.</li> <li>● <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

None

## Example Responses

Status code: 200

OK

```
{
  "create_at" : 1638841744521,
  "data_volumes" : [ ],
  "description" : "api-test",
  "endpoints" : [ {
    "service" : "NOTEBOOK",
    "uri" : "https://authoring-modelarts-cnnorth7.ulanqab.com/f9937afa-4451-42db-a76b-72d624749f66/lab"
  } ],
  "feature" : "NOTEBOOK",
  "flavor" : "modelarts.vm.cpu.2u",
  "id" : "f9937afa-4451-42db-a76b-72d624749f66",
  "image" : {
    "description" : "description",
    "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name" : "notebook2.0-mul-kernel-cpu-cp36",
    "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36:3.3.2-release_v1",
    "tag" : "3.3.2-release_v1",
    "type" : "BUILD_IN"
  },
  "lease" : {
    "create_at" : 1638841744515,
    "duration" : 6327212,
    "enable" : true,
    "update_at" : 1638844471727
  },
  "name" : "notebooks_test",
  "status" : "STARTING",
  "token" : "5cc60e8b-8772-7690-efd6-a5874ca387c0",
  "update_at" : 1638844454031,
  "url" : "https://authoring-modelarts-cnnorth7.ulanqab.xxx.com/f9937afa-4451-42db-a76b-72d624749f66/lab",
  "volume" : {
    "category" : "EFS",
```

```

"ownership" : "MANAGED",
"mount_path" : "/home/ma-user/work/",
"capacity" : 50,
"usage" : -1
},
"workspace_id" : "0"
}

```

## Status Codes

Status Code	Description
200	OK
201	Created
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

### 4.1.11 Stopping a Notebook Instance

#### Function

This API is used to stop a notebook instance.

#### Constraints

None

#### URI

POST /v1/{project\_id}/notebooks/{id}/stop

**Table 4-72** Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Notebook instance ID.
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

#### Request Parameters

None

## Response Parameters

Status code: 200

**Table 4-73** Response body parameters

Parameter	Type	Description
action_progress	Array of <b>JobProgress</b> objects	Instance initialization progress.
description	String	Instance description
endpoints	Array of <b>EndpointsRes</b> objects	Local IDE (such as PyCharm and vsCode) or SSH client for remotely accessing a notebook instance through SSH.
fail_reason	String	Instance failure cause
feature	String	Instance type. Options: <ul style="list-style-type: none"> <li>• <b>DEFAULT</b>: free CodeLab instance. You can create only one.</li> <li>• <b>NOTEBOOK</b>: billed instance.</li> </ul>
flavor	String	Instance flavor
id	String	Instance ID.
image	<b>Image</b> object	Instance image
lease	<b>Lease</b> object	Countdown to automatic instance stop.
name	String	Instance name
pool	<b>Pool</b> object	Basic information about the dedicated pool, which is returned by the instance created in the dedicated pool.

Parameter	Type	Description
status	String	Instance status Options: <ul style="list-style-type: none"> <li>• <b>INIT</b>: The instance is being initialized.</li> <li>• <b>CREATING</b>: The instance is being created.</li> <li>• <b>STARTING</b>: The instance is starting.</li> <li>• <b>STOPPING</b>: The instance is stopping.</li> <li>• <b>DELETING</b>: The instance is being deleted.</li> <li>• <b>RUNNING</b>: The instance is running.</li> <li>• <b>STOPPED</b>: The instance is stopped.</li> <li>• <b>SNAPSHOTTING</b>: A snapshot is being taken for the instance (status when the image is being saved).</li> <li>• <b>CREATE_FAILED</b>: The instance fails to be created.</li> <li>• <b>START_FAILED</b>: The instance fails to be started.</li> <li>• <b>DELETE_FAILED</b>: The instance fails to be deleted.</li> <li>• <b>ERROR</b>: An error occurs.</li> <li>• <b>DELETED</b>: The instance is deleted.</li> <li>• <b>FROZEN</b>: The instance is frozen.</li> </ul>
token	String	Token used for notebook authentication
url	String	URL for accessing the notebook instance
volume	<b>VolumeRes</b> object	Storage volume
workspace_id	String	Workspace ID. If no workspace is created, the default value is <b>**0**</b> . If a workspace is created and used, use the actual value.

**Table 4-74** JobProgress

Parameter	Type	Description
notebook_id	String	Instance ID.
status	String	Job status in a specified step. Options: <ul style="list-style-type: none"> <li>• <b>WAITING</b>: The job is waiting to begin.</li> <li>• <b>PROCESSING</b>: The job is being processed.</li> <li>• <b>FAILED</b>: The job failed.</li> <li>• <b>COMPLETED</b>: The task is complete.</li> </ul>

Parameter	Type	Description
step	Integer	Job step. Options: <ul style="list-style-type: none"> <li>• 1: Storage preparation.</li> <li>• 2: Computing resource preparation.</li> <li>• 3: Network configurations.</li> <li>• 4: Instance initialization.</li> </ul>
step_description	String	Description of a step in a job.

**Table 4-75** EndpointsRes

Parameter	Type	Description
allowed_access_ips	Array of strings	Whitelist of public IP addresses that are allowed to access the notebook instance through SSH. By default, all public IP addresses can access the notebook instance. If this parameter is specified, only the clients with the specified IP addresses can access the notebook instance.
dev_service	String	Supported services. Options: <ul style="list-style-type: none"> <li>• <b>NOTEBOOK</b>: You can access the notebook instance using HTTPS.</li> <li>• <b>SSH</b>: You can remotely access the notebook instance through SSH.</li> </ul>
ssh_keys	Array of strings	List of SSH key pairs. You can set multiple key pairs to access an SSH instance at the same time.

**Table 4-76** Image

Parameter	Type	Description
id	String	Image ID
name	String	Image name.
swr_path	String	SWR image address
type	String	Image type. Options: <ul style="list-style-type: none"> <li>• <b>BUILD_IN</b>: built-in system image</li> <li>• <b>DEDICATED</b>: image saved by the user</li> </ul>

**Table 4-77** Lease

Parameter	Type	Description
create_time	Long	Time (UTC) when the instance is created, accurate to millisecond.
duration	Long	Instance running duration, which is calculated based on the instance creation time. If the instance creation time plus the duration is greater than the current time, the system automatically stops the instance.
enable	Boolean	Whether to enable auto stop of the instance.
update_time	Long	Time (UTC) when the instance is last updated (excluding the keepalive heartbeat time), accurate to millisecond.

**Table 4-78** Pool

Parameter	Type	Description
id	String	ID of a dedicated resource pool
name	String	Name of a dedicated resource pool

**Table 4-79** VolumeRes

Parameter	Type	Description
capacity	Integer	Storage capacity. The default value is 5 GB for EVS and 50 GB for EFS. The maximum value is 4,096 GB.
category	String	Storage category. Options: <ul style="list-style-type: none"> <li>• <b>EFS</b>: Scalable File Service (SFS), which is the default storage.</li> <li>• <b>EVS</b>: Elastic Volume Service (EVS).</li> </ul>
mount_path	String	Directory of the notebook instance to which OBS storage is mounted. Currently, the directory is <b>/home/ma-user/work/</b> .
ownership	String	Owner to which the resource belongs. Options: <ul style="list-style-type: none"> <li>• <b>MANAGED</b>: Resources are managed by services.</li> <li>• <b>DEDICATED</b>: Resources are managed by the user account. This mode is supported only when the instance category is <b>EFS</b>.</li> </ul>



Parameter	Type	Description
status	String	EVS disk capacity expansion status, which is <b>RESIZING</b> during capacity expansion and does not affect the instance.

## Example Requests

None

## Example Responses

**Status code: 200**

OK

```
{
  "create_at" : 1638841744521,
  "data_volumes" : [ ],
  "description" : "api-test",
  "endpoints" : [ {
    "service" : "NOTEBOOK",
    "uri" : "https://authoring-modelarts-cnnorth7.ulanhqab.com/f9937afa-4451-42db-a76b-72d624749f66/lab"
  } ],
  "feature" : "NOTEBOOK",
  "flavor" : "modelarts.vm.cpu.2u",
  "id" : "f9937afa-4451-42db-a76b-72d624749f66",
  "image" : {
    "description" : "description",
    "id" : "e1a07296-22a8-4f05-8bc8-e936c8e54090",
    "name" : "notebook2.0-mul-kernel-cpu-cp36",
    "swr_path" : "swr.xxx.xxx.com/atelier/notebook2.0-mul-kernel-cpu-cp36.3.3.2-release_v1",
    "tag" : "3.3.2-release_v1",
    "type" : "BUILD_IN"
  },
  "lease" : {
    "create_at" : 1638841744515,
    "duration" : 5313106,
    "enable" : true,
    "update_at" : 1638843457621
  },
  "name" : "notebooks_test",
  "status" : "STOPPING",
  "token" : "7bddd8ff-8a0d-e063-3107-c70a862832de",
  "update_at" : 1638843483309,
  "url" : "https://authoring-modelarts-cnnorth7.ulanhqab.xxx.com/f9937afa-4451-42db-a76b-72d624749f66/lab",
  "volume" : {
    "category" : "EFS",
    "ownership" : "MANAGED",
    "mount_path" : "/home/ma-user/work/",
    "capacity" : 50,
    "usage" : -1
  },
  "workspace_id" : "0"
}
```

## Status Codes

Status Code	Description
200	OK
201	Created
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

# 5 Training Management (New Version)

---

[5.1 Algorithm Management](#)

[5.2 Training Job Management](#)

[5.3 Resource and Engine Specifications](#)

## 5.1 Algorithm Management

### 5.1.1 Creating an Algorithm

#### Function

This API is used to create an algorithm.

#### URI

POST /v2/{project\_id}/algorithms

**Table 5-1** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

## Request Parameters

**Table 5-2** Request body parameters

Parameter	Mandatory	Type	Description
metadata	No	<b>metadata</b> object	Algorithm metadata, which describes basic algorithm information.
job_config	No	<b>job_config</b> object	Algorithm configuration, such as the boot file.
resource_requirements	No	Array of <b>resource_requirements</b> objects	Algorithm resource constraint. You can disable this function by not setting this parameter.
advanced_config	No	<b>advanced_config</b> object	Advanced algorithm configuration. Currently, <b>autosearch</b> is supported.

**Table 5-3** metadata

Parameter	Mandatory	Type	Description
id	No	Integer	Algorithm UUID. You do not need to set this parameter when creating an algorithm.
name	Yes	String	Algorithm name. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
description	No	String	Algorithm description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
workspace_id	No	String	Workspace where a specified algorithm is located. The default value is <b>0</b> .
ai_project	No	String	AI project to which a specified algorithm belongs. The default value is <b>default-ai-project</b> .

**Table 5-4** job\_config

Parameter	Mandatory	Type	Description
code_dir	No	String	Algorithm code directory, for example, <code>**/usr/app/**</code> . This parameter must be used together with <b>boot_file</b> .
boot_file	No	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> .
command	No	String	Container startup command of a custom image algorithm.
parameters	No	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	No	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	No	Array of <b>outputs</b> objects	Data output of an algorithm.
engine	No	<b>engine</b> object	Algorithm engine.
parameters_customization	No	Boolean	Whether the algorithm allows hyperparameter customization during training job creation.

**Table 5-5** Parameter

Parameter	Mandatory	Type	Description
name	No	String	Parameter name.
value	No	String	Parameter value.
description	No	String	Parameter description.
constraint	No	<b>constraint</b> object	Parameter constraint.
internationalization	No	<b>internationalization</b> object	Internationalization description.

**Table 5-6** constraint

Parameter	Mandatory	Type	Description
type	No	String	Parameter type.
editable	No	Boolean	Whether the parameter is editable.
required	No	Boolean	Whether the parameter is mandatory.
sensitive	No	Boolean	Whether the parameter is sensitive.
valid_type	No	String	Valid type.
valid_range	No	Array of strings	Valid range.

**Table 5-7** i18n\_description

Parameter	Mandatory	Type	Description
language	No	String	Internationalization language.
description	No	String	Description.

**Table 5-8** inputs

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data input channel.
description	No	String	Description of the data input channel.
remote_constraints	No	Array of <a href="#">remote_constraints</a> objects	Data input constraint.

**Table 5-9** remote\_constraints

Parameter	Mandatory	Type	Description
data_type	No	String	Type of the data input.

**Table 5-10** outputs

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data output channel.
description	No	String	Description of the data output channel.

**Table 5-11** engine

Parameter	Mandatory	Type	Description
engine_id	No	String	Engine ID selected for an algorithm.
engine_name	No	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	No	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	No	String	Custom image URL selected by an algorithm.

**Table 5-12** resource\_requirements

Parameter	Mandatory	Type	Description
key	No	String	Resource constraint. The options are as follows: <ul style="list-style-type: none"> <li>• <b>flavor_type</b>: flavor type. The value can be <b>CPU</b> or <b>GPU</b>.</li> <li>• <b>device_distributed_mode</b>: whether to support multi-device training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).</li> <li>• <b>host_distributed_mode</b>: whether to support distributed training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).</li> </ul>
values	No	Array of strings	Value of the resource constraint key.
operator	No	String	Relationship between keys and values. Currently, only <b>in</b> is supported. For example: <b>flavor_type</b> in [CPU,GPU].

**Table 5-13** advanced\_config

Parameter	Mandatory	Type	Description
auto_search	No	<a href="#">auto_search</a> object	Hyperparameter search policy.

**Table 5-14** auto\_search

Parameter	Mandatory	Type	Description
skip_search_params	No	String	Hyperparameter parameters that need to be skipped.
reward_attrs	No	Array of <a href="#">reward_attrs</a> objects	List of search metrics.



Parameter	Mandatory	Type	Description
search_params	No	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	No	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-15** reward\_attrs

Parameter	Mandatory	Type	Description
name	No	String	Metric name.
mode	No	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	No	String	Regular expression of a metric.

**Table 5-16** search\_params

Parameter	Mandatory	Type	Description
name	No	String	Hyperparameter name.
param_type	No	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The hyperparameter is of the continuous type.</li> <li>• <b>discrete</b>: The hyperparameter is of the discrete type.</li> </ul>
lower_bound	No	String	Lower bound of the hyperparameter.
upper_bound	No	String	Upper bound of the hyperparameter.
discrete_points_num	No	String	Number of discrete points of a continuous hyperparameter.

Parameter	Mandatory	Type	Description
discrete_values	No	String	List of discrete hyperparameter values.

**Table 5-17** algo\_configs

Parameter	Mandatory	Type	Description
name	No	String	Name of the search algorithm.
params	No	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-18** AutoSearchAlgoConfigParameter

Parameter	Mandatory	Type	Description
key	No	String	Parameter key.
value	No	String	Parameter value.
type	No	String	Parameter type.

## Response Parameters

Status code: 201

**Table 5-19** Response body parameters

Parameter	Type	Description
metadata	<a href="#">metadata</a> object	Algorithm metadata, which describes basic algorithm information.
job_config	<a href="#">job_config</a> object	Algorithm configuration, such as the boot file.
resource_requirements	Array of <a href="#">resource_requirements</a> objects	Algorithm resource constraint. You can disable this function by not setting this parameter.
advanced_config	<a href="#">advanced_config</a> object	Advanced algorithm configuration. Currently, <b>autosearch</b> is supported.

**Table 5-20** metadata

Parameter	Type	Description
id	Integer	Algorithm UUID. You do not need to set this parameter when creating an algorithm.
name	String	Algorithm name. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
description	String	Algorithm description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
workspace_id	String	Workspace where a specified algorithm is located. The default value is <b>0</b> .
ai_project	String	AI project to which a specified algorithm belongs. The default value is <b>default-ai-project</b> .
user_name	String	Username.
domain_id	String	Domain ID of a user.
source	String	Algorithm source.
api_version	String	Algorithm API version, which identifies the old and new ones.
is_valid	String	Algorithm availability.
state	String	Algorithm state.
tags	Array of Map<String,String> objects	Algorithm tags.
attr_list	Array of strings	Algorithm attribute list.
version_num	Integer	Number of algorithm versions. The default value is <b>0</b> .
size	Integer	Algorithm size.
create_time	Long	Timestamp when the algorithm is created.
update_time	Long	Timestamp when the algorithm is updated.

**Table 5-21** job\_config

Parameter	Type	Description
code_dir	String	Algorithm code directory, for example, <code>**/usr/app/**</code> . This parameter must be used together with <b>boot_file</b> .
boot_file	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> .
command	String	Container startup command of a custom image algorithm.
parameters	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	Array of <b>outputs</b> objects	Data output of an algorithm.
engine	<b>engine</b> object	Algorithm engine.
code_tree	Array of <b>code_tree</b> objects	Algorithm directory tree.
parameters_customization	Boolean	Whether the algorithm allows hyperparameter customization during training job creation.

**Table 5-22** Parameter

Parameter	Type	Description
name	String	Parameter name.
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
internationalization	<b>internationalization</b> object	Internationalization description.

**Table 5-23** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-24** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-25** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
remote_constraints	Array of <a href="#">remote_constraints</a> objects	Data input constraint.

**Table 5-26** remote\_constraints

Parameter	Type	Description
data_type	String	Data input type, including the data storage location.

**Table 5-27** outputs

Parameter	Type	Description
name	String	Name of the data output channel.

Parameter	Type	Description
description	String	Description of the data output channel.

**Table 5-28** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for an algorithm.
engine_name	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-29** code\_tree

Parameter	Type	Description
name	String	Name of the current directory in the algorithm directory tree.
children	Object	Subfiles and subdirectories in the current directory of the algorithm directory tree.

**Table 5-30** resource\_requirements

Parameter	Type	Description
key	String	Resource constraint. Options: <b>flavor_type</b> : flavor type. The value can be <b>CPU</b> or <b>GPU</b> . <b>device_distributed_mode</b> : whether to support multi-device training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported). <b>host_distributed_mode</b> : whether to support distributed training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).
value	Array of strings	Value of the resource constraint key.

Parameter	Type	Description
operator	String	Relationship between keys and values. Currently, only <b>in</b> is supported. For example: <b>flavor_type</b> in [CPU,GPU].

**Table 5-31** advanced\_config

Parameter	Type	Description
auto_search	<a href="#">auto_search</a> object	Hyperparameter search policy.

**Table 5-32** auto\_search

Parameter	Type	Description
skip_search_params	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-33** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-34** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The hyperparameter is of the continuous type.</li> <li>• <b>discrete</b>: The hyperparameter is of the discrete type.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.
discrete_values	String	List of discrete hyperparameter values.

**Table 5-35** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-36** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

## Example Requests

The following shows how to create an algorithm whose name is **TestModelArtsAlgorithm** and description is **This is a ModelArts algorithm**.

```
POST https://endpoint/v2/{project_id}/algorithms
{
```



```

"metadata": {
  "name": "TestModelArtsalgorithm",
  "description": "This is a ModelArts algorithm",
  "tags": []
},
"job_config": {
  "code_dir": "/algo-test/pytorch/work1/code/",
  "boot_file": "/algo-test/pytorch/work1/code/test-pytorch.py",
  "parameters": [ {
    "name": "test-parameter",
    "value": "10",
    "constraint": {
      "type": "String",
      "editable": true,
      "required": false,
      "sensitive": false,
      "valid_type": "None",
      "valid_range": []
    }
  }
],
"parameters_customization": true,
"inputs": [ {
  "name": "data_url",
  "description": "data source."
} ],
"outputs": [ {
  "name": "train_url",
  "description": "model output."
} ],
"engine": {
  "engine_name": "PyTorch",
  "engine_version": "PyTorch-1.3.0-python3.6"
}
}
}

```

## Example Responses

**Status code: 201**

ok

```

{
  "metadata": {
    "id": "2e5451fe-913f-4492-821a-2981031382f7",
    "name": "TestModelArtsalgorithm",
    "description": "This is a ModelArts algorithm",
    "create_time": 1636600721742,
    "workspace_id": "0",
    "ai_project": "default-ai-project",
    "user_name": "",
    "domain_id": "xxxxxxxxxxxxxxxxxxxxxxxxxxxx",
    "source": "custom",
    "api_version": "",
    "is_valid": true,
    "state": "",
    "size": 4791,
    "tags": [],
    "attr_list": null,
    "version_num": 0,
    "update_time": 0
  },
  "share_info": { },
  "job_config": {
    "code_dir": "/algo-test/pytorch/work1/code/",
    "boot_file": "/algo-test/pytorch/work1/code/test-pytorch.py",
    "command": "",
    "parameters": [ {
      "name": "test-parameter",

```

```

"description" : "",
"i18n_description" : null,
"value" : "10",
"constraint" : {
  "type" : "String",
  "editable" : true,
  "required" : false,
  "sensitive" : false,
  "valid_type" : "None",
  "valid_range" : []
}
}],
"parameters_customization" : true,
"inputs" : [ {
  "name" : "data_url",
  "description" : "name to translate"
} ],
"outputs" : [ {
  "name" : "train_url",
  "description" : "name to translate"
} ],
"engine" : {
  "engine_id" : "pytorch-cp36-1.3.0",
  "engine_name" : "PyTorch",
  "engine_version" : "PyTorch-1.3.0-python3.6",
  "v1_compatible" : true,
  "run_user" : "",
  "image_info" : {
    "cpu_image_url" : "modelarts-job-dev-image/pytorch-cpu-cp36:1.3.0",
    "gpu_image_url" : "modelarts-job-dev-image/pytorch-gpu-cuda10-cp36:1.3.0",
    "image_version" : "3.1.0"
  }
},
"code_tree" : {
  "name" : "code/",
  "children" : [ {
    "name" : "test-pytorch.py"
  } ]
}
},
"resource_requirements" : null,
"advanced_config" : { }
}

```

## Status Codes

Status Code	Description
201	ok

## Error Codes

See [Error Codes](#).

## 5.1.2 Querying the Algorithm List

### Function

This API is used to query the algorithm list.

## URI

GET /v2/{project\_id}/algorithms

**Table 5-37** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

**Table 5-38** Query Parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for querying algorithms. The minimum value is <b>0</b> . For example, if this parameter is set to <b>1</b> , the query starts from the second one.
limit	No	Integer	Limit of algorithms to be queried. The value ranges from 1 to 50.
sort_by	No	String	Metric for sorting algorithms to be queried. <b>create_time</b> is used by default.
order	No	String	Order of queried algorithms. The default value is <b>desc</b> , indicating that queried algorithms are sorted in descending order. You can also set this parameter to <b>asc</b> , indicating the ascending order.
group_by	No	String	Condition for grouping the algorithms to be queried.
searches	No	String	Filter criteria for algorithms to be queried, for example, fuzzy match by the algorithm name.
workspace_id	No	String	Workspace ID

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 5-39** Response body parameters

Parameter	Type	Description
total	Integer	Total number of queried algorithms of the current user.
count	Integer	Total number of algorithms that meet the search criteria of the current user.
limit	Integer	Maximum number of queried algorithms of the current user.
offset	Integer	Offset of all algorithm queries of the current user.
sort_by	String	Fields used to sort queried algorithms of the current user.
order	String	Sorting mode of queried algorithms of the current user. The default value is <b>desc</b> , indicating the descending order. You can also set this parameter to <b>asc</b> , indicating the ascending order.
group_by	String	Grouping mode of queried algorithms of the current user.
items	Array of <a href="#">AlgorithmResponse</a> objects	Details about all algorithms that meet the search criteria of the current user.

**Table 5-40** AlgorithmResponse

Parameter	Type	Description
metadata	<a href="#">metadata</a> object	Algorithm metadata, which describes basic algorithm information.
job_config	<a href="#">job_config</a> object	Algorithm configuration, such as the boot file.
resource_requirements	Array of <a href="#">resource_requirements</a> objects	Algorithm resource constraint. You can disable this function by not setting this parameter.
advanced_config	<a href="#">advanced_config</a> object	Advanced algorithm configuration. Currently, <b>autosearch</b> is supported.

**Table 5-41** metadata

Parameter	Type	Description
id	Integer	Algorithm UUID. You do not need to set this parameter when creating an algorithm.
name	String	Algorithm name. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
description	String	Algorithm description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
workspace_id	String	Workspace where a specified algorithm is located. The default value is <b>0</b> .
ai_project	String	AI project to which a specified algorithm belongs. The default value is <b>default-ai-project</b> .
user_name	String	Username.
domain_id	String	Domain ID of a user.
source	String	Algorithm source.
api_version	String	Algorithm API version, which identifies the old and new ones.
is_valid	String	Algorithm availability.
state	String	Algorithm state.
tags	Array of Map<String,String> objects	Algorithm tags.
attr_list	Array of strings	Algorithm attribute list.
version_num	Integer	Number of algorithm versions. The default value is <b>0</b> .
size	Integer	Algorithm size.
create_time	Long	Timestamp when the algorithm is created.
update_time	Long	Timestamp when the algorithm is updated.

**Table 5-42** job\_config

Parameter	Type	Description
code_dir	String	Algorithm code directory, for example, <code>**/usr/app/**</code> . This parameter must be used together with <b>boot_file</b> .
boot_file	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> .
command	String	Container startup command of a custom image algorithm.
parameters	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	Array of <b>outputs</b> objects	Data output of an algorithm.
engine	<b>engine</b> object	Algorithm engine.
code_tree	Array of <b>code_tree</b> objects	Algorithm directory tree.
parameters_customization	Boolean	Whether the algorithm allows hyperparameter customization during training job creation.

**Table 5-43** Parameter

Parameter	Type	Description
name	String	Parameter name.
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
i18n_description	<b>i18n_description</b> object	Internationalization description.

**Table 5-44** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-45** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-46** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
remote_constraints	Array of <a href="#">remote_constraints</a> objects	Data input constraint.

**Table 5-47** remote\_constraints

Parameter	Type	Description
data_type	String	Data input type, including the data storage location.

**Table 5-48** outputs

Parameter	Type	Description
name	String	Name of the data output channel.

Parameter	Type	Description
description	String	Description of the data output channel.

**Table 5-49** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for an algorithm.
engine_name	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-50** code\_tree

Parameter	Type	Description
name	String	Name of the current directory in the algorithm directory tree.
children	Object	Subfiles and subdirectories in the current directory of the algorithm directory tree.

**Table 5-51** resource\_requirements

Parameter	Type	Description
key	String	Resource constraint. Options: <b>flavor_type</b> : flavor type. The value can be <b>CPU</b> or <b>GPU</b> . <b>device_distributed_mode</b> : whether to support multi-device training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported). <b>host_distributed_mode</b> : whether to support distributed training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).
value	Array of strings	Value of the resource constraint key.



Parameter	Type	Description
operator	String	Relationship between keys and values. Currently, only <b>in</b> is supported. For example: <b>flavor_type</b> in [CPU,GPU].

**Table 5-52** advanced\_config

Parameter	Type	Description
auto_search	<a href="#">auto_search</a> object	Hyperparameter search policy.

**Table 5-53** auto\_search

Parameter	Type	Description
skip_search_params	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-54** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-55** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The hyperparameter is of the continuous type.</li> <li>• <b>discrete</b>: The hyperparameter is of the discrete type.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.
discrete_values	String	List of discrete hyperparameter values.

**Table 5-56** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-57** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

## Example Requests

The following shows how to query all algorithms in jobs whose names contain **TestModelArtsAlgorithm** and maximum number of algorithms is set to **1**.

```
GET https://endpoint/v2/{project_id}/algorithms?limit=1&searches=name%3ATestModelArtsAlgorithm
```

## Example Responses

Status code: 200

ok

```
{
  "total": 1,
  "count": 1,
  "limit": 1,
  "offset": 0,
  "sort_by": "create_time",
  "order": "desc",
  "group_by": "",
  "items": [ {
    "metadata": {
      "id": "2e5451fe-913f-4492-821a-2981031382f7",
      "name": "TestModelArtsalgorithm",
      "description": "This is a ModelArts algorithm",
      "create_time": 1636600721742,
      "workspace_id": "0",
      "ai_project": "default-ai-project",
      "user_name": "",
      "domain_id": "xxxxxxxxxxxxxxxxxxxxxxxxxxxx",
      "source": "custom",
      "api_version": "",
      "is_valid": true,
      "state": "",
      "size": 4791,
      "tags": [ ],
      "attr_list": null,
      "version_num": 0,
      "update_time": 0
    },
    "share_info": { },
    "job_config": {
      "code_dir": "/algo-test/pytorch/work1/code/",
      "boot_file": "/algo-test/pytorch/work1/code/test-pytorch.py",
      "command": "",
      "parameters": [ {
        "name": "test-parameter",
        "description": "",
        "i18n_description": null,
        "value": "10",
        "constraint": {
          "type": "String",
          "editable": true,
          "required": false,
          "sensitive": false,
          "valid_type": "None",
          "valid_range": [ ]
        }
      }
    ],
    "parameters_customization": true,
    "inputs": [ {
      "name": "data_url",
      "description": "name to translate"
    }
  ],
    "outputs": [ {
      "name": "train_url",
      "description": "name to translate"
    }
  ],
    "engine": {
      "engine_id": "pytorch-cp36-1.3.0",
      "engine_name": "PyTorch",
      "engine_version": "PyTorch-1.3.0-python3.6",
      "v1_compatible": true,
      "run_user": "",
      "image_info": {
```

```

    "cpu_image_url" : "modelarts-job-dev-image/pytorch-cpu-cp36:1.3.0",
    "gpu_image_url" : "modelarts-job-dev-image/pytorch-gpu-cuda10-cp36:1.3.0",
    "image_version" : "3.1.0"
  }
},
"code_tree" : {
  "name" : "code/",
  "children" : [ {
    "name" : "test-pytorch.py"
  } ]
}
},
"resource_requirements" : null,
"advanced_config" : { }
} ]
}

```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.1.3 Querying Algorithm Details

### Function

This API is used to query a specified algorithm based on the algorithm ID.

### URI

GET /v2/{project\_id}/algorithms/{algorithm\_id}

**Table 5-58** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
algorithm_id	Yes	String	Algorithm ID.

### Request Parameters

None

### Response Parameters

**Status code: 200**

**Table 5-59** Response body parameters

Parameter	Type	Description
metadata	<a href="#">metadata</a> object	Algorithm metadata, which describes basic algorithm information.
job_config	<a href="#">job_config</a> object	Algorithm configuration, such as the boot file.
resource_requirements	Array of <a href="#">resource_requirements</a> objects	Algorithm resource constraint. You can disable this function by not setting this parameter.
advanced_config	<a href="#">advanced_config</a> object	Advanced algorithm configuration. Currently, <b>autosearch</b> is supported.

**Table 5-60** metadata

Parameter	Type	Description
id	Integer	Algorithm UUID. You do not need to set this parameter when creating an algorithm.
name	String	Algorithm name. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
description	String	Algorithm description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
workspace_id	String	Workspace where a specified algorithm is located. The default value is <b>0</b> .
ai_project	String	AI project to which a specified algorithm belongs. The default value is <b>default-ai-project</b> .
user_name	String	Username.
domain_id	String	Domain ID of a user.
source	String	Algorithm source.
api_version	String	Algorithm API version, which identifies the old and new ones.
is_valid	String	Algorithm availability.
state	String	Algorithm state.
tags	Array of Map<String,String> objects	Algorithm tags.

Parameter	Type	Description
attr_list	Array of strings	Algorithm attribute list.
version_num	Integer	Number of algorithm versions. The default value is <b>0</b> .
size	Integer	Algorithm size.
create_time	Long	Timestamp when the algorithm is created.
update_time	Long	Timestamp when the algorithm is updated.

**Table 5-61** job\_config

Parameter	Type	Description
code_dir	String	Algorithm code directory, for example, <b>**/usr/app/**</b> . This parameter must be used together with <b>boot_file</b> .
boot_file	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <b>**/usr/app/boot.py**</b> . This parameter must be used together with <b>code_dir</b> .
command	String	Container startup command of a custom image algorithm.
parameters	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	Array of <b>outputs</b> objects	Data output of an algorithm.
engine	<b>engine</b> object	Algorithm engine.
code_tree	Array of <b>code_tree</b> objects	Algorithm directory tree.
parameters_c ustomization	Boolean	Whether the algorithm allows hyperparameter customization during training job creation.

**Table 5-62** Parameter

Parameter	Type	Description
name	String	Parameter name.
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
i18n_description	<b>i18n_description</b> object	Internationalization description.

**Table 5-63** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-64** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-65** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
remote_constraints	Array of <b>remote_constraints</b> objects	Data input constraint.

**Table 5-66** remote\_constraints

Parameter	Type	Description
data_type	String	Data input type, including the data storage location.

**Table 5-67** outputs

Parameter	Type	Description
name	String	Name of the data output channel.
description	String	Description of the data output channel.

**Table 5-68** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for an algorithm.
engine_name	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-69** code\_tree

Parameter	Type	Description
name	String	Name of the current directory in the algorithm directory tree.
children	Object	Subfiles and subdirectories in the current directory of the algorithm directory tree.



**Table 5-70** resource\_requirements

Parameter	Type	Description
key	String	Resource constraint. Options: <b>flavor_type</b> : flavor type. The value can be <b>CPU</b> or <b>GPU</b> . <b>device_distributed_mode</b> : whether to support multi-device training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported). <b>host_distributed_mode</b> : whether to support distributed training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).
value	Array of strings	Value of the resource constraint key.
operator	String	Relationship between keys and values. Currently, only <b>in</b> is supported. For example: <b>flavor_type</b> in [CPU,GPU].

**Table 5-71** advanced\_config

Parameter	Type	Description
auto_search	<a href="#">auto_search</a> object	Hyperparameter search policy.

**Table 5-72** auto\_search

Parameter	Type	Description
skip_search_parameters	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_parameters	Array of <a href="#">search_parameters</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-73** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-74** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The hyperparameter is of the continuous type.</li> <li>• <b>discrete</b>: The hyperparameter is of the discrete type.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_point_s_num	String	Number of discrete points of a continuous hyperparameter.
discrete_value_s	String	List of discrete hyperparameter values.

**Table 5-75** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-76** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

## Example Requests

The following shows how to query the algorithm whose UUID is **2e5451fe-913f-4492-821a-2981031382f7**.

```
GET https://endpoint/v2/{project_id}/algorithms/2e5451fe-913f-4492-821a-2981031382f7
```

## Example Responses

**Status code: 200**

ok

```
{
  "metadata": {
    "id": "2e5451fe-913f-4492-821a-2981031382f7",
    "name": "TestModelArtsalgorithm",
    "description": "This is a ModelArts algorithm",
    "create_time": 1636600721742,
    "workspace_id": "0",
    "ai_project": "default-ai-project",
    "user_name": "",
    "domain_id": "xxxxxxxxxxxxxxxxxxxxxxxxxxxx",
    "source": "custom",
    "api_version": "",
    "is_valid": true,
    "state": "",
    "size": 4791,
    "tags": [],
    "attr_list": null,
    "version_num": 0,
    "update_time": 0
  },
  "share_info": {},
  "job_config": {
    "code_dir": "/algo-test/pytorch/work1/code/",
    "boot_file": "/algo-test/pytorch/work1/code/test-pytorch.py",
    "command": "",
    "parameters": [ {
      "name": "test-parameter",
      "description": "",
      "i18n_description": null,
      "value": "10",
      "constraint": {
        "type": "String",
        "editable": true,
        "required": false,
        "sensitive": false,
        "valid_type": "None",
        "valid_range": []
      }
    }
  ],
  "parameters_customization": true,
  "inputs": [ {
```

```

"name": "data_url",
"description": "name to translate"
}],
"outputs": [{
"name": "train_url",
"description": "name to translate"
}],
"engine": {
"engine_id": "pytorch-cp36-1.3.0",
"engine_name": "PyTorch",
"engine_version": "PyTorch-1.3.0-python3.6",
"v1_compatible": true,
"run_user": "",
"image_info": {
"cpu_image_url": "modelarts-job-dev-image/pytorch-cpu-cp36:1.3.0",
"gpu_image_url": "modelarts-job-dev-image/pytorch-gpu-cuda10-cp36:1.3.0",
"image_version": "3.1.0"
}
},
"code_tree": {
"name": "code/",
"children": [{
"name": "test-pytorch.py"
}]
}
},
"resource_requirements": null,
"advanced_config": {}
}

```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.1.4 Modifying an Algorithm

### Function

This API is used to modify an algorithm.

### URI

PUT /v2/{project\_id}/algorithms/{algorithm\_id}

**Table 5-77** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

Parameter	Mandatory	Type	Description
algorithm_id	Yes	String	Algorithm ID.

## Request Parameters

**Table 5-78** Request body parameters

Parameter	Mandatory	Type	Description
metadata	No	<b>metadata</b> object	Algorithm metadata, which describes basic algorithm information.
job_config	No	<b>job_config</b> object	Algorithm configuration, such as the boot file.
resource_requirements	No	Array of <b>resource_requirements</b> objects	Algorithm resource constraint. You can disable this function by not setting this parameter.
advanced_config	No	<b>advanced_config</b> object	Advanced algorithm configuration. Currently, <b>autosearch</b> is supported.

**Table 5-79** metadata

Parameter	Mandatory	Type	Description
id	No	Integer	Algorithm UUID. You do not need to set this parameter when creating an algorithm.
name	Yes	String	Algorithm name. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
description	No	String	Algorithm description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
workspace_id	No	String	Workspace where a specified algorithm is located. The default value is <b>0</b> .

Parameter	Mandatory	Type	Description
ai_project	No	String	AI project to which a specified algorithm belongs. The default value is <b>default-ai-project</b> .

**Table 5-80** job\_config

Parameter	Mandatory	Type	Description
code_dir	No	String	Algorithm code directory, for example, <code>**/usr/app/**</code> . This parameter must be used together with <b>boot_file</b> .
boot_file	No	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> .
command	No	String	Container startup command of a custom image algorithm.
parameters	No	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	No	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	No	Array of <b>outputs</b> objects	Data output of an algorithm.
engine	No	<b>engine</b> object	Algorithm engine.
parameters_customization	No	Boolean	Whether the algorithm allows hyperparameter customization during training job creation.

**Table 5-81** Parameter

Parameter	Mandatory	Type	Description
name	No	String	Parameter name.
value	No	String	Parameter value.
description	No	String	Parameter description.

Parameter	Mandatory	Type	Description
constraint	No	<b>constraint</b> object	Parameter constraint.
i18n_description	No	<b>i18n_description</b> object	Internationalization description.

**Table 5-82** constraint

Parameter	Mandatory	Type	Description
type	No	String	Parameter type.
editable	No	Boolean	Whether the parameter is editable.
required	No	Boolean	Whether the parameter is mandatory.
sensitive	No	Boolean	Whether the parameter is sensitive.
valid_type	No	String	Valid type.
valid_range	No	Array of strings	Valid range.

**Table 5-83** i18n\_description

Parameter	Mandatory	Type	Description
language	No	String	Internationalization language.
description	No	String	Description.

**Table 5-84** inputs

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data input channel.
description	No	String	Description of the data input channel.
remote_constraints	No	Array of <b>remote_constraints</b> objects	Data input constraint.

**Table 5-85** remote\_constraints

Parameter	Mandatory	Type	Description
data_type	No	String	Data input type, including the data storage location.

**Table 5-86** outputs

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data output channel.
description	No	String	Description of the data output channel.

**Table 5-87** engine

Parameter	Mandatory	Type	Description
engine_id	No	String	Engine ID selected for an algorithm.
engine_name	No	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	No	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	No	String	Custom image URL selected by an algorithm.



**Table 5-88** resource\_requirements

Parameter	Mandatory	Type	Description
key	No	String	Resource constraint. The options are as follows: <ul style="list-style-type: none"> <li>• <b>flavor_type</b>: flavor type. The value can be <b>CPU</b> or <b>GPU</b>.</li> <li>• <b>device_distributed_mode</b>: whether to support multi-device training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).</li> <li>• <b>host_distributed_mode</b>: whether to support distributed training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).</li> </ul>
values	No	Array of strings	Value of the resource constraint key.
operator	No	String	Relationship between keys and values. Currently, only <b>in</b> is supported. For example: <b>flavor_type</b> in [CPU,GPU].

**Table 5-89** advanced\_config

Parameter	Mandatory	Type	Description
auto_search	No	<a href="#">auto_search</a> object	Hyperparameter search policy.

**Table 5-90** auto\_search

Parameter	Mandatory	Type	Description
skip_search_params	No	String	Hyperparameter parameters that need to be skipped.
reward_attrs	No	Array of <a href="#">reward_attrs</a> objects	List of search metrics.

Parameter	Mandatory	Type	Description
search_params	No	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	No	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-91** reward\_attrs

Parameter	Mandatory	Type	Description
name	No	String	Metric name.
mode	No	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	No	String	Regular expression of a metric.

**Table 5-92** search\_params

Parameter	Mandatory	Type	Description
name	No	String	Hyperparameter name.
param_type	No	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The hyperparameter is of the continuous type.</li> <li>• <b>discrete</b>: The hyperparameter is of the discrete type.</li> </ul>
lower_bound	No	String	Lower bound of the hyperparameter.
upper_bound	No	String	Upper bound of the hyperparameter.
discrete_points_num	No	String	Number of discrete points of a continuous hyperparameter.

Parameter	Mandatory	Type	Description
discrete_values	No	String	List of discrete hyperparameter values.

**Table 5-93** algo\_configs

Parameter	Mandatory	Type	Description
name	No	String	Name of the search algorithm.
params	No	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-94** AutoSearchAlgoConfigParameter

Parameter	Mandatory	Type	Description
key	No	String	Parameter key.
value	No	String	Parameter value.
type	No	String	Parameter type.

## Response Parameters

Status code: 201

**Table 5-95** Response body parameters

Parameter	Type	Description
metadata	<a href="#">metadata</a> object	Algorithm metadata, which describes basic algorithm information.
job_config	<a href="#">job_config</a> object	Algorithm configuration, such as the boot file.
resource_requirements	Array of <a href="#">resource_requirements</a> objects	Algorithm resource constraint. You can disable this function by not setting this parameter.
advanced_config	<a href="#">advanced_config</a> object	Advanced algorithm configuration. Currently, <b>autosearch</b> is supported.

**Table 5-96** metadata

Parameter	Type	Description
id	Integer	Algorithm UUID. You do not need to set this parameter when creating an algorithm.
name	String	Algorithm name. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
description	String	Algorithm description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
workspace_id	String	Workspace where a specified algorithm is located. The default value is <b>0</b> .
ai_project	String	AI project to which a specified algorithm belongs. The default value is <b>default-ai-project</b> .
user_name	String	Username.
domain_id	String	Domain ID of a user.
source	String	Algorithm source.
api_version	String	Algorithm API version, which identifies the old and new ones.
is_valid	String	Algorithm availability.
state	String	Algorithm state.
tags	Array of Map<String,String> objects	Algorithm tags.
attr_list	Array of strings	Algorithm attribute list.
version_num	Integer	Number of algorithm versions. The default value is <b>0</b> .
size	Integer	Algorithm size.
create_time	Long	Timestamp when the algorithm is created.
update_time	Long	Timestamp when the algorithm is updated.

**Table 5-97** job\_config

Parameter	Type	Description
code_dir	String	Algorithm code directory, for example, <code>**/usr/app/**</code> . This parameter must be used together with <b>boot_file</b> .
boot_file	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> .
command	String	Container startup command of a custom image algorithm.
parameters	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	Array of <b>outputs</b> objects	Data output of an algorithm.
engine	<b>engine</b> object	Algorithm engine.
code_tree	Array of <b>code_tree</b> objects	Algorithm directory tree.
parameters_customization	Boolean	Whether the algorithm allows hyperparameter customization during training job creation.

**Table 5-98** Parameter

Parameter	Type	Description
name	String	Parameter name.
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
i18n_description	<b>i18n_description</b> object	Internationalization description.

**Table 5-99** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-100** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-101** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
remote_constraints	Array of <a href="#">remote_constraints</a> objects	Data input constraint.

**Table 5-102** remote\_constraints

Parameter	Type	Description
data_type	String	Data input type, including the data storage location.

**Table 5-103** outputs

Parameter	Type	Description
name	String	Name of the data output channel.

Parameter	Type	Description
description	String	Description of the data output channel.

**Table 5-104** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for an algorithm.
engine_name	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-105** code\_tree

Parameter	Type	Description
name	String	Name of the current directory in the algorithm directory tree.
children	Object	Subfiles and subdirectories in the current directory of the algorithm directory tree.

**Table 5-106** resource\_requirements

Parameter	Type	Description
key	String	Resource constraint. Options: <b>flavor_type</b> : flavor type. The value can be <b>CPU</b> or <b>GPU</b> . <b>device_distributed_mode</b> : whether to support multi-device training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported). <b>host_distributed_mode</b> : whether to support distributed training. The value can be <b>multiple</b> (supported) or <b>singular</b> (not supported).
value	Array of strings	Value of the resource constraint key.

Parameter	Type	Description
operator	String	Relationship between keys and values. Currently, only <b>in</b> is supported. For example: <b>flavor_type</b> in [CPU,GPU].

**Table 5-107** advanced\_config

Parameter	Type	Description
auto_search	<a href="#">auto_search</a> object	Hyperparameter search policy.

**Table 5-108** auto\_search

Parameter	Type	Description
skip_search_params	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-109** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.



**Table 5-110** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The hyperparameter is of the continuous type.</li> <li>• <b>discrete</b>: The hyperparameter is of the discrete type.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.
discrete_values	String	List of discrete hyperparameter values.

**Table 5-111** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-112** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

## Example Requests

The following shows how to modify the algorithm whose UUID is **2e5451fe-913f-4492-821a-2981031382f7**.

```
PUT https://endpoint/v2/{project_id}/algorithms/2e5451fe-913f-4492-821a-2981031382f7
{
```

```

"metadata": {
  "name": "TestModelArtsalgorithm",
  "description": "This is a ModelArts algorithm modified",
  "tags": []
},
"job_config": {
  "code_dir": "/algo-test/pytorch/work1/code/",
  "boot_file": "/algo-test/pytorch/work1/code/test-pytorch.py",
  "parameters": [ {
    "name": "test-parameter",
    "value": "10",
    "constraint": {
      "type": "String",
      "editable": true,
      "required": false,
      "sensitive": false,
      "valid_type": "None",
      "valid_range": []
    }
  }
],
"parameters_customization": true,
"inputs": [ {
  "name": "data_url",
  "description": "data source."
} ],
"outputs": [ {
  "name": "train_url",
  "description": "model output."
} ],
"engine": {
  "engine_name": "PyTorch",
  "engine_version": "PyTorch-1.3.0-python3.6"
}
}
}

```

## Example Responses

**Status code: 201**

ok

```

{
  "metadata": {
    "id": "2e5451fe-913f-4492-821a-2981031382f7",
    "name": "TestModelArtsalgorithm",
    "description": "This is a ModelArts algorithm modified",
    "create_time": 1636600721742,
    "workspace_id": "0",
    "ai_project": "default-ai-project",
    "user_name": "",
    "domain_id": "xxxxxxxxxxxxxxxxxxxxxxxxxxxx",
    "source": "custom",
    "api_version": "",
    "is_valid": true,
    "state": "",
    "size": 4791,
    "tags": [],
    "attr_list": null,
    "version_num": 0,
    "update_time": 0
  },
  "share_info": { },
  "job_config": {
    "code_dir": "/algo-test/pytorch/work1/code/",
    "boot_file": "/algo-test/pytorch/work1/code/test-pytorch.py",
    "command": "",
    "parameters": [ {
      "name": "test-parameter",

```

```

"description" : "",
"i18n_description" : null,
"value" : "10",
"constraint" : {
  "type" : "String",
  "editable" : true,
  "required" : false,
  "sensitive" : false,
  "valid_type" : "None",
  "valid_range" : []
}
}],
"parameters_customization" : true,
"inputs" : [ {
  "name" : "data_url",
  "description" : "name to translate"
} ],
"outputs" : [ {
  "name" : "train_url",
  "description" : "name to translate"
} ],
"engine" : {
  "engine_id" : "pytorch-cp36-1.3.0",
  "engine_name" : "PyTorch",
  "engine_version" : "PyTorch-1.3.0-python3.6",
  "v1_compatible" : true,
  "run_user" : "",
  "image_info" : {
    "cpu_image_url" : "modelarts-job-dev-image/pytorch-cpu-cp36:1.3.0",
    "gpu_image_url" : "modelarts-job-dev-image/pytorch-gpu-cuda10-cp36:1.3.0",
    "image_version" : "3.1.0"
  }
},
"code_tree" : {
  "name" : "code/",
  "children" : [ {
    "name" : "test-pytorch.py"
  } ]
}
},
"resource_requirements" : null,
"advanced_config" : { }
}

```

## Status Codes

Status Code	Description
201	ok

## Error Codes

See [Error Codes](#).

### 5.1.5 Deleting an Algorithm

#### Function

This API is used to delete an algorithm.

## URI

DELETE /v2/{project\_id}/algorithms/{algorithm\_id}

**Table 5-113** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
algorithm_id	Yes	String	Algorithm ID.

## Request Parameters

None

## Response Parameters

None

## Example Requests

The following shows how to modify the algorithm whose UUID is **2e5451fe-913f-4492-821a-2981031382f7**.

```
DELETE https://endpoint/v2/{project_id}/algorithms/2e5451fe-913f-4492-821a-2981031382f7
```

## Example Responses

**Status code: 202**

No Content

```
null
```

## Status Codes

Status Code	Description
202	No Content

## Error Codes

See [Error Codes](#).

# 5.2 Training Job Management

## 5.2.1 Creating a Training Job

### Function

This API is used to create a training job.

### URI

POST /v2/{project\_id}/training-jobs

**Table 5-114** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

### Request Parameters

**Table 5-115** Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	Training job type, which defaults to <b>job</b> . Options: <ul style="list-style-type: none"> <li>• <b>job</b>: Training job</li> <li>• <b>hetero_job</b>: Heterogeneous job</li> <li>• <b>autosearch_job</b>: Auto search job</li> <li>• <b>mrs_job</b>: MRS job</li> <li>• <b>edge_job</b>: edge job</li> </ul>
metadata	Yes	<a href="#">JobMetadata</a> object	Metadata of a training job.
algorithm	No	<a href="#">JobAlgorithm</a> object	Algorithm for training jobs. The following formats are supported: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
tasks	No	Array of <a href="#">Task</a> objects	List of tasks in heterogeneous training jobs. If this parameter is specified, leave the <b>spec</b> parameter blank.

Parameter	Mandatory	Type	Description
spec	No	<a href="#">spec</a> object	Specifications of a training job. If this parameter is specified, leave the <b>tasks</b> parameter blank.

**Table 5-116** JobMetadata

Parameter	Mandatory	Type	Description
id	No	String	Training job ID, which is generated and returned by ModelArts after the training job is created.
name	Yes	String	Name of a training job. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
workspace_id	No	String	Workspace where a job is located. The default value is <b>0</b> .
description	No	String	Training job description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
create_time	No	Long	Timestamp when a training job is created, in milliseconds. The value is generated and returned by ModelArts after the job is created.
user_name	No	String	Username for creating a training job. The username is generated and returned by ModelArts after the training job is created.
annotations	No	Map<String,String>	Declaration template of a training job. For heterogeneous jobs, the default value of <b>job_template</b> is <b>Template RL</b> . For other jobs, the default value is <b>Template DL</b> .

**Table 5-117** JobAlgorithm

Parameter	Mandatory	Type	Description
id	No	String	Algorithm ID.
name	No	String	Algorithm name. Leave it blank.
code_dir	No	String	Code directory of a training job, for example, <b>/usr/app/</b> . This parameter <b>must be used</b> together with <b>boot_file</b> . If <b>id</b> or <b>subscription_id</b> <b>+item_version_id</b> is set, leave it blank.
boot_file	No	String	Boot file of a training job, which needs to be stored in the code directory, for example, <b>/usr/app/boot.py</b> . This parameter <b>must be used</b> together with <b>code_dir</b> . If <b>id</b> or <b>subscription_id</b> <b>+item_version_id</b> is set, leave it blank.
autosearch_configuration_path	No	String	YAML configuration path of auto search jobs. An OBS URL is required.
autosearch_framework_path	No	String	Framework code directory of auto search jobs. An OBS URL is required.
command	No	String	Command for starting the container of the custom image of a training job in the custom image scenario.
parameters	No	Array of <b>parameters</b> objects	Running parameters of a training job.
policies	No	<b>policies</b> object	Policies supported by jobs, which are used for hyperparameter search.
inputs	No	Array of <b>Input</b> objects	Input of a training job.
outputs	No	Array of <b>Output</b> objects	Output of a training job.

Parameter	Mandatory	Type	Description
engine	No	<b>engine</b> object	Engine of a training job. Leave this parameter blank if the job is created using <b>id</b> of the algorithm management API or <b>subscription_id +item_version_id</b> of the subscription algorithm API.
environments	No	Array of Map<String,String> objects	Environment variables of a training job. The format is <b>key: value</b> . Leave this parameter blank.

**Table 5-118** parameters

Parameter	Mandatory	Type	Description
name	No	String	Parameter name.
value	No	String	Parameter value.
description	No	String	Parameter description.
constraint	No	<b>constraint</b> object	Parameter constraint.
i18n_description	No	<b>i18n_description</b> object	Internationalization description.

**Table 5-119** constraint

Parameter	Mandatory	Type	Description
type	No	String	Parameter type.
editable	No	Boolean	Whether the parameter is editable.
required	No	Boolean	Whether the parameter is mandatory.
sensitive	No	Boolean	Whether the parameter is sensitive.
valid_type	No	String	Valid type.
valid_range	No	Array of strings	Valid range.



**Table 5-120** i18n\_description

Parameter	Mandatory	Type	Description
language	No	String	Internationalization language.
description	No	String	Description.

**Table 5-121** policies

Parameter	Mandatory	Type	Description
auto_search	No	<a href="#">auto_search</a> object	Hyperparameter search configuration.

**Table 5-122** auto\_search

Parameter	Mandatory	Type	Description
skip_search_params	No	String	Hyperparameter parameters that need to be skipped.
reward_attrs	No	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	No	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	No	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-123** reward\_attrs

Parameter	Mandatory	Type	Description
name	No	String	Metric name.
mode	No	String	Search direction. <ul style="list-style-type: none"> <li><b>max</b>: A larger metric value indicates better performance.</li> <li><b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	No	String	Regular expression of a metric.

**Table 5-124** search\_params

Parameter	Mandatory	Type	Description
name	No	String	Hyperparameter name.
param_type	No	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The parameter is a continuous value.</li> <li>• <b>discrete</b>: The parameter is a discrete value.</li> </ul>
lower_bound	No	String	Lower bound of the hyperparameter.
upper_bound	No	String	Upper bound of the hyperparameter.
discrete_points_num	No	String	Number of discrete points of a continuous hyperparameter.
discrete_values	No	Array of strings	List of discrete hyperparameter values.

**Table 5-125** algo\_configs

Parameter	Mandatory	Type	Description
name	No	String	Name of the search algorithm.
params	No	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-126** AutoSearchAlgoConfigParameter

Parameter	Mandatory	Type	Description
key	No	String	Parameter key.
value	No	String	Parameter value.
type	No	String	Parameter type.

**Table 5-127** engine

Parameter	Mandatory	Type	Description
engine_id	No	String	Engine ID selected for a training job. You can set this parameter to <b>engine_id</b> , <b>engine_name + engine_version</b> , or <b>image_url</b> .
engine_name	No	String	Name of the engine selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
engine_version	No	String	Name of the engine version selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
image_url	No	String	Custom image URL selected for a training job.

**Table 5-128** Task

Parameter	Mandatory	Type	Description
role	No	String	Role of a heterogeneous training job. Options: <ul style="list-style-type: none"> <li>• <b>learner</b>: supports GPUs or CPUs.</li> <li>• <b>worker</b>: supports CPUs.</li> </ul>
algorithm	No	<b>algorithm</b> object	Algorithm management and configuration.
task_resource	No	<b>task_resource</b> object	Resource flavors of a training job.

**Table 5-129** algorithm

Parameter	Mandatory	Type	Description
job_config	No	<b>job_config</b> object	Algorithm configuration, such as the boot file.
code_dir	No	String	Algorithm code directory, for example, <b>**/usr/app/**</b> . This parameter must be used together with <b>boot_file</b> .

Parameter	Mandatory	Type	Description
boot_file	No	String	Code boot file of the algorithm, which needs to be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> .
engine	No	<b>engine</b> object	Engine of a heterogeneous job algorithm.
inputs	No	Array of <b>inputs</b> objects	Data input of an algorithm.
outputs	No	Array of <b>outputs</b> objects	Data output of an algorithm.

**Table 5-130** job\_config

Parameter	Mandatory	Type	Description
parameters	No	Array of <b>Parameter</b> objects	Running parameter of an algorithm.
inputs	No	Array of <b>Input</b> objects	Data input of an algorithm.
outputs	No	Array of <b>Output</b> objects	Data output of an algorithm.
engine	No	<b>engine</b> object	Algorithm engine.

**Table 5-131** Parameter

Parameter	Mandatory	Type	Description
name	No	String	Parameter name.
value	No	String	Parameter value.
description	No	String	Parameter description.
constraint	No	<b>constraint</b> object	Parameter constraint.
i18n_description	No	<b>i18n_description</b> object	Internationalization description.

**Table 5-132** constraint

Parameter	Mandatory	Type	Description
type	No	String	Parameter type.
editable	No	Boolean	Whether the parameter is editable.
required	No	Boolean	Whether the parameter is mandatory.
sensitive	No	Boolean	Whether the parameter is sensitive.
valid_type	No	String	Valid type.
valid_range	No	Array of strings	Valid range.

**Table 5-133** i18n\_description

Parameter	Mandatory	Type	Description
language	No	String	Internationalization language.
description	No	String	Description.

**Table 5-134** Input

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data input channel.
description	No	String	Description of the data input channel.
local_dir	No	String	Local directory of the container to which the data input channel is mapped.
remote	Yes	<a href="#">InputDataInfo</a> object	Data input. Options: <ul style="list-style-type: none"> <li>• <b>dataset</b>: Dataset as the data input</li> <li>• <b>obs</b>: OBS path as the data input</li> </ul>
remote_constraint	No	Array of <a href="#">remote_constraint</a> objects	Data input constraint.

**Table 5-135** InputDataInfo

Parameter	Mandatory	Type	Description
dataset	No	<b>dataset</b> object	Dataset as the data input.
obs	No	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-136** dataset

Parameter	Mandatory	Type	Description
id	Yes	String	Dataset ID of a training job.
version_id	Yes	String	Dataset version ID of a training job.
obs_url	No	String	OBS URL of the dataset for a training job, which is automatically parsed by ModelArts based on the dataset ID and dataset version IDs, For example, <b>/usr/data/</b> .

**Table 5-137** obs

Parameter	Mandatory	Type	Description
obs_url	Yes	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-138** remote\_constraint

Parameter	Mandatory	Type	Description
data_type	No	String	Type of the data input.

**Table 5-139** Output

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data output channel.

Parameter	Mandatory	Type	Description
description	No	String	Description of the data output channel.
local_dir	No	String	Local directory of the container to which the data output channel is mapped.
remote	Yes	<b>remote</b> object	Description of the actual data output.

**Table 5-140** remote

Parameter	Mandatory	Type	Description
obs	Yes	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-141** obs

Parameter	Mandatory	Type	Description
obs_url	Yes	String	OBS URL to which data is actually exported.

**Table 5-142** engine

Parameter	Mandatory	Type	Description
engine_id	No	String	Engine ID selected for an algorithm.
engine_name	No	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
engine_version	No	String	Engine version name selected for an algorithm. If <b>engine_id</b> is specified, leave this parameter blank.
image_url	No	String	Custom image URL selected by an algorithm.

**Table 5-143** engine

Parameter	Mandatory	Type	Description
engine_id	No	String	Engine ID of a heterogeneous job, for example, <b>caffe-1.0.0-python2.7</b>
engine_name	No	String	Engine name of a heterogeneous job, for example, <b>Caffe</b>
engine_version	No	String	Engine version of a heterogeneous job.
image_url	No	String	Custom image URL selected by an algorithm.

**Table 5-144** inputs

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data input channel.
description	No	String	Description of the data input channel.
local_dir	No	String	Local directory of the container to which the data input channel is mapped.
remote	Yes	<b>remote</b> object	Data input. Options: <ul style="list-style-type: none"> <li>• <b>dataset</b>: Dataset as the data input</li> <li>• <b>obs</b>: OBS path as the data input</li> </ul>

**Table 5-145** remote

Parameter	Mandatory	Type	Description
obs	No	<b>obs</b> object	OBS in which data input and output stored.



**Table 5-146** obs

Parameter	Mandatory	Type	Description
obs_url	Yes	String	OBS URL of the dataset required by a training job. For example, <code>/usr/data/</code> .

**Table 5-147** outputs

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the data output channel.
description	No	String	Description of the data output channel.
local_dir	No	String	Local directory of the container to which the data output channel is mapped.
remote	Yes	<a href="#">remote</a> object	Description of the actual data output.

**Table 5-148** remote

Parameter	Mandatory	Type	Description
obs	Yes	<a href="#">obs</a> object	OBS to which data is actually exported.

**Table 5-149** obs

Parameter	Mandatory	Type	Description
obs_url	Yes	String	OBS URL to which data is actually exported.

**Table 5-150** task\_resource

Parameter	Mandatory	Type	Description
flavor_id	No	String	Resource flavor ID of a training job.

Parameter	Mandatory	Type	Description
node_count	Yes	Integer	Number of resource replicas selected for a training job. Minimum: 1

Table 5-151 spec

Parameter	Mandatory	Type	Description
resource	No	<a href="#">resource</a> object	Resource flavors of a training job. Select either <b>flavor_id</b> or <b>pool_id+[flavor_id]</b> .
volumes	No	Array of <a href="#">volumes</a> objects	Volumes attached to a training job.
log_export_path	No	<a href="#">log_export_path</a> object	Export path of training job logs.

Table 5-152 resource

Parameter	Mandatory	Type	Description
flavor_id	Yes	String	ID of the resource flavors selected for a training job.
node_count	No	Integer	Number of nodes used for creating a training job in a pool. By default, a single node is used.

Table 5-153 volumes

Parameter	Mandatory	Type	Description
nfs	No	<a href="#">nfs</a> object	Volumes attached in NFS mode.

Table 5-154 nfs

Parameter	Mandatory	Type	Description
nfs_server_path	No	String	NFS server path.

Parameter	Mandatory	Type	Description
local_path	No	String	Path for attaching volumes to the training container.
read_only	No	Boolean	Whether the volumes attached to the container in NFS mode are read-only.

**Table 5-155** log\_export\_path

Parameter	Mandatory	Type	Description
obs_url	No	String	OBS URL for storing training job logs.
host_path	No	String	Path of the host where training job logs are stored.

## Response Parameters

Status code: 201

**Table 5-156** Response body parameters

Parameter	Type	Description
kind	String	Training job type, which defaults to <b>job</b> . Options: <ul style="list-style-type: none"> <li>• <b>job</b>: Training job</li> <li>• <b>hetero_job</b>: Heterogeneous job</li> <li>• <b>autosearch_job</b>: Auto search job</li> <li>• <b>mrs_job</b>: MRS job</li> <li>• <b>edge_job</b>: edge job</li> </ul>
metadata	<b>JobMetadata</b> object	Metadata of a training job.
status	<b>Status</b> object	Status of a training job. You do not need to set this parameter when creating a job.

Parameter	Type	Description
algorithm	<a href="#">JobAlgorithm Response</a> object	Algorithm for training jobs. The following formats are supported: <ul style="list-style-type: none"> <li>● <b>id</b>: Only the algorithm ID is used.</li> <li>● <b>subscription_id+item_version_id</b>: The subscription ID and version ID of the algorithm are used.</li> <li>● <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
tasks	Array of <a href="#">TaskResponse</a> objects	List of tasks in heterogeneous training jobs.
spec	<a href="#">spec</a> object	Specifications of a training job.

**Table 5-157** JobMetadata

Parameter	Type	Description
id	String	Training job ID, which is generated and returned by ModelArts after the training job is created.
name	String	Name of a training job. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
workspace_id	String	Workspace where a job is located. The default value is <b>0</b> .
description	String	Training job description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
create_time	Long	Timestamp when a training job is created, in milliseconds. The value is generated and returned by ModelArts after the job is created.
user_name	String	Username for creating a training job. The username is generated and returned by ModelArts after the training job is created.
annotations	Map<String,String>	Declaration template of a training job. For heterogeneous jobs, the default value of <b>job_template</b> is <b>Template RL</b> . For other jobs, the default value is <b>Template DL</b> .

**Table 5-158** Status

Parameter	Type	Description
phase	String	Level-1 status of a training job. The value is stable. The options are as follows: <b>Creating Pending Running Failed Completed, Terminating Terminated Abnormal</b>
secondary_phase	String	Level-2 status of a training job. The value is unstable. The options are as follows: <b>Creating Queuing Running Failed Completed Terminating Terminated CreateFailed TerminatedFailed Unknown Lost</b>
duration	Long	Running duration of a training job, in milliseconds
node_count_metrics	Array<Array<Integer>>	Node count changes during the training job running period.
tasks	Array of strings	Tasks of a training job.
start_time	String	Start time of a training job. The value is in timestamp format.
task_statuses	Array of <a href="#">task_statuses</a> objects	Status of a training job task.

**Table 5-159** task\_statuses

Parameter	Type	Description
task	String	Name of a training job task.
exit_code	Integer	Exit code of a training job task.
message	String	Error message of a training job task.

**Table 5-160** JobAlgorithmResponse

Parameter	Type	Description
id	String	Algorithm for training jobs. The following formats are supported: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
name	String	Algorithm name.

Parameter	Type	Description
code_dir	String	Code directory of a training job, for example, <code>/usr/app/</code> . This parameter must be used together with <code>boot_file</code> . If <code>id</code> or <code>subscription_id+item_version_id</code> is set, leave it blank.
boot_file	String	Boot file of a training job, which needs to be stored in the code directory, for example, <code>/usr/app/boot.py</code> . This parameter must be used together with <code>code_dir</code> . If <code>id</code> or <code>subscription_id+item_version_id</code> is set, leave it blank.
autosearch_config_path	String	YAML configuration path of auto search jobs. An OBS URL is required.
autosearch_framework_path	String	Framework code directory of auto search jobs. An OBS URL is required.
command	String	Boot command used to start the container of the custom image used by a training job. You can set this parameter to <code>code_dir</code> .
parameters	Array of <a href="#">Parameter</a> objects	Running parameters of a training job.
policies	<a href="#">policies</a> object	Policies supported by jobs.
inputs	Array of <a href="#">Input</a> objects	Input of a training job.
outputs	Array of <a href="#">Output</a> objects	Output of a training job.
engine	<a href="#">engine</a> object	Engine of a training job. Leave this parameter blank if the job is created using <code>id</code> of the algorithm management API or <code>subscription_id+item_version_id</code> of the subscription algorithm API. Leave this parameter blank if the job is created using <code>id</code> of the algorithm in algorithm management.
environments	Array of <code>Map&lt;String,String&gt;</code> objects	Environment variables of a training job. The format is <code>key: value</code> . Leave this parameter blank.

**Table 5-161** Parameter

Parameter	Type	Description
name	String	Parameter name.
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
i18n_description	<b>i18n_description</b> object	Internationalization description.

**Table 5-162** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-163** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-164** policies

Parameter	Type	Description
auto_search	<b>auto_search</b> object	Hyperparameter search configuration.

**Table 5-165** auto\_search

Parameter	Type	Description
skip_search_params	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-166** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-167** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The parameter is a continuous value.</li> <li>• <b>discrete</b>: The parameter is a discrete value.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.



Parameter	Type	Description
discrete_values	Array of strings	List of discrete hyperparameter values.

**Table 5-168** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-169** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

**Table 5-170** Input

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
local_dir	String	Local directory of the container to which the data input channel is mapped.
remote	<a href="#">InputDataInfo</a> object	Data input. Options: <ul style="list-style-type: none"> <li>● <b>dataset</b>: Dataset as the data input</li> <li>● <b>obs</b>: OBS path as the data input</li> </ul>
remote_constraint	Array of <a href="#">remote_constraint</a> objects	Data input constraint.

**Table 5-171** InputDataInfo

Parameter	Type	Description
dataset	<b>dataset</b> object	Dataset as the data input.
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-172** dataset

Parameter	Type	Description
id	String	Dataset ID of a training job.
version_id	String	Dataset version ID of a training job.
obs_url	String	OBS URL of the dataset required by a training job. ModelArts automatically parses and generates the URL based on the dataset and dataset version IDs. For example, <b>/usr/data/</b> .

**Table 5-173** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-174** remote\_constraint

Parameter	Type	Description
data_type	String	Type of the data input.

**Table 5-175** Output

Parameter	Type	Description
name	String	Name of the data output channel.
description	String	Description of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.

**Table 5-176** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-177** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-178** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for a training job. You can set this parameter to <b>engine_id</b> , <b>engine_name + engine_version</b> , or <b>image_url</b> .
engine_name	String	Name of the engine selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
engine_version	String	Name of the engine version selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
image_url	String	Custom image URL selected for a training job.

**Table 5-179** TaskResponse

Parameter	Type	Description
role	String	Role of a heterogeneous training job. Options: <ul style="list-style-type: none"> <li>• <b>learner</b>: supports GPUs or CPUs.</li> <li>• <b>worker</b>: supports CPUs.</li> </ul>
algorithm	<b>algorithm</b> object	Algorithm management and configuration.
task_resource	<b>FlavorResponse</b> object	Flavors of a training job or an algorithm.

**Table 5-180** algorithm

Parameter	Type	Description
code_dir	String	Absolute path of the directory where the algorithm boot file is stored.
boot_file	String	Absolute path of the algorithm boot file.
inputs	<b>inputs</b> object	Algorithm input channel.
outputs	<b>outputs</b> object	Algorithm output channel.
engine	<b>engine</b> object	Engine on which a heterogeneous job depends.

**Table 5-181** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
local_dir	String	Local path of the container to which the data input and output channels are mapped.
remote	<b>remote</b> object	Actual data input. Heterogeneous jobs support only OBS.

**Table 5-182** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-183** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-184** outputs

Parameter	Type	Description
name	String	Name of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.

Parameter	Type	Description
remote	<b>remote</b> object	Description of the actual data output.
mode	String	Data transmission mode. The default value is <b>upload_periodically</b> .
period	String	Data transmission period. The default value is <b>30s</b> .

**Table 5-185** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-186** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-187** engine

Parameter	Type	Description
engine_id	String	Engine ID of a heterogeneous job, for example, <b>caffe-1.0.0-python2.7</b>
engine_name	String	Engine name of a heterogeneous job, for example, <b>Caffe</b>
engine_version	String	Engine version of a heterogeneous job.
v1_compatible	Boolean	Whether the v1 compatibility mode is used.
run_user	String	User UID started by default by the engine.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-188** FlavorResponse

Parameter	Type	Description
flavor_id	String	ID of the resource flavor.

Parameter	Type	Description
flavor_name	String	Name of the resource flavor.
max_num	Integer	Maximum number of nodes in a resource flavor.
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.
attributes	Map<String,String>	Other specification attributes.

**Table 5-189** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-190** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.

**Table 5-191** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-192** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-193** memory

Parameter	Type	Description
size	Integer	Memory size
unit	String	Number of memory units

**Table 5-194** spec

Parameter	Type	Description
resource	<a href="#">Resource</a> object	Resource flavors of a training job. Select either <b>flavor_id</b> or <b>pool_id+[flavor_id]</b> .
volumes	Array of <a href="#">volumes</a> objects	Volumes attached to a training job.
log_export_path	<a href="#">log_export_path</a> object	Export path of training job logs.

**Table 5-195** Resource

Parameter	Type	Description
policy	String	Resource flavor of a training job. Options: <b>regular</b>
flavor_id	String	Resource flavor ID of a training job.
flavor_name	String	Read-only flavor name returned by ModelArts when <b>flavor_id</b> is used.
node_count	Integer	Number of resource replicas selected for a training job. Minimum: <b>1</b>
pool_id	String	Resource pool ID selected for a training job.

Parameter	Type	Description
flavor_detail	<b>flavor_detail</b> object	Flavors of a training job or an algorithm.

**Table 5-196** flavor\_detail

Parameter	Type	Description
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.

**Table 5-197** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-198** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.
disk	<b>disk</b> object	Disk information.



**Table 5-199** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-200** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-201** memory

Parameter	Type	Description
size	Integer	Memory size.
unit	String	Number of memory units.

**Table 5-202** disk

Parameter	Type	Description
size	String	Disk size.
unit	String	Unit of the disk size. Generally, the value is GB.

**Table 5-203** volumes

Parameter	Type	Description
nfs	<b>nfs</b> object	Volumes attached in NFS mode.

**Table 5-204** nfs

Parameter	Type	Description
nfs_server_path	String	NFS server path.

Parameter	Type	Description
local_path	String	Path for attaching volumes to the training container.
read_only	Boolean	Whether the volumes attached to the container in NFS mode are read-only.

**Table 5-205** log\_export\_path

Parameter	Type	Description
obs_url	String	OBS URL for storing training job logs.
host_path	String	Path of the host where training job logs are stored.

## Example Requests

- The following shows how to create a training job named **TestModelArtsJob**. The training job is described as **This is a ModelArts job**, the ID of the dependency algorithm is 3f5d6706-7b67-408d-8ba0-ec08048c45ed, no input or output is specified, and a free GPU flavor is used.

POST https://endpoint/v2/{project\_id}/training-jobs

```
{
  "kind": "job",
  "metadata": {
    "name": "TestModelArtsJob",
    "description": "This is a ModelArts job"
  },
  "algorithm": {
    "id": "3f5d6706-7b67-408d-8ba0-ec08048c45ed",
    "parameters": [ {
      "name": "input_dir",
      "value": "obs://xxx/test/moxingtest-dir/"
    }, {
      "name": "input_file",
      "value": "obs://xxx/test/moxingtest/"
    }, {
      "name": "large_file_method",
      "value": "1"
    } ],
    "inputs": [ ],
    "outputs": [ ],
    "policies": {
      "auto_search": null
    }
  },
  "environments": { }
},
"spec": {
  "resource": {
    "policy": "regular",
    "flavor_id": "modelarts.p3.large.public.free",
    "node_count": 1
  },
  "log_export_path": {
    "obs_url": ""
  }
}
```

- The following shows how to use a custom image to create a training job named **TestModelArtsJob2** described as **This is a ModelArts job2**. The target instance is deployed in a dedicated resource pool and is attached with an NFS.  
POST [https://endpoint/v2/{project\\_id}/training-jobs](https://endpoint/v2/{project_id}/training-jobs)

```
{
  "kind": "job",
  "metadata": {
    "name": "TestModelArtsJob2",
    "description": "This is a ModelArts job2"
  },
  "algorithm": {
    "engine": {
      "image_url": "hwstaff_z00424192/fastseq:1.2"
    },
    "command": "cd /home/ma-user/ddp_demo && sh run_ddp.sh",
    "parameters": [],
    "inputs": [],
    "outputs": [],
    "policies": {
      "auto_search": null
    },
    "environments": {
      "NCCL_DEBUG": "INFO",
      "NCCL_IB_DISABLE": "0"
    }
  },
  "spec": {
    "resource": {
      "policy": "regular",
      "flavor_id": "modelarts.pool.visual.xlarge",
      "node_count": 1,
      "pool_id": "poolfaf38d76"
    },
    "log_export_path": {
      "obs_url": "/xxx-training-test/limou/ddp-demo-log/"
    },
    "volumes": [ {
      "nfs": {
        "nfs_server_path": "192.168.0.82:/",
        "local_path": "/home/ma-user/nfs/",
        "read_only": false
      }
    }
  ]
}
```

## Example Responses

**Status code: 201**

ok

```
{
  "kind": "job",
  "metadata": {
    "id": "425b7087-83de-49ed-9e40-5bb642be956f",
    "name": "TestModelArtsJob",
    "description": "This is a ModelArts job",
    "create_time": 1637045545982,
    "workspace_id": "0",
    "ai_project": "default-ai-project",
    "user_name": ""
  },
  "status": {
```

```

"phase" : "Creating",
"secondary_phase" : "Creating",
"duration" : 0,
"start_time" : 0,
"node_count_metrics" : null,
"tasks" : [ "worker-0", "server-0" ]
},
"algorithm" : {
"id" : "3f5d6706-7b67-408d-8ba0-ec08048c45ed",
"name" : "tst-obs-gpu",
"code_dir" : "/xxx/test/moxingtest-code/",
"boot_file" : "/xxx/test/moxingtest-code/test_obs_gpu.py",
"parameters" : [ {
"name" : "input_dir",
"description" : "",
"i18n_description" : null,
"value" : "s://xxx/test/moxingtest-dir/",
"constraint" : {
"type" : "String",
"editable" : true,
"required" : true,
"sensitive" : false,
"valid_type" : "None",
"valid_range" : [ ]
}
}
], {
"name" : "input_file",
"description" : "",
"i18n_description" : null,
"value" : "obs://xxx/test/moxingtest/",
"constraint" : {
"type" : "String",
"editable" : true,
"required" : true,
"sensitive" : false,
"valid_type" : "None",
"valid_range" : [ ]
}
}
], {
"name" : "large_file_method",
"description" : "",
"i18n_description" : null,
"value" : "1",
"constraint" : {
"type" : "Integer",
"editable" : true,
"required" : true,
"sensitive" : false,
"valid_type" : "None",
"valid_range" : [ ]
}
}
}],
"parameters_customization" : false,
"engine" : {
"engine_id" : "horovod-cp36-tf-1.16.2",
"engine_name" : "Horovod",
"engine_version" : "0.16.2-TF-1.13.1-python3.6",
"usage" : "training",
"support_groups" : "public,roma",
"v1_compatible" : true,
"run_user" : ""
},
"policies" : { }
},
"spec" : {
"resource" : {
"policy" : "regular",
"turbo_range" : [ 1, 2 ],
"flavor_id" : "modelarts.p3.large.public.free",

```

```

"flavor_name" : "Computing GPU(V100) instance",
"node_count" : 1,
"flavor_detail" : {
  "flavor_type" : "GPU",
  "billing" : {
    "code" : "modelarts.vm.gpu.free",
    "unit_num" : 1
  },
  "attributes" : {
    "is_free" : "true",
    "max_free_job_count" : "10"
  },
  "flavor_info" : {
    "cpu" : {
      "arch" : "x86",
      "core_num" : 8
    },
    "gpu" : {
      "unit_num" : 1,
      "product_name" : "NVIDIA-V100",
      "memory" : "32GB"
    },
    "memory" : {
      "size" : 64,
      "unit" : "GB"
    }
  }
},
"log_export_path" : { },
"is_hosted_log" : true
}

```

## Status Codes

Status Code	Description
201	ok

## Error Codes

See [Error Codes](#).

## 5.2.2 Querying the Details About a Training Job

### Function

This API is used to query the details about a training job.

### URI

GET /v2/{project\_id}/training-jobs/{training\_job\_id}

**Table 5-206** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 5-207** Response body parameters

Parameter	Type	Description
kind	String	Training job type, which defaults to <b>job</b> . Options: <ul style="list-style-type: none"> <li>• <b>job</b>: Training job</li> <li>• <b>hetero_job</b>: Heterogeneous job</li> <li>• <b>autosearch_job</b>: Auto search job</li> <li>• <b>mrs_job</b>: MRS job</li> <li>• <b>edge_job</b>: Edge job</li> </ul>
metadata	<a href="#">JobMetadata</a> object	Metadata of a training job.
status	<a href="#">Status</a> object	Status of a training job. You do not need to set this parameter when creating a job.
algorithm	<a href="#">JobAlgorithmResponse</a> object	Algorithm for training jobs. The following formats are supported: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
tasks	Array of <a href="#">TaskResponse</a> objects	List of tasks in heterogeneous training jobs.
spec	<a href="#">spec</a> object	Specifications of a training job.

**Table 5-208** JobMetadata

Parameter	Type	Description
id	String	Training job ID, which is generated and returned by ModelArts after the training job is created.
name	String	Name of a training job. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
workspace_id	String	Workspace where a job is located. The default value is <b>0</b> .
description	String	Training job description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
create_time	Long	Timestamp when a training job is created, in milliseconds. The value is generated and returned by ModelArts after the job is created.
user_name	String	Username for creating a training job. The username is generated and returned by ModelArts after the training job is created.
annotations	Map<String,String>	Declaration template of a training job. For heterogeneous jobs, the default value of <b>job_template</b> is <b>Template RL</b> . For other jobs, the default value is <b>Template DL</b> .

**Table 5-209** Status

Parameter	Type	Description
phase	String	Level-1 status of a training job. The value is stable. The options are as follows: <b>Creating Pending Running Failed Completed, Terminating Terminated Abnormal</b>
secondary_phase	String	Level-2 status of a training job. The value is unstable. The options are as follows: <b>Creating Queuing Running Failed Completed Terminating Terminated CreateFailed TerminatedFailed Unknown Lost</b>
duration	Long	Running duration of a training job, in milliseconds
node_count_metrics	Array<Array<Integer>>	Node count changes during the training job running period.
tasks	Array of strings	Tasks of a training job.

Parameter	Type	Description
start_time	String	Start time of a training job. The value is in timestamp format.
task_statuses	Array of <a href="#">task_statuses</a> objects	Status of a training job task.

**Table 5-210** task\_statuses

Parameter	Type	Description
task	String	Name of a training job task.
exit_code	Integer	Exit code of a training job task.
message	String	Error message of a training job task.

**Table 5-211** JobAlgorithmResponse

Parameter	Type	Description
id	String	Algorithm for training jobs. The following formats are supported: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
name	String	Algorithm name.
code_dir	String	Code directory of a training job, for example, <code>**/usr/app/**</code> . This parameter must be used together with <b>boot_file</b> . If <b>id</b> or <b>subscription_id+item_version_id</b> is set, leave it blank.
boot_file	String	Boot file of a training job, which must be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <b>code_dir</b> . If <b>id</b> or <b>subscription_id+item_version_id</b> is set, leave it blank.
autosearch_config_path	String	YAML configuration path of auto search jobs. An OBS URL is required.
autosearch_framework_path	String	Framework code directory of auto search jobs. An OBS URL is required.



Parameter	Type	Description
command	String	Boot command used to start the container of the custom image used by a training job. You can set this parameter to <b>code_dir</b> .
parameters	Array of <b>Parameter</b> objects	Running parameters of a training job.
policies	<b>policies</b> object	Policies supported by jobs.
inputs	Array of <b>Input</b> objects	Input of a training job.
outputs	Array of <b>Output</b> objects	Output of a training job.
engine	<b>engine</b> object	Engine of a training job. Leave this parameter blank if the job is created using <b>id</b> of the algorithm in algorithm management.
environments	Array of Map<String,String> objects	Environment variables of a training job. The format is <b>key: value</b> . Leave this parameter blank.

**Table 5-212** Parameter

Parameter	Type	Description
name	String	Parameter name.
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
i18n_description	<b>i18n_description</b> object	Internationalization description.

**Table 5-213** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.

Parameter	Type	Description
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-214** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-215** policies

Parameter	Type	Description
auto_search	<a href="#">auto_search</a> object	Hyperparameter search configuration.

**Table 5-216** auto\_search

Parameter	Type	Description
skip_search_parameters	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_parameters	Array of <a href="#">search_parameters</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-217** reward\_attrs

Parameter	Type	Description
name	String	Metric name.

Parameter	Type	Description
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-218** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The parameter is a continuous value.</li> <li>• <b>discrete</b>: The parameter is a discrete value.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.
discrete_values	Array of strings	List of discrete hyperparameter values.

**Table 5-219** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-220** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.

Parameter	Type	Description
value	String	Parameter value.
type	String	Parameter type.

**Table 5-221** Input

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
local_dir	String	Local directory of the container to which the data input channel is mapped.
remote	<b>InputDataInfo</b> object	Data input. Options: <ul style="list-style-type: none"> <li>• <b>dataset</b>: The data input is a dataset.</li> <li>• <b>obs</b>: OBS path as the data input</li> </ul>
remote_constraint	Array of <b>remote_constraint</b> objects	Data input constraint.

**Table 5-222** InputDataInfo

Parameter	Type	Description
dataset	<b>dataset</b> object	Dataset as the data input
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-223** dataset

Parameter	Type	Description
id	String	Dataset ID of a training job
version_id	String	Dataset version ID of a training job
obs_url	String	OBS URL of the dataset for a training job, which is automatically parsed by ModelArts based on the dataset ID and dataset version IDs, For example, <b>/usr/data/</b> .

**Table 5-224** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-225** remote\_constraint

Parameter	Type	Description
data_type	String	Data input type, including the data storage.

**Table 5-226** Output

Parameter	Type	Description
name	String	Name of the data output channel.
description	String	Description of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.

**Table 5-227** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-228** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-229** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for a training job. You can set this parameter to <b>engine_id</b> , <b>engine_name + engine_version</b> , or <b>image_url</b> .

Parameter	Type	Description
engine_name	String	Name of the engine selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
engine_version	String	Name of the engine version selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
image_url	String	Custom image URL selected for a training job.

**Table 5-230** TaskResponse

Parameter	Type	Description
role	String	Role of a heterogeneous training job. Options: <ul style="list-style-type: none"> <li>• <b>learner</b>: supports GPUs or CPUs.</li> <li>• <b>worker</b>: supports CPUs.</li> </ul>
algorithm	<b>algorithm</b> object	Algorithm management and configuration.
task_resource	<b>FlavorResponse</b> object	Flavors of a training job or an algorithm.

**Table 5-231** algorithm

Parameter	Type	Description
code_dir	String	Absolute path of the directory where the algorithm boot file is stored.
boot_file	String	Absolute path of the algorithm boot file.
inputs	<b>inputs</b> object	Algorithm input channel.
outputs	<b>outputs</b> object	Algorithm output channel.
engine	<b>engine</b> object	Engine on which a heterogeneous job depends.

**Table 5-232** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
local_dir	String	Local path of the container to which the data input and output channels are mapped.

Parameter	Type	Description
remote	<b>remote</b> object	Actual data input. Heterogeneous jobs support only OBS.

**Table 5-233** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-234** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-235** outputs

Parameter	Type	Description
name	String	Name of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.
mode	String	Data transmission mode. The default value is <b>upload_periodically</b> .
period	String	Data transmission period. The default value is <b>30s</b> .

**Table 5-236** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-237** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-238** engine

Parameter	Type	Description
engine_id	String	Engine ID of a heterogeneous job, for example, <b>caffe-1.0.0-python2.7</b>
engine_name	String	Engine name of a heterogeneous job, for example, <b>Caffe</b>
engine_version	String	Engine version of a heterogeneous job.
v1_compatible	Boolean	Whether the v1 compatibility mode is used.
run_user	String	User UID started by default by the engine.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-239** FlavorResponse

Parameter	Type	Description
flavor_id	String	ID of the resource flavor.
flavor_name	String	Name of the resource flavor.
max_num	Integer	Maximum number of nodes in a resource flavor.
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.
attributes	Map<String,String>	Other specification attributes.

**Table 5-240** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.



**Table 5-241** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.

**Table 5-242** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-243** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-244** memory

Parameter	Type	Description
size	Integer	Memory size.
unit	String	Number of memory units.

**Table 5-245** spec

Parameter	Type	Description
resource	<b>Resource</b> object	Resource flavors of a training job. Select either <b>flavor_id</b> or <b>pool_id+[flavor_id]</b> .

Parameter	Type	Description
volumes	Array of <b>volumes</b> objects	Volumes attached to a training job.
log_export_path	<b>log_export_path</b> object	Export path of training job logs.

**Table 5-246** Resource

Parameter	Type	Description
policy	String	Resource flavor of a training job. Options: <b>regular</b>
flavor_id	String	Resource flavor ID of a training job.
flavor_name	String	Read-only flavor name returned by ModelArts when <b>flavor_id</b> is used.
node_count	Integer	Number of resource replicas selected for a training job. Minimum: <b>1</b>
pool_id	String	Resource pool ID selected for a training job.
flavor_detail	<b>flavor_detail</b> object	Flavors of a training job or an algorithm.

**Table 5-247** flavor\_detail

Parameter	Type	Description
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.

**Table 5-248** billing

Parameter	Type	Description
code	String	Billing code.

Parameter	Type	Description
unit_num	Integer	Number of billing units.

**Table 5-249** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.
disk	<b>disk</b> object	Disk information.

**Table 5-250** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-251** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-252** memory

Parameter	Type	Description
size	Integer	Memory size.
unit	String	Number of memory units.

**Table 5-253** disk

Parameter	Type	Description
size	String	Disk size.
unit	String	Unit of the disk size. Generally, the value is GB.

**Table 5-254** volumes

Parameter	Type	Description
nfs	<b>nfs</b> object	Volumes attached in NFS mode.

**Table 5-255** nfs

Parameter	Type	Description
nfs_server_path	String	NFS server path.
local_path	String	Path for attaching volumes to the training container.
read_only	Boolean	Whether the volumes attached to the container in NFS mode are read-only.

**Table 5-256** log\_export\_path

Parameter	Type	Description
obs_url	String	OBS URL for storing training job logs.
host_path	String	Path of the host where training job logs are stored.

## Example Requests

The following shows how to query a training job whose UUID is **3faf5c03-aaa1-4cbe-879d-24b05d997347**.

```
GET https://endpoint/v2/{project_id}/training-jobs/3faf5c03-aaa1-4cbe-879d-24b05d997347
```

## Example Responses

**Status code: 200**

ok

```
{
  "kind": "job",
```

```

"metadata": {
  "id": "3faf5c03-aaa1-4cbe-879d-24b05d997347",
  "name": "trainjob--py14_mem06-108",
  "description": "",
  "create_time": 1636447346315,
  "workspace_id": "0",
  "ai_project": "default-ai-project",
  "user_name": ""
},
"status": {
  "phase": "Abnormal",
  "secondary_phase": "CreateFailed",
  "duration": 0,
  "start_time": 0,
  "node_count_metrics": [ [ 1636447746000, 0 ], [ 1636447755000, 0 ], [ 1636447756000, 0 ] ],
  "tasks": [ "worker-0" ]
},
"algorithm": {
  "code_dir": "obs://test/economic_test/py_minist/",
  "boot_file": "obs://test/economic_test/py_minist/minist_common.py",
  "inputs": [ {
    "name": "data_url",
    "local_dir": "/home/ma-user/modelarts/inputs/data_url_0",
    "remote": {
      "obs": {
        "obs_url": "/test/data/py_minist/"
      }
    }
  } ],
  "outputs": [ {
    "name": "train_url",
    "local_dir": "/home/ma-user/modelarts/outputs/train_url_0",
    "remote": {
      "obs": {
        "obs_url": "/test/train_output/"
      }
    }
  } ],
  "mode": "upload_periodically",
  "period": 30
},
"engine": {
  "engine_id": "pytorch-cp36-1.4.0-v2",
  "engine_name": "PyTorch",
  "engine_version": "PyTorch-1.4.0-python3.6-v2",
  "v1_compatible": false,
  "run_user": ""
},
"spec": {
  "resource": {
    "policy": "economic",
    "flavor_id": "modelarts.vm.p100.large.eco",
    "flavor_name": "Computing GPU(P100) instance",
    "node_count": 1,
    "flavor_detail": {
      "flavor_type": "GPU",
      "billing": {
        "code": "modelarts.vm.gpu.p100.eco",
        "unit_num": 1
      }
    }
  },
  "attributes": {
    "is_economic_policy_supported": "true",
    "is_multi_devices_supported": "false",
    "is_multi_nodes_supported": "true"
  },
  "flavor_info": {
    "cpu": {
      "arch": "x86",
      "core_num": 8
    }
  }
}

```

```

    },
    "gpu" : {
      "unit_num" : 1,
      "product_name" : "NVIDIA-P100",
      "memory" : "8GB"
    },
    "memory" : {
      "size" : 64,
      "unit" : "GB"
    }
  }
},
"is_hosted_log" : false
}
}

```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.2.3 Modifying the Description of a Training Job

### Function

This API is used to modify the description of a training job.

### URI

PUT /v2/{project\_id}/training-jobs/{training\_job\_id}

**Table 5-257** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.

## Request Parameters

**Table 5-258** Request body parameters

Parameter	Mandatory	Type	Description
description	No	String	Training job description, which consists of 0 to 256 characters. The default value is <b>NULL</b> .

## Response Parameters

None

## Example Requests

The following shows how to modify a training job whose UUID is **3faf5c03-aaa1-4cbe-879d-24b05d997347**. After the modification is successful, call the [Querying a training job](#) API to view the modified description.

```
PUT https://endpoint/v2/{project_id}/training-jobs/3faf5c03-aaa1-4cbe-879d-24b05d997347
{
  "description" : "hahaha"
}
```

## Example Responses

**Status code: 200**

No Content

```
null
```

## Status Codes

Status Code	Description
200	No Content

## Error Codes

See [Error Codes](#).

## 5.2.4 Deleting a Training Job

### Function

This API is used to delete a training job.

## URI

DELETE /v2/{project\_id}/training-jobs/{training\_job\_id}

**Table 5-259** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.

## Request Parameters

None

## Response Parameters

None

## Example Requests

The following shows how to delete a training job whose UUID is **3faf5c03-aaa1-4cbe-879d-24b05d997347**.

```
DELETE https://endpoint/v2/{project_id}/training-jobs/3faf5c03-aaa1-4cbe-879d-24b05d997347
```

## Example Responses

**Status code: 202**

No Content

```
""
```

## Status Codes

Status Code	Description
202	No Content

## Error Codes

See [Error Codes](#).



## 5.2.5 Terminating a Training Job

### Function

This API is used to terminate a training job. Only jobs in the **Creating**, **Waiting**, or **Running** state can be terminated.

### URI

POST /v2/{project\_id}/training-jobs/{training\_job\_id}/actions

**Table 5-260** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.

### Request Parameters

**Table 5-261** Request body parameters

Parameter	Mandatory	Type	Description
action_type	No	String	Operation performed on a training job. Select <b>terminate</b> to terminate a training job.

### Response Parameters

Status code: 202

**Table 5-262** Response body parameters

Parameter	Type	Description
kind	String	Training job type, which defaults to <b>job</b> . Options: <ul style="list-style-type: none"> <li>• <b>job</b>: Training job</li> <li>• <b>hetero_job</b>: Heterogeneous job</li> <li>• <b>autosearch_job</b>: Auto search job</li> <li>• <b>mrs_job</b>: MRS job</li> <li>• <b>edge_job</b>: Edge job</li> </ul>

Parameter	Type	Description
metadata	<a href="#">JobMetadata</a> object	Metadata of a training job.
status	<a href="#">Status</a> object	Status of a training job. You do not need to set this parameter when creating a job.
algorithm	<a href="#">JobAlgorithmResponse</a> object	Algorithm for training jobs. Options: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
tasks	Array of <a href="#">TaskResponse</a> objects	List of tasks in heterogeneous training jobs.
spec	<a href="#">spec</a> object	Specifications of a training job.

**Table 5-263** JobMetadata

Parameter	Type	Description
id	String	Training job ID, which is generated and returned by ModelArts after the training job is created.
name	String	Name of a training job. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
workspace_id	String	Workspace where a job is located. The default value is <b>0</b> .
description	String	Training job description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
create_time	Long	Timestamp when a training job is created, in milliseconds. The value is generated and returned by ModelArts after the job is created.
user_name	String	Username for creating a training job. The username is generated and returned by ModelArts after the training job is created.
annotations	Map<String,String>	Declaration template of a training job. For heterogeneous jobs, the default value of <b>job_template</b> is <b>Template RL</b> . For other jobs, the default value is <b>Template DL</b> .

**Table 5-264** Status

Parameter	Type	Description
phase	String	Level-1 status of a training job. The value is stable. The options are as follows: <b>Creating Pending Running Failed Completed, Terminating Terminated Abnormal</b>
secondary_phase	String	Level-2 status of a training job. The value is unstable. The options are as follows: <b>Creating Queuing Running Failed Completed Terminating Terminated CreateFailed TerminatedFailed Unknown Lost</b>
duration	Long	Running duration of a training job, in milliseconds
node_count_metrics	Array<Array<Integer>>	Node count changes during the training job running period.
tasks	Array of strings	Tasks of a training job.
start_time	String	Start time of a training job. The value is in timestamp format.
task_statuses	Array of <a href="#">task_statuses</a> objects	Status of a training job task.

**Table 5-265** task\_statuses

Parameter	Type	Description
task	String	Name of a training job task.
exit_code	Integer	Exit code of a training job task.
message	String	Error message of a training job task.

**Table 5-266** JobAlgorithmResponse

Parameter	Type	Description
id	String	Algorithm for training jobs. Options: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
name	String	Algorithm name.

Parameter	Type	Description
code_dir	String	Code directory of a training job, for example, <code>**/usr/app/**</code> . This parameter must be used together with <code>boot_file</code> . If <code>id</code> or <code>subscription_id+item_version_id</code> is set, leave it blank.
boot_file	String	Boot file of a training job, which must be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <code>code_dir</code> . If <code>id</code> or <code>subscription_id+item_version_id</code> is set, leave it blank.
autosearch_config_path	String	YAML configuration path of auto search jobs. An OBS URL is required.
autosearch_framework_path	String	Framework code directory of auto search jobs. An OBS URL is required.
command	String	Boot command used to start the container of the custom image used by a training job. You can set this parameter to <code>code_dir</code> .
parameters	Array of <a href="#">Parameter</a> objects	Running parameters of a training job.
policies	<a href="#">policies</a> object	Policies supported by jobs.
inputs	Array of <a href="#">Input</a> objects	Input of a training job.
outputs	Array of <a href="#">Output</a> objects	Output of a training job.
engine	<a href="#">engine</a> object	Engine of a training job. Leave this parameter blank if the job is created using <code>id</code> of the algorithm in algorithm management.
environments	Array of <code>Map&lt;String,String&gt;</code> objects	Environment variables of a training job. The format is <code>key: value</code> . Leave this parameter blank.

**Table 5-267** Parameter

Parameter	Type	Description
name	String	Parameter name.

Parameter	Type	Description
value	String	Parameter value.
description	String	Parameter description.
constraint	<a href="#">constraint</a> object	Parameter constraint.
i18n_description	<a href="#">i18n_description</a> object	Internationalization description.

**Table 5-268** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-269** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-270** policies

Parameter	Type	Description
auto_search	<a href="#">auto_search</a> object	Hyperparameter search configuration.

**Table 5-271** auto\_search

Parameter	Type	Description
skip_search_params	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-272** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-273** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The parameter is a continuous value.</li> <li>• <b>discrete</b>: The parameter is a discrete value.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.

Parameter	Type	Description
discrete_values	Array of strings	List of discrete hyperparameter values.

**Table 5-274** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-275** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

**Table 5-276** Input

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
local_dir	String	Local directory of the container to which the data input channel is mapped.
remote	<a href="#">InputDataInfo</a> object	Data input. Options: <ul style="list-style-type: none"> <li>• <b>obs</b>: OBS path as the data input</li> </ul>
remote_constraint	Array of <a href="#">remote_constraint</a> objects	Data input constraint.

**Table 5-277** InputDataInfo

Parameter	Type	Description
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-278** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-279** remote\_constraint

Parameter	Type	Description
data_type	String	Type of the data input.

**Table 5-280** Output

Parameter	Type	Description
name	String	Name of the data output channel.
description	String	Description of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.

**Table 5-281** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-282** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.



**Table 5-283** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for a training job. You can set this parameter to <b>engine_id</b> , <b>engine_name</b> + <b>engine_version</b> , or <b>image_url</b> .
engine_name	String	Name of the engine selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
engine_version	String	Name of the engine version selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
image_url	String	Custom image URL selected for a training job.

**Table 5-284** TaskResponse

Parameter	Type	Description
role	String	Role of a heterogeneous training job. Options: <ul style="list-style-type: none"> <li>• <b>learner</b>: supports GPUs or CPUs.</li> <li>• <b>worker</b>: supports CPUs.</li> </ul>
algorithm	<b>algorithm</b> object	Algorithm management and configuration.
task_resource	<b>FlavorResponse</b> object	Flavors of a training job or an algorithm.

**Table 5-285** algorithm

Parameter	Type	Description
code_dir	String	Absolute path of the directory where the algorithm boot file is stored.
boot_file	String	Absolute path of the algorithm boot file.
inputs	<b>inputs</b> object	Algorithm input channel.
outputs	<b>outputs</b> object	Algorithm output channel.
engine	<b>engine</b> object	Engine on which a heterogeneous job depends.

**Table 5-286** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
local_dir	String	Local path of the container to which the data input and output channels are mapped.
remote	<b>remote</b> object	Actual data input. Heterogeneous jobs support only OBS.

**Table 5-287** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-288** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-289** outputs

Parameter	Type	Description
name	String	Name of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.
mode	String	Data transmission mode. The default value is <b>upload_periodically</b> .
period	String	Data transmission period. The default value is <b>30s</b> .

**Table 5-290** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-291** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-292** engine

Parameter	Type	Description
engine_id	String	Engine ID of a heterogeneous job, for example, <b>caffe-1.0.0-python2.7</b>
engine_name	String	Engine name of a heterogeneous job, for example, <b>Caffe</b>
engine_version	String	Engine version of a heterogeneous job.
v1_compatible	Boolean	Whether the v1 compatibility mode is used.
run_user	String	User UID started by default by the engine.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-293** FlavorResponse

Parameter	Type	Description
flavor_id	String	ID of the resource flavor.
flavor_name	String	Name of the resource flavor.
max_num	Integer	Maximum number of nodes in a resource flavor.
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.
attributes	Map<String,String>	Other specification attributes.

**Table 5-294** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-295** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.

**Table 5-296** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-297** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-298** memory

Parameter	Type	Description
size	Integer	Memory size.
unit	String	Number of memory units.

**Table 5-299** spec

Parameter	Type	Description
resource	<b>Resource</b> object	Resource flavors of a training job. Select either <b>flavor_id</b> or <b>pool_id+[flavor_id]</b> .
volumes	Array of <b>volumes</b> objects	Volumes attached to a training job.
log_export_path	<b>log_export_path</b> object	Export path of training job logs.

**Table 5-300** Resource

Parameter	Type	Description
policy	String	Resource flavor of a training job. Options: <b>regular</b>
flavor_id	String	Resource flavor ID of a training job.
flavor_name	String	Read-only flavor name returned by ModelArts when <b>flavor_id</b> is used.
node_count	Integer	Number of resource replicas selected for a training job. Minimum: <b>1</b>
pool_id	String	Resource pool ID selected for a training job.
flavor_detail	<b>flavor_detail</b> object	Flavors of a training job or an algorithm.

**Table 5-301** flavor\_detail

Parameter	Type	Description
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• <b>CPU</b></li> <li>• <b>GPU</b></li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.

**Table 5-302** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-303** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.
disk	<b>disk</b> object	Disk information.

**Table 5-304** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-305** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-306** memory

Parameter	Type	Description
size	Integer	Memory size.

Parameter	Type	Description
unit	String	Number of memory units.

**Table 5-307** disk

Parameter	Type	Description
size	String	Disk size.
unit	String	Unit of the disk size. Generally, the value is GB.

**Table 5-308** volumes

Parameter	Type	Description
nfs	<b>nfs</b> object	Volumes attached in NFS mode.

**Table 5-309** nfs

Parameter	Type	Description
nfs_server_path	String	NFS server path.
local_path	String	Path for attaching volumes to the training container.
read_only	Boolean	Whether the volumes attached to the container in NFS mode are read-only.

**Table 5-310** log\_export\_path

Parameter	Type	Description
obs_url	String	OBS URL for storing training job logs.
host_path	String	Path of the host where training job logs are stored.

## Example Requests

The following shows how to stop the training job whose UUID is **3faf5c03-aaa1-4cbe-879d-24b05d997347**.

```
POST https://endpoint/v2/{project_id}/training-jobs/cf63aba9-63b1-4219-b717-708a2665100b/actions
```

```
{
  "action_type": "terminate"
}
```

## Example Responses

**Status code: 202**

ok

```
{
  "kind": "job",
  "metadata": {
    "id": "cf63aba9-63b1-4219-b717-708a2665100b",
    "name": "trainjob--py14_mem06-110",
    "description": "",
    "create_time": 163651522282,
    "workspace_id": "0",
    "ai_project": "default-ai-project",
    "user_name": "ei_modelarts_z00424192_01"
  },
  "status": {
    "phase": "Terminating",
    "secondary_phase": "Terminating",
    "duration": 0,
    "start_time": 0,
    "node_count_metrics": null,
    "tasks": [ "worker-0" ]
  },
  "algorithm": {
    "code_dir": "obs://test/economic_test/py_minist/",
    "boot_file": "obs://test/economic_test/py_minist/minist_common.py",
    "inputs": [ {
      "name": "data_url",
      "local_dir": "/home/ma-user/modelarts/inputs/data_url_0",
      "remote": {
        "obs": {
          "obs_url": "/test/data/py_minist/"
        }
      }
    } ],
    "outputs": [ {
      "name": "train_url",
      "local_dir": "/home/ma-user/modelarts/outputs/train_url_0",
      "remote": {
        "obs": {
          "obs_url": "/test/train_output/"
        }
      }
    } ],
    "mode": "upload_periodically",
    "period": 30
  },
  "engine": {
    "engine_id": "pytorch-cp36-1.4.0-v2",
    "engine_name": "PyTorch",
    "engine_version": "PyTorch-1.4.0-python3.6-v2",
    "v1_compatible": false,
    "run_user": ""
  },
  "spec": {
    "resource": {
      "policy": "economic",
      "flavor_id": "modelarts.vm.p100.large.eco",
      "flavor_name": "Computing GPU(P100) instance",
      "node_count": 1,
      "flavor_detail": {
        "flavor_type": "GPU",
        "billing": {
```



```

    "code" : "modelarts.vm.gpu.p100.eco",
    "unit_num" : 1
  },
  "attributes" : {
    "is_economic_policy_supported" : "true",
    "is_multi_devices_supported" : "false",
    "is_multi_nodes_supported" : "true"
  },
  "flavor_info" : {
    "cpu" : {
      "arch" : "x86",
      "core_num" : 8
    },
    "gpu" : {
      "unit_num" : 1,
      "product_name" : "NVIDIA-P100",
      "memory" : "8GB"
    },
    "memory" : {
      "size" : 64,
      "unit" : "GB"
    }
  }
},
"is_hosted_log" : false
}

```

## Status Codes

Status Code	Description
202	ok

## Error Codes

See [Error Codes](#).

## 5.2.6 Querying the Logs of a Specified Task in a Given Training Job (Preview)

### Function

This API is used to query the logs of a specified task in a given training job (preview).

### URI

GET /v2/{project\_id}/training-jobs/{training\_job\_id}/tasks/{task\_id}/logs/preview

**Table 5-311** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.
task_id	Yes	String	Name of a training job.

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 5-312** Response body parameters

Parameter	Type	Description
content	String	Logs. If the size of a log file does not exceed the upper limit (n MB), complete log content will be returned. Otherwise, the latest log content in n MB will be returned.
current_size	Integer	Size of the returned log content, in bytes. The maximum size is 5 MB.
full_size	Integer	Size of complete log content, in bytes

## Example Requests

The following shows how to query the **work-0** tasks of the training job whose UUID is **2cd88daa-31a4-40a8-a58f-d186b0e93e4f**.

```
GET https://endpoint/v2/{project_id}/training-jobs/2cd88daa-31a4-40a8-a58f-d186b0e93e4f/tasks/worker-0/logs/preview
```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.2.7 Querying the Logs of a Specified Taks in a Given Training Job (OBS URL)

### Function

This API is used to query the logs of a specified task in a given training job (OBS URL). You can view or download all logs.

### URI

GET /v2/{project\_id}/training-jobs/{training\_job\_id}/tasks/{task\_id}/logs/url

**Table 5-313** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.
task_id	Yes	String	Name of a training job.

### Request Parameters

**Table 5-314** Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	No	String	<b>text/plain</b> indicates that a temporary preview URL is returned. <b>application/octet-stream</b> indicates that a temporary download URL is returned.

### Response Parameters

Status code: 200

**Table 5-315** Response body parameters

Parameter	Type	Description
obs_url	String	Temporary OBS URL of logs. You can copy the URL to the browser to view the current complete logs.

## Example Requests

The following shows how to query the temporary OBS URL for the **work-0** tasks of the training job whose UUID is **2cd88daa-31a4-40a8-a58f-d186b0e93e4f**.

```
GET https://endpoint/v2/{project_id}/training-jobs/2cd88daa-31a4-40a8-a58f-d186b0e93e4f/tasks/worker-0/logs/url?Content-Type=text/plain
```

## Example Responses

**Status code: 200**

ok

```
{
  "obs_url" : "http://10.155.101.248:20000/cnnorth4-test/xk/00chess_test/test11/logs/modelarts-job-0f2ccdcb-4f34-4d53-afb9-d526f3be8c68-ma-platform-init-worker-0-172.16.24.51-01909681.log?AWSAccessKeyId=xxxxx"
}
```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.2.8 Querying the Running Metrics of a Specified Task in a Training Job

### Function

This API is used to query the running metrics of a specified task in a training job.

### URI

```
GET /v2/{project_id}/training-jobs/{training_job_id}/metrics/{task_id}
```

**Table 5-316** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .
training_job_id	Yes	String	ID of a training job.
task_id	Yes	String	Name of a training job.

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 5-317** Response body parameters

Parameter	Type	Description
metrics	Array of <a href="#">metrics</a> objects	Running metrics.

**Table 5-318** metrics

Parameter	Type	Description
metric	String	Running metric. The options are as follows: <b>cpuUsage</b> : CPU usage <b>memUsage</b> : physical memory usage <b>gpuUtil</b> : GPU utilization <b>gpuMemUsage</b> : GPU memory usage.
value	Array of numbers	Value of a running metric. An average value is collected every minute.

## Example Requests

The following shows how to query the running metrics of the **work-0** task of the training job whose UUID is **2cd88daa-31a4-40a8-a58f-d186b0e93e4f**.

```
GET https://endpoint/v2/{project_id}/training-jobs/2cd88daa-31a4-40a8-a58f-d186b0e93e4f/metrics/worker-0
```

## Example Responses

Status code: 200

ok

```
{
  "metrics" : [ {
    "metric" : "cpuUsage",
    "value" : [ -1, -1, 2.43, 4.524, 6.714, 12.422, 9.214, 5.36, 7.5, 10.088, 8.975, 11.423, 11.548, 14.563,
16.833 ]
  }, {
    "metric" : "memUsage",
    "value" : [ -1, -1, 0.04, 0.521, 1.652, 4.252, 6.433, 7.384, 7.982, 8.718, 9.365, 9.881, 10.192, 9.994, 9.005 ]
  }, {
    "metric" : "gpuUtil",
    "value" : [ -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1 ]
  }, {
    "metric" : "gpuMemUsage",
    "value" : [ -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1 ]
  }, {
    "metric" : "npuUtil",
    "value" : [ -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1 ]
  }, {
    "metric" : "npuMemUsage",
    "value" : [ -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1 ]
  }
]
```

### Status Codes

Status Code	Description
200	ok

### Error Codes

See [Error Codes](#).

## 5.2.9 Querying a Training Job List

### Function

This API is used to query the the created training jobs that meet the search criteria.

### URI

POST /v2/{project\_id}/training-job-searches

**Table 5-319** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

## Request Parameters

**Table 5-320** Request body parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for querying jobs. The minimum value is <b>0</b> . For example, if this parameter is set to <b>1</b> , the query starts from the second one.
limit	No	Integer	Maximum number of jobs to be queried. The value ranges from 1 to 50.
sort_by	No	String	Metric for sorting jobs to be queried. <b>create_time</b> is used by default for sorting.
order	No	String	Order of queried jobs. The default value is <b>desc</b> , indicating the descending order. You can also set this parameter to <b>asc</b> , indicating the ascending order. Default: <b>desc</b>
group_by	No	String	Condition for grouping the jobs to be queried.
filters	No	Array of <b>filters</b> objects	Filters for querying jobs.

**Table 5-321** filters

Parameter	Mandatory	Type	Description
key	No	String	Grouping condition key.
operator	No	String	Search criteria, which can be <b>between</b> , <b>like</b> , <b>in</b> , or <b>not</b> Default: <b>in</b>
value	No	Array of strings	Value of the grouping condition key.

## Response Parameters

**Status code: 200**

**Table 5-322** Response body parameters

Parameter	Type	Description
total	Integer	Total number of queried jobs of the current user.
count	Integer	Total number of jobs that meet the search criteria of the current user.
limit	Integer	Maximum number of jobs to be queried. The value ranges from 1 to 50.
offset	Integer	Offset for querying jobs. The minimum value is <b>0</b> . For example, if this parameter is set to <b>1</b> , the query starts from the second one.
sort_by	String	Metric for sorting jobs to be queried. <b>create_time</b> is used by default for sorting.
order	String	Order of queried jobs. The default value is <b>desc</b> , indicating the descending order. You can also set this parameter to <b>asc</b> , indicating the ascending order.
group_by	String	Condition for grouping the jobs to be queried.
workspace_id	String	Workspace where a job is located. The default value is <b>0</b> .
ai_project	String	AI project to which a job belongs. The default value is <b>default-ai-project</b> .
items	Array of <b>JobResponse</b> objects	Jobs that meet the search criteria of the current user.

**Table 5-323** JobResponse

Parameter	Type	Description
kind	String	Training job type, which defaults to <b>job</b> . Options: <ul style="list-style-type: none"> <li>• <b>job</b>: Training job</li> <li>• <b>hetero_job</b>: Heterogeneous job</li> <li>• <b>autosearch_job</b>: Auto search job</li> <li>• <b>mrs_job</b>: MRS job</li> <li>• <b>edge_job</b>: Edge job</li> </ul>
metadata	<b>JobMetadata</b> object	Metadata of a training job.



Parameter	Type	Description
status	<b>Status</b> object	Status of a training job. You do not need to set this parameter when creating a job.
algorithm	<b>JobAlgorithmResponse</b> object	Algorithm for training jobs. Options: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
tasks	Array of <b>TaskResponse</b> objects	List of tasks in heterogeneous training jobs.
spec	<b>spec</b> object	Specifications of a training job.

**Table 5-324** JobMetadata

Parameter	Type	Description
id	String	Training job ID, which is generated and returned by ModelArts after the training job is created.
name	String	Name of a training job. The value must contain 1 to 64 characters consisting of only digits, letters, underscores (_), and hyphens (-).
workspace_id	String	Workspace where a job is located. The default value is <b>0</b> .
description	String	Training job description. The value must contain 0 to 256 characters. The default value is <b>NULL</b> .
create_time	Long	Timestamp when a training job is created, in milliseconds. The value is generated and returned by ModelArts after the job is created.
user_name	String	Username for creating a training job. The username is generated and returned by ModelArts after the training job is created.
annotations	Map<String,String>	Declaration template of a training job. For heterogeneous jobs, the default value of <b>job_template</b> is <b>Template RL</b> . For other jobs, the default value is <b>Template DL</b> .

**Table 5-325** Status

Parameter	Type	Description
phase	String	Level-1 status of a training job. The value is stable. The options are as follows: <b>Creating Pending Running Failed Completed, Terminating Terminated Abnormal</b>
secondary_phase	String	Level-2 status of a training job. The value is unstable. The options are as follows: <b>Creating Queuing Running Failed Completed Terminating Terminated CreateFailed TerminatedFailed Unknown Lost</b>
duration	Long	Running duration of a training job, in milliseconds
node_count_metrics	Array<Array<Integer>>	Node count changes during the training job running period.
tasks	Array of strings	Tasks of a training job.
start_time	String	Start time of a training job. The value is in timestamp format.
task_statuses	Array of <a href="#">task_statuses</a> objects	Status of a training job task.

**Table 5-326** task\_statuses

Parameter	Type	Description
task	String	Name of a training job task.
exit_code	Integer	Exit code of a training job task.
message	String	Error message of a training job task.

**Table 5-327** JobAlgorithmResponse

Parameter	Type	Description
id	String	Algorithm for training jobs. Options: <ul style="list-style-type: none"> <li>• <b>id</b>: Only the algorithm ID is used.</li> <li>• <b>code_dir+boot_file</b>: The code directory and boot file of a training job are used.</li> </ul>
name	String	Algorithm name.

Parameter	Type	Description
code_dir	String	Code directory of a training job, for example, <code>**/usr/app/**</code> . This parameter must be used together with <code>boot_file</code> . If <code>id</code> or <code>subscription_id+item_version_id</code> is set, leave it blank.
boot_file	String	Boot file of a training job, which must be stored in the code directory, for example, <code>**/usr/app/boot.py**</code> . This parameter must be used together with <code>code_dir</code> . If <code>id</code> or <code>subscription_id+item_version_id</code> is set, leave it blank.
autosearch_config_path	String	YAML configuration path of auto search jobs. An OBS URL is required.
autosearch_framework_path	String	Framework code directory of auto search jobs. An OBS URL is required.
command	String	Boot command used to start the container of the custom image used by a training job. You can set this parameter to <code>code_dir</code> .
parameters	Array of <a href="#">Parameter</a> objects	Running parameters of a training job.
policies	<a href="#">policies</a> object	Policies supported by jobs.
inputs	Array of <a href="#">Input</a> objects	Input of a training job.
outputs	Array of <a href="#">Output</a> objects	Output of a training job.
engine	<a href="#">engine</a> object	Engine of a training job. Leave this parameter blank if the job is created using <code>id</code> of the algorithm in algorithm management.
environments	Array of <code>Map&lt;String,String&gt;</code> objects	Environment variables of a training job. The format is <code>key: value</code> . Leave this parameter blank.

**Table 5-328** Parameter

Parameter	Type	Description
name	String	Parameter name.

Parameter	Type	Description
value	String	Parameter value.
description	String	Parameter description.
constraint	<b>constraint</b> object	Parameter constraint.
i18n_description	<b>i18n_description</b> object	Internationalization description.

**Table 5-329** constraint

Parameter	Type	Description
type	String	Parameter type.
editable	Boolean	Whether the parameter is editable.
required	Boolean	Whether the parameter is mandatory.
sensitive	Boolean	Whether the parameter is sensitive.
valid_type	String	Valid type.
valid_range	Array of strings	Valid range.

**Table 5-330** i18n\_description

Parameter	Type	Description
language	String	Internationalization language.
description	String	Description.

**Table 5-331** policies

Parameter	Type	Description
auto_search	<b>auto_search</b> object	Hyperparameter search configuration.

**Table 5-332** auto\_search

Parameter	Type	Description
skip_search_params	String	Hyperparameter parameters that need to be skipped.
reward_attrs	Array of <a href="#">reward_attrs</a> objects	List of search metrics.
search_params	Array of <a href="#">search_params</a> objects	Search parameters.
algo_configs	Array of <a href="#">algo_configs</a> objects	Search algorithm configurations.

**Table 5-333** reward\_attrs

Parameter	Type	Description
name	String	Metric name.
mode	String	Search direction. <ul style="list-style-type: none"> <li>• <b>max</b>: A larger metric value indicates better performance.</li> <li>• <b>min</b>: A smaller metric value indicates better performance.</li> </ul>
regex	String	Regular expression of a metric.

**Table 5-334** search\_params

Parameter	Type	Description
name	String	Hyperparameter name.
param_type	String	Parameter type. <ul style="list-style-type: none"> <li>• <b>continuous</b>: The parameter is a continuous value.</li> <li>• <b>discrete</b>: The parameter is a discrete value.</li> </ul>
lower_bound	String	Lower bound of the hyperparameter.
upper_bound	String	Upper bound of the hyperparameter.
discrete_points_num	String	Number of discrete points of a continuous hyperparameter.

Parameter	Type	Description
discrete_values	Array of strings	List of discrete hyperparameter values.

**Table 5-335** algo\_configs

Parameter	Type	Description
name	String	Name of the search algorithm.
params	Array of <a href="#">AutoSearchAlgoConfigParameter</a> objects	Search algorithm parameters.

**Table 5-336** AutoSearchAlgoConfigParameter

Parameter	Type	Description
key	String	Parameter key.
value	String	Parameter value.
type	String	Parameter type.

**Table 5-337** Input

Parameter	Type	Description
name	String	Name of the data input channel.
description	String	Description of the data input channel.
local_dir	String	Local directory of the container to which the data input channel is mapped.
remote	<a href="#">InputDataInfo</a> object	Data input. Options: <ul style="list-style-type: none"> <li>• <b>obs</b>: OBS path as the data input</li> </ul>
remote_constraint	Array of <a href="#">remote_constraint</a> objects	Data input constraint.

**Table 5-338** InputDataInfo

Parameter	Type	Description
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-339** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-340** remote\_constraint

Parameter	Type	Description
data_type	String	Data input type, including the data storage location.

**Table 5-341** Output

Parameter	Type	Description
name	String	Name of the data output channel.
description	String	Description of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.

**Table 5-342** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-343** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-344** engine

Parameter	Type	Description
engine_id	String	Engine ID selected for a training job. You can set this parameter to <b>engine_id</b> , <b>engine_name + engine_version</b> , or <b>image_url</b> .
engine_name	String	Name of the engine selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
engine_version	String	Name of the engine version selected for a training job. If <b>engine_id</b> is set, leave this parameter blank.
image_url	String	Custom image URL selected for a training job.

**Table 5-345** TaskResponse

Parameter	Type	Description
role	String	Role of a heterogeneous training job. Options: <ul style="list-style-type: none"> <li>• <b>learner</b>: supports GPUs or CPUs.</li> <li>• <b>worker</b>: supports CPUs.</li> </ul>
algorithm	<b>algorithm</b> object	Algorithm management and configuration.
task_resource	<b>FlavorResponse</b> object	Flavors of a training job or an algorithm.

**Table 5-346** algorithm

Parameter	Type	Description
code_dir	String	Absolute path of the directory where the algorithm boot file is stored.
boot_file	String	Absolute path of the algorithm boot file.
inputs	<b>inputs</b> object	Algorithm input channel.
outputs	<b>outputs</b> object	Algorithm output channel.
engine	<b>engine</b> object	Engine on which a heterogeneous job depends.



**Table 5-347** inputs

Parameter	Type	Description
name	String	Name of the data input channel.
local_dir	String	Local path of the container to which the data input and output channels are mapped.
remote	<b>remote</b> object	Actual data input. Heterogeneous jobs support only OBS.

**Table 5-348** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS in which data input and output stored.

**Table 5-349** obs

Parameter	Type	Description
obs_url	String	OBS URL of the dataset required by a training job. For example, <b>/usr/data/</b> .

**Table 5-350** outputs

Parameter	Type	Description
name	String	Name of the data output channel.
local_dir	String	Local directory of the container to which the data output channel is mapped.
remote	<b>remote</b> object	Description of the actual data output.
mode	String	Data transmission mode. The default value is <b>upload_periodically</b> .
period	String	Data transmission period. The default value is <b>30s</b> .

**Table 5-351** remote

Parameter	Type	Description
obs	<b>obs</b> object	OBS to which data is actually exported.

**Table 5-352** obs

Parameter	Type	Description
obs_url	String	OBS URL to which data is actually exported.

**Table 5-353** engine

Parameter	Type	Description
engine_id	String	Engine ID of a heterogeneous job, for example, <b>caffe-1.0.0-python2.7</b>
engine_name	String	Engine name of a heterogeneous job, for example, <b>Caffe</b>
engine_version	String	Engine version of a heterogeneous job.
v1_compatible	Boolean	Whether the v1 compatibility mode is used.
run_user	String	User UID started by default by the engine.
image_url	String	Custom image URL selected by an algorithm.

**Table 5-354** FlavorResponse

Parameter	Type	Description
flavor_id	String	ID of the resource flavor.
flavor_name	String	Name of the resource flavor.
max_num	Integer	Maximum number of nodes in a resource flavor.
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.
attributes	Map<String,String>	Other specification attributes.

**Table 5-355** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-356** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.

**Table 5-357** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-358** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-359** memory

Parameter	Type	Description
size	Integer	Memory size.
unit	String	Number of memory units.

**Table 5-360** spec

Parameter	Type	Description
resource	<b>Resource</b> object	Resource flavors of a training job. Select either <b>flavor_id</b> or <b>pool_id+[flavor_id]</b> .
volumes	Array of <b>volumes</b> objects	Volumes attached to a training job.
log_export_path	<b>log_export_path</b> object	Export path of training job logs.

**Table 5-361** Resource

Parameter	Type	Description
policy	String	Resource flavor of a training job. Options: <b>regular</b>
flavor_id	String	Resource flavor ID of a training job.
flavor_name	String	Read-only flavor name returned by ModelArts when <b>flavor_id</b> is used.
node_count	Integer	Number of resource replicas selected for a training job. Minimum: <b>1</b>
pool_id	String	Resource pool ID selected for a training job.
flavor_detail	<b>flavor_detail</b> object	Flavors of a training job or an algorithm.

**Table 5-362** flavor\_detail

Parameter	Type	Description
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• <b>CPU</b></li> <li>• <b>GPU</b></li> </ul>
billing	<b>billing</b> object	Billing information of a resource flavor.
flavor_info	<b>flavor_info</b> object	Resource flavor details.

**Table 5-363** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-364** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.
disk	<b>disk</b> object	Disk information.

**Table 5-365** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-366** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-367** memory

Parameter	Type	Description
size	Integer	Memory size.

Parameter	Type	Description
unit	String	Number of memory units.

**Table 5-368** disk

Parameter	Type	Description
size	String	Disk size.
unit	String	Unit of the disk size. Generally, the value is GB.

**Table 5-369** volumes

Parameter	Type	Description
nfs	<b>nfs</b> object	Volumes attached in NFS mode.

**Table 5-370** nfs

Parameter	Type	Description
nfs_server_path	String	NFS server path.
local_path	String	Path for attaching volumes to the training container.
read_only	Boolean	Whether the volumes attached to the container in NFS mode are read-only.

**Table 5-371** log\_export\_path

Parameter	Type	Description
obs_url	String	OBS URL for storing training job logs.
host_path	String	Path of the host where training job logs are stored.

## Example Requests

The following shows how to query data of all training jobs whose names contain **trainjob** and maximum number of training jobs is **1**.

```
POST https://endpoint/v2/{project_id}/training-job-searches?limit=1
```

```
{
  "offset" : 0,
  "limit" : 1,
  "filters" : [ {
    "key" : "name",
    "operator" : "like",
    "value" : [ "trainjob" ]
  }, {
    "key" : "create_time",
    "operator" : "between",
    "value" : [ "", "" ]
  }, {
    "key" : "phase",
    "operator" : "in",
    "value" : [ "" ]
  }, {
    "key" : "algorithm_name",
    "operator" : "like",
    "value" : [ "" ]
  }, {
    "key" : "kind",
    "operator" : "in",
    "value" : [ ]
  }, {
    "key" : "user_id",
    "operator" : "in",
    "value" : [ "" ]
  } ],
  "workspace_id" : "0"
}
```

## Example Responses

**Status code: 200**

ok

```
{
  "total" : 5059,
  "count" : 1,
  "limit" : 1,
  "offset" : 0,
  "sort_by" : "create_time",
  "order" : "desc",
  "group_by" : "",
  "workspace_id" : "0",
  "ai_project" : "default-ai-project",
  "items" : [ {
    "kind" : "job",
    "metadata" : {
      "id" : "3faf5c03-aaa1-4cbe-879d-24b05d997347",
      "name" : "trainjob--py14_mem06-byd-108",
      "description" : "",
      "create_time" : 1636447346315,
      "workspace_id" : "0",
      "ai_project" : "default-ai-project",
      "user_name" : "ei_modelarts_q00357245_01"
    },
    "status" : {
      "phase" : "Abnormal",
      "secondary_phase" : "CreateFailed",
      "duration" : 0,
      "start_time" : 0,
      "node_count_metrics" : [ [ 1636447746000, 0 ], [ 1636447755000, 0 ], [ 1636447756000, 0 ] ],
      "tasks" : [ "worker-0" ]
    },
    "algorithm" : {
      "code_dir" : "obs://test-crq/economic_test/py_minist/",
      "boot_file" : "obs://test-crq/economic_test/py_minist/minist_common.py",

```

```

"inputs" : [ {
  "name" : "data_url",
  "local_dir" : "/home/ma-user/modelarts/inputs/data_url_0",
  "remote" : {
    "obs" : {
      "obs_url" : "/test-crq/data/py_minist/"
    }
  }
}],
"outputs" : [ {
  "name" : "train_url",
  "local_dir" : "/home/ma-user/modelarts/outputs/train_url_0",
  "remote" : {
    "obs" : {
      "obs_url" : "/test-crq/train_output/"
    }
  }
}],
"mode" : "upload_periodically",
"period" : 30
}],
"engine" : {
  "engine_id" : "pytorch-cp36-1.4.0-v2",
  "engine_name" : "PyTorch",
  "engine_version" : "PyTorch-1.4.0-python3.6-v2",
  "v1_compatible" : false,
  "run_user" : ""
},
"spec" : {
  "resource" : {
    "policy" : "economic",
    "flavor_id" : "modelarts.vm.p100.large.eco",
    "flavor_name" : "Computing GPU(P100) instance",
    "node_count" : 1,
    "flavor_detail" : {
      "flavor_type" : "GPU",
      "billing" : {
        "code" : "modelarts.vm.gpu.p100.eco",
        "unit_num" : 1
      }
    },
    "attributes" : {
      "is_economic_policy_supported" : "true",
      "is_multi_devices_supported" : "false",
      "is_multi_nodes_supported" : "true"
    },
    "flavor_info" : {
      "cpu" : {
        "arch" : "x86",
        "core_num" : 8
      },
      "gpu" : {
        "unit_num" : 1,
        "product_name" : "NVIDIA-P100",
        "memory" : "8GB"
      },
      "memory" : {
        "size" : 64,
        "unit" : "GB"
      }
    }
  }
},
"is_hosted_log" : false
}
}
}

```



## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.3 Resource and Engine Specifications

### 5.3.1 Querying the Public Flavor List Supported by a Training Job

#### Function

This API is used to query the list of public flavors supported by a training job.

#### URI

GET /v2/{project\_id}/training-job-flavors

**Table 5-372** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

**Table 5-373** Query Parameters

Parameter	Mandatory	Type	Description
flavor_type	No	String	Specified flavor type for query. If this parameter is left blank, all flavor types are obtained. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>

#### Request Parameters

None

## Response Parameters

Status code: 200

**Table 5-374** Response body parameters

Parameter	Type	Description
total_count	Integer	Total number of resource flavors of a training job.
flavors	Array of <a href="#">FlavorResponse</a> objects	List of resource flavors of a training job.

**Table 5-375** FlavorResponse

Parameter	Type	Description
flavor_id	String	ID of the resource flavor.
flavor_name	String	Name of the resource flavor.
max_num	Integer	Maximum number of nodes in a resource flavor.
flavor_type	String	Resource flavor type. Options: <ul style="list-style-type: none"> <li>• CPU</li> <li>• GPU</li> </ul>
billing	<a href="#">billing</a> object	Billing information of a resource flavor.
flavor_info	<a href="#">flavor_info</a> object	Resource flavor details.
attributes	Map<String,String>	Other specification attributes.

**Table 5-376** billing

Parameter	Type	Description
code	String	Billing code.
unit_num	Integer	Number of billing units.

**Table 5-377** flavor\_info

Parameter	Type	Description
max_num	Integer	Maximum number of nodes that can be selected. The value <b>1</b> indicates that the distributed mode is not supported.
cpu	<b>cpu</b> object	CPU specifications.
gpu	<b>gpu</b> object	GPU specifications.
memory	<b>memory</b> object	Memory information.

**Table 5-378** cpu

Parameter	Type	Description
arch	String	CPU architecture.
core_num	Integer	Number of cores.

**Table 5-379** gpu

Parameter	Type	Description
unit_num	Integer	Number of GPUs.
product_name	String	Product name.
memory	String	Memory.

**Table 5-380** memory

Parameter	Type	Description
size	Integer	Memory size.
unit	String	Number of memory units.

## Example Requests

The following shows how to query the public CPU resource flavors of training jobs in CN North-Beijing4.

```
GET https://endpoint/v2/{project_id}/training-job-flavors?flavor_type=CPU
```

## Example Responses

Status code: 200

ok

```
{
  "total_count": 2,
  "flavors": [ {
    "flavor_id": "modelarts.vm.cpu.2u",
    "flavor_name": "Computing CPU(2U) instance",
    "flavor_type": "CPU",
    "billing": {
      "code": "modelarts.vm.cpu.2u",
      "unit_num": 1
    },
    "flavor_info": {
      "max_num": 1,
      "cpu": {
        "arch": "x86",
        "core_num": 2
      },
      "memory": {
        "size": 8,
        "unit": "GB"
      },
      "disk": {
        "size": 50,
        "unit": "GB"
      }
    }
  }, {
    "flavor_id": "modelarts.vm.cpu.8u",
    "flavor_name": "Computing CPU(8U) instance",
    "flavor_type": "CPU",
    "billing": {
      "code": "modelarts.vm.cpu.8u",
      "unit_num": 1
    },
    "flavor_info": {
      "max_num": 16,
      "cpu": {
        "arch": "x86",
        "core_num": 8
      },
      "memory": {
        "size": 32,
        "unit": "GB"
      },
      "disk": {
        "size": 50,
        "unit": "GB"
      }
    }
  }
]
```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

## 5.3.2 Querying the AI Engine List Supported by a Training Job

### Function

This API is used to query the list of AI engines supported by a training job.

### URI

GET /v2/{project\_id}/training-job-engines

**Table 5-381** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details, see <a href="#">Obtaining a Project ID</a> .

### Request Parameters

None

### Response Parameters

**Status code: 200**

**Table 5-382** Response body parameters

Parameter	Type	Description
total	Integer	Total number of training job engines.
items	Array of <a href="#">items</a> objects	List of engine specifications.

**Table 5-383** items

Parameter	Type	Description
engine_id	String	Engine ID, for example, <b>caffe-1.0.0-python2.7</b>
engine_name	String	Engine name, for example, <b>Caffe</b>
engine_version	String	Engine version. Engines with the same name have multiple versions, for example, <b>Caffe-1.0.0-python2.7</b> of Python 2.7.

Parameter	Type	Description
v1_compatible	Boolean	Whether the v1 compatibility mode is used.
run_user	String	User UID started by default by the engine.
image_info	<a href="#">image_info</a> object	Engine information.

**Table 5-384** image\_info

Parameter	Type	Description
cpu_image_url	String	Image with the matched CPU specifications.
gpu_image_url	String	Image with the matched GPU specifications.
image_version	String	Image version.

## Example Requests

The following shows how to query all public engine specifications of a training job in CN North-Beijing4 (only part of the specifications are displayed because there are too many engines).

```
GET https://endpoint/v2/{project_id}/training-job-engines
```

## Example Responses

**Status code: 200**

ok

```
{
  "total": 20,
  "items": [ {
    "engine_id": "caffe-1.0.0-python2.7",
    "engine_name": "Caffe",
    "engine_version": "Caffe-1.0.0-python2.7",
    "v1_compatible": true,
    "run_user": "",
    "image_info": {
      "cpu_image_url": "modelarts-job-dev-image/caffe1-cpu-cp27:1.0.0",
      "gpu_image_url": "modelarts-job-dev-image/caffe1-gpu-cuda8-cp27:1.0.0",
      "image_version": "3.1.0"
    }
  }, {
    "engine_id": "horovod-cp36-tf-1.16.2",
    "engine_name": "Horovod",
    "engine_version": "0.16.2-TF-1.13.1-python3.6",
    "v1_compatible": true,
    "run_user": "",
    "image_info": {
      "cpu_image_url": "modelarts-job-dev-image/tensorflow-gpu-cuda10-cp36-horovod0162:1.13.1",
```

```

"gpu_image_url" : "modelarts-job-dev-image/tensorflow-gpu-cuda10-cp36-horovod0162:1.13.1",
"image_version" : "3.2.1"
}
}, {
  "engine_id" : "horovod_0.20.0-tensorflow_2.1.0-cuda_10.1-py_3.7-ubuntu_18.04-x86_64",
  "engine_name" : "Horovod",
  "engine_version" : "horovod_0.20.0-tensorflow_2.1.0-cuda_10.1-py_3.7-ubuntu_18.04-x86_64",
  "v1_compatible" : false,
  "run_user" : "1102",
  "image_info" : {
    "cpu_image_url" : "aip/horovod_tensorflow:train",
    "gpu_image_url" : "aip/horovod_tensorflow:train",
    "image_version" : "horovod_0.20.0-tensorflow_2.1.0-cuda_10.1-py_3.7-ubuntu_18.04-
x86_64-20210912152543-1e0838d"
  }
}, ".....", {
  "engine_id" : "tensorflow_2.1.0-cuda_10.1-py_3.7-ubuntu_18.04-x86_64",
  "engine_name" : "TensorFlow",
  "engine_version" : "tensorflow_2.1.0-cuda_10.1-py_3.7-ubuntu_18.04-x86_64",
  "v1_compatible" : false,
  "run_user" : "1102",
  "image_info" : {
    "cpu_image_url" : "aip/tensorflow_2_1:train",
    "gpu_image_url" : "aip/tensorflow_2_1:train",
    "image_version" : "tensorflow_2.1.0-cuda_10.1-py_3.7-ubuntu_18.04-x86_64-20210912152543-1e0838d"
  }
}, {
  "engine_id" : "xgboost-sklearn-python3.6",
  "engine_name" : "XGBoost-Sklearn",
  "engine_version" : "XGBoost-0.80-Sklearn-0.18.1-python3.6",
  "v1_compatible" : true,
  "run_user" : "",
  "image_info" : {
    "cpu_image_url" : "modelarts-job-dev-image/python-train-py36:secure",
    "gpu_image_url" : "",
    "image_version" : "2.0.10-20211101113705"
  }
}
}]
}

```

## Status Codes

Status Code	Description
200	ok

## Error Codes

See [Error Codes](#).

# 6 Model Management

---

- [6.1 Importing a Model](#)
- [6.2 Querying a Model List](#)
- [6.3 Querying the Details About a Model](#)
- [6.4 Deleting a Model](#)

## 6.1 Importing a Model

### Function

This API is used to import a model.

Ensure that the execution code and model have been uploaded to OBS. By default, the models generated by a training job are stored in OBS.

### URI

POST /v1/{project\_id}/models

[Table 6-1](#) describes the required parameters.

**Table 6-1** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .

### Request Body

[Table 6-2](#) describes the request parameters.



**Table 6-2** Parameters

Parameter	Mandatory	Type	Description
model_name	Yes	String	Model name. Enter 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
model_version	Yes	String	Model version in the format of <i>Digit.Digit.Digit</i> . The value range of the digits is [1, 99]. Note that no part of the version number can start with 0. For example, <b>01.01.01</b> is not allowed.
source_location	Yes	String	OBS path where the model is located or the SWR image location
source_job_id	No	String	ID of the source training job. If the model is generated from a training job, input this parameter for source tracing. If the model is imported from a third-party meta model, leave this parameter blank. By default, this parameter is left blank.
source_job_version	No	String	Version of the source training job. If the model is generated from a training job, input this parameter for source tracing. If the model is imported from a third-party meta model, leave this parameter blank. By default, this parameter is left blank.
source_type	No	String	Model source type. The value can only be <b>auto</b> , which indicates ExeML models (model download is not supported). If a model is deployed through a training job, this parameter is left blank by default.
model_type	Yes	String	Model type. The value can be <b>TensorFlow</b> , <b>MXNet</b> , <b>Caffe</b> , <b>Spark_Mllib</b> , <b>Scikit_Learn</b> , <b>XGBoost</b> , <b>Image</b> , <b>PyTorch</b> , or <b>Template</b> , which is read from the configuration file.
runtime	No	String	For details about <b>runtime</b> options, see <b>Model Management &gt; Importing a Model &gt; Importing a Meta Model from OBS</b> in <i>ModelArts User Guide</i> .
description	No	String	Model remarks. The value contains a maximum of 100 characters and cannot contain the following special characters and more: &!"\ "<>=

Parameter	Mandatory	Type	Description
model_algorithm	No	String	Model algorithm. If the algorithm is read from the configuration file, this parameter can be left blank. For example, the value can be <b>predict_analysis</b> , <b>object_detection</b> , or <b>image_classification</b> . The value must start with a letter and contain no more than 36 characters. Chinese characters and special characters (&!\"<>=) are not allowed.
execution_code	No	String	OBS path for storing the execution code. By default, this parameter is left blank. The name of the execution code file is fixed to <b>customize_service.py</b> . The inference code file must be stored in the <b>model</b> directory. If this parameter is left blank, the system can automatically identify the inference code in the <b>model</b> directory.
input_params	No	<b>params</b> array	Collection of input parameters of a model. By default, this parameter is left blank. For details, see <a href="#">Table 6-3</a> . If the collection of input parameters is read from <b>apis</b> in the configuration file, you only need to provide the <b>initial_config</b> field and do not need to set <b>input_params</b> . <b>input_params</b> is optional when the <b>initial_config</b> field exists.
output_params	No	<b>params</b> array	Collection of output parameters of a model. By default, this parameter is left blank. For details, see <a href="#">Table 6-3</a> . If the collection of output parameters is read from <b>apis</b> in the configuration file, you only need to provide the <b>initial_config</b> field and do not need to set <b>output_params</b> .
dependencies	No	<b>dependency</b> array	Package required for inference code and model. By default, this parameter is left blank. If the package is read from the configuration file, this parameter can be left blank. <a href="#">Table 6-4</a> shows the dependency structure.
model_metrics	No	String	Model precision, which is read from the configuration file

Parameter	Mandatory	Type	Description
apis	No	<b>apis</b> array	All <b>apis</b> input and output parameters of the model. If the parameters are read from the configuration file, this parameter can be left blank. For details, see <a href="#">Table 6-10</a> .
initial_config	No	String	Character string converted from the final model configuration file. It is recommended that the <b>initial_config</b> file be used to provide information about the fields such as <b>apis</b> , <b>dependencies</b> , <b>input_params</b> , and <b>output_params</b> .
workspace_id	No	String	ID of the workspace to which a service belongs. The default value is <b>0</b> , indicating the default workspace. Retain the default setting.
model_docs	No	<b>doc</b> array	List of model description documents. A maximum of three documents are supported. For details, see <a href="#">Table 6-7</a> .
install_type	No	String array	Deployment type. Only lowercase letters are supported. The value can be <b>real-time</b> , <b>edge</b> , or <b>batch</b> . Default value: [ <b>real-time</b> , <b>edge</b> , <b>batch</b> ]
template	No	Template object	Template configuration items. This parameter is mandatory when <b>model_type</b> is set to <b>Template</b> . For details, see <a href="#">Table 6-8</a> .

**Table 6-3** params parameters

Parameter	Mandatory	Type	Description
url	Yes	String	API URL
method	Yes	String	Request method. Possible values are <b>post</b> and <b>get</b> .
protocol	Yes	String	Request protocol
param_name	Yes	String	Parameter name. It is recommended that the parameter name contain a maximum of 64 characters.
param_type	Yes	String	Parameter type. The value can be <b>int</b> , <b>string</b> , <b>float</b> , <b>timestamp</b> , <b>date</b> , or <b>file</b> .

Parameter	Mandatory	Type	Description
min	No	Number	This parameter is optional when <b>param_type</b> is set to <b>int</b> or <b>float</b> . By default, this parameter is left blank.
max	No	Number	This parameter is optional when <b>param_type</b> is set to <b>int</b> or <b>float</b> . By default, this parameter is left blank.
param_desc	No	String	Parameter description. It is recommended that the parameter description contain a maximum of 100 characters. By default, this parameter is left blank.

**Table 6-4** dependency parameters

Parameter	Mandatory	Type	Description
installer	Yes	String	Installation mode. Only <b>pip</b> is supported.
packages	Yes	<b>package</b> array	Collection of dependency packages. For details, see <a href="#">Table 6-5</a> .

**Table 6-5** package parameters

Parameter	Mandatory	Type	Description
package_name	Yes	String	Name of a dependency package. Ensure that the package name is correct and exists. Chinese characters and special characters (&!"<>=) are not allowed.
package_version	No	String	Version of a dependency package. If this parameter is left blank, the latest version is installed by default. Chinese characters and special characters (&!"<>=) are not allowed.
restraint	No	String	Version restriction. The value can be <b>EXACT</b> , <b>ATLEAST</b> , or <b>ATMOST</b> . This parameter is mandatory only when <b>package_version</b> exists.

**Table 6-6 metric parameters**

Parameter	Mandatory	Type	Description
f1	No	Double	F1 score
recall	No	Double	Recall
precision	No	Double	Precision
accuracy	No	Double	Accuracy

**Table 6-7 doc parameters**

Parameter	Mandatory	Type	Description
doc_name	Yes	String	Document name, which must start with a letter. Enter 1 to 48 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
doc_url	Yes	String	HTTP(S) link of the document

**Table 6-8 Template parameters**

Parameter	Mandatory	Type	Description
infer_format	No	String	Input and output mode. When this parameter is used, the input and output mode built in the template does not take effect.
template_id	Yes	String	ID of the used template. The template has a built-in input and output mode.
template_inputs	Yes	Array of Template Inputs objects	Template input configuration, specifying the source path for configuring a model. For details, see <a href="#">Table 6-9</a> .

**Table 6-9** `template_inputs` parameters

Parameter	Mandatory	Type	Description
input	Yes	String	Template input path, which can be an OBS file path or OBS directory path. When you use a template with multiple input items to create a model, if the target paths <b>input_properties</b> specified in the template are the same, the OBS directory or OBS file name entered here must be unique to prevent files from being overwritten.
input_id	Yes	String	Input item ID, which is obtained from the template details.

**Table 6-10** `apis` parameters

Parameter	Mandatory	Type	Description
input_params	No	Object	Input parameters in <b>apis</b> , described in JSON Schema format. For details, see <a href="#">Table 6-11</a> .
method	No	String	Request method. The options are <b>POST</b> and <b>GET</b> .
output_params	No	Object	Output parameters in <b>apis</b> , described in JSON Schema format. For details, see <a href="#">Table 6-12</a> .
protocol	No	String	Request protocol.
url	No	String	Inference request URL.

**Table 6-11** `InputParams` parameters

Parameter	Mandatory	Type	Description
properties	No	Map<String, Object>	Properties of an object element in JSON Schema. You can set parameters, including the parameter name and type, in <b>properties</b> .
type	No	String	Type in JSON Schema, which can be <b>object</b> .

**Table 6-12 OutputParams parameters**

Parameter	Mandatory	Type	Description
properties	No	Map<String, Object>	Properties of an object element in JSON Schema. You can set parameters, including the parameter name and type, in <b>properties</b> .
type	No	String	Type in JSON Schema, which can be <b>object</b> .

## Response Body

**Table 6-13** describes the response parameters.

**Table 6-13 Parameters**

Parameter	Type	Description
model_id	String	Model ID

## Samples

The following shows how to import a model whose name is **mnist**, version is **1.0.0**, and type is **TensorFlow**. The model file comes from an OBS bucket.

- Sample request**  
 POST https://endpoint/v1/{project\_id}/models  

```
{
  "model_name": "mnist",
  "model_version": "1.0.0",
  "source_location": "https://models.obs.xxx.com/mnist",
  "source_job_id": "55",
  "source_job_version": "V100",
  "model_type": "TensorFlow",
  "runtime": "python2.7",
  "description": "mnist model",
  "execution_code": "https://testmodel.obs.xxx.com/customize_service.py",
  "input_params": [
    {
      "url": "/v1/xxx/image",
      "protocol": "http",
      "method": "post",
      "param_name": "image_url",
      "param_type": "string",
      "min": 0,
      "max": 9,
      "param_desc": "http://test/test.jpeg"
    }
  ],
  "output_params": [
    {
      "url": "/v1/xxx/image",
      "protocol": "http",
      "method": "post",
      "param_name": "face_location",

```

```

"param_type": "box",
"param_desc": "face_location param value description"
},
],
"dependencies": [
{
"installer": "pip",
"packages": [
{
"package_name": "numpy",
"package_version": "1.5.0",
"restraint": "ATLEAST"
}
]
}
],
"model_algorithm": "object_detection",
"model_metrics": "{\"f1\":0.52381,\"recall\":0.666667,\"precision\":0.466667,\"accuracy\":0.625}",
"apis": [
{
"url": "/v1/xxx/image",
"protocol": "http",
"method": "post",
"input_params": {
"type": "object",
"properties": {
"image_url": {
"type": "string"
}
}
},
"output_params": {
"type": "object",
"properties": {
"face_location": {
"type": "box"
}
}
}
}
],
}

```

- Sample response

```

{
"model_id": "10eb0091-887f-4839-9929-cbc884f1e20e"
}

```

## Status Code

For details about the status code, see [Table 9-1](#).

## 6.2 Querying a Model List

### Function

This API is used to query the models that meet the search criteria.

### URI

GET /v1/{project\_id}/models

[Table 6-14](#) describes the required parameters.



**Table 6-14** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .

**Table 6-15** Search parameters

Parameter	Mandatory	Type	Description
model_name	No	String	Model name. Fuzzy match is supported. <b>NOTE</b> If a model name contains an underscore (_), add the <b>exact_match</b> parameter to the request and set the parameter value to <b>true</b> because the underscore needs to be escaped. This ensures that the query operation can be performed properly.
model_version	No	String	Model version
model_status	No	String	Model status. You can query models based on the model status. Options: <ul style="list-style-type: none"> <li>• <b>Publishing</b></li> <li>• <b>Published</b></li> <li>• <b>Failed</b></li> <li>• <b>Building</b></li> <li>• <b>Building_failed</b></li> </ul>
model_type	No	String	Model type. The models of this type are queried. <b>model_type</b> and <b>not_model_type</b> are mutually exclusive and cannot co-exist.
not_model_type	No	String	Model type. A list of models of types except for this type are queried.
description	No	String	Description. Fuzzy match is supported.
offset	No	Integer	Index of the page to be queried. Default value: <b>0</b>
limit	No	Integer	Maximum number of records returned on each page. The default value is <b>100</b> . The recommended value ranges from 10 to 50.

Parameter	Mandatory	Type	Description
sort_by	No	String	Sorting mode. The value can be <b>create_at</b> , <b>model_version</b> , or <b>model_size</b> . Default value: <b>create_at</b>
order	No	String	Sorting order. The value can be <b>asc</b> or <b>desc</b> , indicating ascending or descending order. Default value: <b>desc</b>
workspace_id	No	String	ID of the workspace to which a service belongs. The default value is <b>0</b> , indicating the default workspace. Retain the default setting.

## Request Body

None

## Response Body

[Table 6-16](#) describes the response parameters.

**Table 6-16** Parameters

Parameter	Type	Description
total_count	Integer	Total number of models that meet the search criteria when no paging is implemented
count	Integer	Number of models
models	<b>model</b> array	Model metadata. For details, see <a href="#">Table 6-17</a> .

**Table 6-17** model parameters

Parameter	Type	Description
model_id	String	Model ID
model_name	String	Model name
model_version	String	Model version
model_status	String	Model status

Parameter	Type	Description
model_type	String	Model type. The value can be <b>TensorFlow</b> , <b>MXNet</b> , <b>Caffe</b> , <b>Spark_MLlib</b> , <b>Scikit_Learn</b> , <b>XGBoost</b> , <b>MindSpore</b> , <b>Image</b> , or <b>PyTorch</b> .
model_size	Long	Model size, in bytes
tenant	String	Tenant to which a model belongs
project	String	Project to which a model belongs
owner	String	User to which a model belongs
create_at	Long	Time when a model is created, in milliseconds calculated from 1970.1.1 0:0:0 UTC
description	String	Model description
workspace_id	String	Workspace ID
model_source	String	Model source. Options: <ul style="list-style-type: none"> <li>● <b>algos</b>: built-in algorithm</li> <li>● <b>custom</b>: custom model</li> </ul>
tunable	Boolean	Whether a model can be tuned. Options: <ul style="list-style-type: none"> <li>● <b>true</b>: yes</li> <li>● <b>false</b>: no</li> </ul>
market_flag	Boolean	Whether a model is subscribed from the marketplace. Options: <ul style="list-style-type: none"> <li>● <b>true</b>: yes</li> <li>● <b>false</b>: no</li> </ul>
publishable_flag	Boolean	Whether a model can be published to the marketplace. Options: <ul style="list-style-type: none"> <li>● <b>true</b>: yes</li> <li>● <b>false</b>: no</li> </ul>
install_type	String array	Model deployment type, determining which service a model can be deployed as. Possible values are <b>real-time</b> (real-time service) and <b>batch</b> (batch service).
subscription_id	String	Model subscription ID.
extra	String	Extended field.
source_type	String	Model source type. This parameter is valid and its value is <b>auto</b> only if the model is deployed using ExeML.

Parameter	Type	Description
specification	Object	Minimum deployment specification. For details, see <a href="#">Table 6-18</a> .

**Table 6-18 Specification** parameters

Parameter	Type	Description
min_cpu	String	Minimal CPU specifications
min_gpu	String	Minimal GPU specifications
min_memory	String	Minimum memory capacity

## Samples

The following shows how to query models.

- **Sample request**  
GET `https://endpoint/v1/{project_id}/models`
- **Sample response**

```
{
  "total_count": 1,
  "count": 1,
  "models": [
    {
      "model_name": "mnist",
      "model_version": "1.0.0",
      "model_id": "10eb0091-887f-4839-9929-cbc884f1e20e",
      "model_type": "tensorflow",
      "model_size": 5012312,
      "tenant": "6d28e85aa78b4e1a9b4bd83501bcd4a1",
      "project": "d04c10db1f264cfef1966deff1a3527c",
      "owner": "6d28e85aa78b4e1a9b4bd83501bcd4a1",
      "create_at": 1533041553000,
      "description": "mnist model",
      "workspace_id": "0",
      "specification": {}
    }
  ]
}
```

## Status Code

For details about the status code, see [Table 9-1](#).

## 6.3 Querying the Details About a Model

### Function

This API is used to query details about a model based on the model ID.

## URI

GET /v1/{project\_id}/models/{model\_id}

[Table 6-19](#) describes the required parameters.

**Table 6-19** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
model_id	Yes	String	Model ID

## Request Body

None

## Response Body

[Table 6-20](#) describes the response parameters.

**Table 6-20** Parameters

Parameter	Type	Description
model_id	String	Model ID
model_name	String	Model name
model_version	String	Model version
create_at	Long	Time when a model is created, in milliseconds calculated from 1970.1.1 0:0:0 UTC
tenant	String	Tenant to which a model belongs
project	String	Project to which a model belongs
owner	String	User to which a model belongs
source_location	String	OBS path where the model is located or the SWR image location
source_job_id	String	ID of the source training job
source_job_version	String	Version of the source training job

Parameter	Type	Description
model_type	String	Model type. The value can be <b>TensorFlow</b> , <b>MXNet</b> , <b>Spark_Mllib</b> , <b>Scikit_Learn</b> , <b>XGBoost</b> , <b>MindSpore</b> , <b>Image</b> , or <b>PyTorch</b> .
model_size	Long	Model size, in bytes
model_status	String	Model status
runtime	String	Model runtime environment
description	String	Model description
execution_code	String	OBS path for storing the execution code. The name of the execution code file is fixed to <b>customize_service.py</b> .
image_address	String	image path generated after model packaging
input_params	<b>params</b> array	Collection of input parameters of a model. For details, see <a href="#">Table 6-21</a> .
output_params	<b>params</b> array	Collection of output parameters of a model. For details, see <a href="#">Table 6-21</a> .
dependencies	<b>dependency</b> array	Package required for running the inference code and model. For details, see <a href="#">Table 6-22</a> .
model_metrics	String	Model precision
apis	String	All input and output <b>apis</b> parameter information of a model, which is obtained from the model preview
model_source	String	Model source. Options: <ul style="list-style-type: none"> <li>• <b>algos</b>: built-in algorithm</li> <li>• <b>custom</b>: custom model</li> </ul>
tunable	Boolean	Whether a model can be tuned. Options: <ul style="list-style-type: none"> <li>• <b>true</b>: yes</li> <li>• <b>false</b>: no</li> </ul>
market_flag	Boolean	Whether a model is subscribed from the marketplace. Options: <ul style="list-style-type: none"> <li>• <b>true</b>: yes</li> <li>• <b>false</b>: no</li> </ul>

Parameter	Type	Description
publishable_flag	Boolean	Whether a model can be published to the marketplace. Options: <ul style="list-style-type: none"> <li>• <b>true</b>: yes</li> <li>• <b>false</b>: no</li> </ul>
model_docs	<b>GuideDoc</b> array	List of template documents. For details, see <a href="#">Table 6-25</a> .
model_algorithm	String	Model algorithm type. The value can be <b>predict_analysis</b> , <b>object_detection</b> , or <b>image_classification</b> .
model_labels	String array	Model label array.
labels_map	Object	Model label map. The key is fixed to <b>labels</b> , and the value is the model label array.
workspace_id	String	ID of the workspace to which a service belongs. The default value is <b>0</b> , indicating the default workspace. Retain the default setting.
install_type	String array	Supported service type for deployment.
config	String	Model configurations.
health	Object	Model health check configuration. For details, see <a href="#">Table 6-26</a> .
schema_doc	String	Download address of the model schema file.
source_type	String	Model source type. This parameter is valid and its value is <b>auto</b> only if the model is deployed using ExeML.
specification	Object	Minimum model specification. For details, see <a href="#">Table 6-27</a> .

**Table 6-21** params parameters

Parameter	Type	Description
url	String	API URL
method	String	Request method, for example, <b>post</b>
protocol	String	Request protocol, for example, <b>HTTP</b>
param_name	String	Parameter name, which contains a maximum of 64 characters
param_type	String	Parameter type. The value can be <b>int</b> , <b>string</b> , <b>float</b> , <b>timestamp</b> , <b>date</b> , or <b>file</b> .

Parameter	Type	Description
min	Number	This parameter is optional when <b>param_type</b> is set to <b>int</b> or <b>float</b> . By default, this parameter is left blank.
max	Number	This parameter is optional when <b>param_type</b> is set to <b>int</b> or <b>float</b> . By default, this parameter is left blank.
param_desc	String	Parameter description, which contains a maximum of 100 characters. By default, this parameter is left blank.

**Table 6-22 dependency parameters**

Parameter	Type	Description
installer	String	Installer
packages	<b>package</b> array	Collection of dependency packages. For details, see <a href="#">Table 6-23</a> .

**Table 6-23 package parameters**

Parameter	Type	Description
package_name	String	Name of a dependency package
package_version	String	Version of a dependency package
restraint	String	Version restriction. The value can be <b>EXACT</b> , <b>ATLEAST</b> , or <b>ATMOST</b> .

**Table 6-24 metric parameters**

Parameter	Type	Description
f1	Double	F1 score
recall	Double	Recall
precision	Double	Precision
accuracy	Double	Accuracy



**Table 6-25 GuideDoc parameters**

Parameter	Type	Description
doc_name	String	Document name
doc_url	String	HTTP(S) link of the document

**Table 6-26 Health parameters**

Parameter	Type	Description
url	String	URL of the health check interface
protocol	String	Request protocol of the health check interface. Only HTTP is supported.
initial_delay_seconds	String	After an instance is started, a health check starts after seconds configured in <b>initial_delay_seconds</b> .
timeout_seconds	String	Health check timeout

**Table 6-27 Specification parameters**

Parameter	Type	Description
min_cpu	String	Minimum CPU
min_gpu	String	Minimum GPU
min_memory	String	Minimum memory capacity

## Samples

The following shows how to query details about a model based on the model ID.

- Sample request  
GET `https://endpoint/v1/{project_id}/models/{model_id}`
- Sample response
 

```
{
  "model_id": "10eb0091-887f-4839-9929-cbc884f1e20e",
  "model_name": "mnist",
  "model_version": "1.0.0",
  "runtime": "python2.7",
  "tenant": "6d28e85aa78b4e1a9b4bd83501bcd4a1",
  "project": "d04c10db1f264cfcb1966deff1a3527c",
  "owner": "6d28e85aa78b4e1a9b4bd83501bcd4a1",
  "source_location": "https://models.obs.xxx.com/mnist",
  "model_type": "TensorFlow",
  "model_size": 5633481,
  "model_status": "published",
  "execution_code": "https://testmodel.obs.xxx.com/customize_service.py",
```

```

"image_address": "100.125.5.235:20202/models/10eb0091-887f-4839-9929-cbc884f1e20e:1.0.0",
"input_params": [{
  "url": "/",
  "method": "post",
  "protocol": "http",
  "param_name": "data",
  "param_type": "object",
  "param_desc": "{\type:\object\,\properties\:\req_data\:\items\:\{\type:\object\,\
\properties\:\}\},\type:\array\}"
}],
"output_params": [{
  "url": "/",
  "method": "post",
  "protocol": "http",
  "param_name": "data",
  "param_type": "object",
  "param_desc": "{\type:\object\,\properties\:\resp_data\:\type:\array\,\items\:\
{\type:\object\,\properties\:\}\}\}"
}],
"dependencies": [{
  "installer": "pip",

  "packages": [{
    "package_name": "pkg1",
    "package_version": "1.0.1",
    "restraint": "ATLEAST"
  }]
}],
"model_metrics": "{\f1\":0.52381,\recall\":0.666667,\precision\":0.466667,\accuracy\":0.625}",
"apis": "[{\protocol\:\http\,\method\:\post\,\url\:\/\,\input_params\:\{\type:\object\,\
\properties\:\data\:\{\type:\object\,\properties\:\req_data\:\items\:\{\type:\object\,\
\properties\:\}\},\type:\array\}\},\output_params\:\{\type:\object\,\properties\:\data\:\
{\type:\object\,\properties\:\resp_data\:\type:\array\,\items\:\{\type:\object\,\
\properties\:\}\}\}\}\}]",
"model_labels": [],
"labels_map": {"labels": []},
"workspace_id": "0",
"install_type": ["realtime", "batch"],
"specification": {},
"config": "{\model_algorithm\:\image_classification\,\model_source\:\auto\,\tunable\:\
false,\downloadable_flag\:\true,\algorithm\:\resnet_v2_50.mobilenet_v1\,\metrics\:\{\f1\:\
0.912078373015873,\recall\:\0.9125,\precision\:\0.9340277777777778,\accuracy\:\
0.263250724969475\,\model_type\:\TensorFlow\,\runtime\:\tf1.13-python3.6-cpu\,\apis\:\
[\protocol\:\https\,\url\:\/\,\method\:\post\,\request\:\data\:\{\type:\object\,\
\properties\:\images\:\{\type:\file\}\},\Content-type\:\multipart/form-data\,\response\:\
{\type\data\:\{\type:\object\,\required\:\[predicted_label\,\scores\],\properties\:\
predicted_label\:\{\type:\string\},\scores\:\{\type:\array\,\items\:\{\type:\array\,\
\minItems\:\2,\maxItems\:\2,\items\:\[\type:\string\},\type:\number\}\}\}\},\
Content-type\:\multipart/form-data\}\},\dependencies\:\[installer\:\pip\,\packages\:\
[\package_name\:\numpy\,\package_version\:\1.17.0\,\restraint\:\EXACT\},
\package_name\:\h5py\,\package_version\:\2.8.0\,\restraint\:\EXACT\},
\package_name\:\Pillow\,\package_version\:\5.2.0\,\restraint\:\EXACT\},
\package_name\:\scipy\,\package_version\:\1.2.1\,\restraint\:\EXACT\},
\package_name\:\resampy\,\package_version\:\0.2.1\,\restraint\:\EXACT\},
\package_name\:\scikit-learn\,\package_version\:\0.19.1\,\restraint\:\EXACT\}\}\}\}"
}

```

## Status Code

For details about the status code, see [Table 9-1](#).

## 6.4 Deleting a Model

### Function

This API is used to delete a model based on the model ID. When **cascade** is set to **true**, the model specified by the model ID and models of different versions with

the same name as the specified model are deleted. By default, only the model with the specified model ID is deleted.

## URI

DELETE /v1/{project\_id}/models/{model\_id}

**Table 6-28** describes the required parameters.

**Table 6-28** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
model_id	Yes	String	ID of the model to be deleted

**Table 6-29** Parameter description

Parameter	Mandatory	Type	Description
cascade	No	Boolean	The default value is <b>false</b> , indicating that only the model with the specified model ID is deleted. The value <b>true</b> indicates that not only the model with the specified model ID but also all models with the same name but different versions as the specified model will be deleted. A maximum of 20 models can be deleted at a time.

## Request Body

None

## Response Body

**Table 6-30** describes the response parameters.

**Table 6-30** Parameter description

Parameter	Type	Description
delete_success_list	String array	ID list of models successfully deleted

Parameter	Type	Description
delete_failed_list	DeleteModelFailResult array	List of models that fail to be deleted. For details, see <a href="#">Table 6-31</a> .

**Table 6-31 DeleteModelFailResult parameters**

Parameter	Type	Description
model_id	String	ID of a model that fails to be deleted
error_code	String	Error code of the deletion failure
error_msg	String	Error message of the deletion failure

## Samples

The following shows how to delete the model whose ID is **023e90be-7e2a-4169-bab4-1bc34ff0ca45** and all models of the same name but different versions.

- **Sample request**  
DELETE https://endpoint/v1/{project\_id}/models/023e90be-7e2a-4169-bab4-1bc34ff0ca45?  
cascade=true
- **Sample response**  

```
{
  "delete_success_list": ["fc9e88a1-0005-40b3-867e-7aee61449aeb", "f3f3ba0e-
f073-454e-9e3f-14b7d786f45e"],
  "delete_failed_list": [
    {
      "model_id": "759645d9-3672-4db1-bb6d-49ed58b84e10",
      "error_code": "ModelArts.3009",
      "error_msg": "Failed to delete model, model (759645d9-3672-4db1-bb6d-49ed58b84e10) already
deploy service."
    }
  ]
}
```

## Status Code

For details about the status code, see [Table 9-1](#).

# 7 Service Management

---

- [7.1 Deploying a Model as a Service](#)
- [7.2 Querying a Service List](#)
- [7.3 Querying the Details About a Service](#)
- [7.4 Updating Service Configurations](#)
- [7.5 Querying Service Monitoring Information](#)
- [7.6 Querying Service Update Logs](#)
- [7.7 Querying Service Event Logs](#)
- [7.8 Deleting a Service](#)
- [7.9 Querying Supported Service Deployment Specifications](#)
- [7.10 Querying Dedicated Resource Pools](#)

## 7.1 Deploying a Model as a Service

### Function

This API is used to deploy a model as a service.

### URI

POST /v1/{project\_id}/services

[Table 7-1](#) describes the required parameters.

**Table 7-1** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .

## Request Body

[Table 7-2](#) describes the request parameters.

**Table 7-2** Parameters

Parameter	Mandatory	Type	Description
service_name	Yes	String	Service name. Enter 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
description	No	String	Service description, which contains a maximum of 100 characters. By default, this parameter is left blank.
infer_type	Yes	String	Inference mode. The value can be <b>real-time</b> or <b>batch</b> . <ul style="list-style-type: none"> <li><b>real-time</b>: real-time service, which can be stopped as scheduled.</li> <li><b>batch</b>: batch service, which can be configured as tasks to run in batches. When the tasks are completed, the service stops automatically.</li> </ul>
workspace_id	No	String	ID of the workspace to which a service belongs. The default value is <b>0</b> , indicating the default workspace. Retain the default setting.

Parameter	Mandatory	Type	Description
vpc_id	No	String	<p>ID of the VPC to which a real-time service instance is deployed. By default, this parameter is left blank.</p> <ul style="list-style-type: none"> <li>In this case, ModelArts allocates a dedicated VPC to each user so that users are isolated from each other. If you need to access other service components in a VPC of a service instance, set this parameter to the ID of the corresponding VPC.</li> <li>Once a VPC is configured, it cannot be modified. If both <b>vpc_id</b> and <b>cluster_id</b> are configured, only the dedicated resource pool takes effect.</li> </ul>
subnet_network_id	No	String	<p>ID of a subnet. By default, this parameter is left blank.</p> <p>This parameter is mandatory when <b>vpc_id</b> is configured. Enter the network ID displayed in the subnet details on the VPC console. A subnet provides dedicated network resources that are isolated from other networks.</p>
security_group_id	No	String	<p>Security group. By default, this parameter is left blank. This parameter is mandatory when <b>vpc_id</b> is configured.</p> <p>A security group is a virtual firewall that provides secure network access control policies for service instances. A security group must contain at least one inbound rule to permit the requests whose protocol is TCP, source address is <b>0.0.0.0/0</b>, and port number is <b>8080</b>.</p>
cluster_id	No	String	<p>ID of a dedicated resource pool. This parameter is left blank by default, indicating that no dedicated resource pool is used. When using a dedicated resource pool to deploy services, ensure that the resource pool is running properly. After this parameter is set, the network configuration of the cluster is used, and the <b>vpc_id</b> parameter does not take effect. If this parameter is configured with <b>cluster_idpool_name</b> in <b>real-time config</b>, <b>cluster_idpool_name</b> in <b>real-time config</b> is used preferentially.</p>

Parameter	Mandatory	Type	Description
config	Yes	<b>config</b> array corresponding to <b>infer_type</b>	<p>Model running configuration. If <b>infer_type</b> is <b>batch</b>, you can configure only one model. If <b>infer_type</b> is <b>real-time</b>, you can configure multiple models and assign weights based on service requirements. However, the versions of these models cannot be the same.</p> <ul style="list-style-type: none"> <li>• If <b>infer_type</b> is set to <b>real-time</b>, see <a href="#">Table 7-3</a>.</li> <li>• If <b>infer_type</b> is set to <b>batch</b>, see <a href="#">Table 7-4</a>.</li> </ul>
schedule	No	<b>schedule</b> array	<p>Service scheduling configuration, which can be configured only for real-time services. By default, this parameter is not used. Services run for a long time. For details, see <a href="#">Table 7-5</a>.</p>

**Table 7-3 config** parameters of **real-time**

Parameter	Mandatory	Type	Description
model_id	Yes	String	Model ID
weight	Yes	Integer	Traffic weight allocated to a model. This parameter is mandatory only when <b>infer_type</b> is set to <b>real-time</b> . The sum of the weights must be 100.
specification	Yes	String	<p>Resource specifications. Select specifications based on service requirements. For the current version, the following specifications are available:</p> <ul style="list-style-type: none"> <li>• modelarts.vm.cpu.2u</li> <li>• modelarts.vm.gpu.p4</li> </ul>
custom_spec	No	Object	<p>Custom specifications. Set this parameter when you use a dedicated resource pool. For details, see <a href="#">Table 7-6</a>.</p>
instance_count	Yes	Integer	Number of instances deployed in a model. The value must be greater than 0.



Parameter	Mandatory	Type	Description
envs	No	Map<String, String>	(Optional) Environment variable key-value pair required for running a model. By default, this parameter is left blank. To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
cluster_id	No	string	ID of a dedicated resource pool. By default, this parameter is left blank, indicating that no dedicated resource pool is used. After this parameter is set, the network configuration of the cluster is used, and the vpc_id parameter does not take effect.

**Table 7-4 config** parameters of **batch**

Parameter	Mandatory	Type	Description
model_id	Yes	String	Model ID
specification	Yes	String	Resource flavor. Options: <b>modelarts.vm.cpu.2u</b> and <b>modelarts.vm.gpu.p4</b>
instance_count	Yes	Integer	Number of instances deployed in a model.
envs	No	Map<String, String>	(Optional) Environment variable key-value pair required for running a model. By default, this parameter is left blank. To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
src_type	No	String	Data source type. This parameter can be set to <b>ManifestFile</b> . By default, this parameter is left blank, indicating that only files in the <b>src_path</b> directory are read. If this parameter is set to <b>ManifestFile</b> , <b>src_path</b> must be a specific manifest file path. You can specify multiple data paths in the manifest file.
src_path	Yes	String	OBS path of the input data of a batch job
dest_path	Yes	String	OBS path of the output data of a batch job

Parameter	Mandatory	Type	Description
req_uri	Yes	String	Inference API called in a batch job, which is a REST API in the model image. Select an API URI from the model <b>config.json</b> file for inference. If a ModelArts built-in inference image is used, the value of this parameter is <code>/</code> .
mapping_type	Yes	String	<p>Mapping type of the input data. The value can be <b>file</b> or <b>csv</b>.</p> <ul style="list-style-type: none"> <li>If you select <b>file</b>, each inference request corresponds to a file in the input data path. When this mode is used, <b>req_uri</b> of this model can have only one input parameter and the type of this parameter is <b>file</b>.</li> <li>If you select <b>csv</b>, each inference request corresponds to a row of data in the CSV file. When this mode is used, the files in the input data path can only be in CSV format and <b>mapping_rule</b> must be configured to map the index of each parameter in the inference request body to the CSV file.</li> </ul>
mapping_rule	No	Map	<p>Mapping between input parameters and CSV data. This parameter is mandatory only when <b>mapping_type</b> is set to <b>csv</b>.</p> <p>Mapping rule: The mapping rule comes from the input parameter (<b>input_params</b>) in the model configuration file <b>config.json</b>. When <b>type</b> is set to <b>string</b>, <b>number</b>, <b>integer</b>, or <b>boolean</b>, configure the index parameter. For details, see .</p> <p>The index must be a positive integer starting from 0. If the value of index does not comply with the rule, this parameter is ignored in the request. After the mapping rule is configured, the corresponding CSV data must be separated by commas (,).</p>

**Table 7-5** schedule parameters

Parameter	Mandatory	Type	Description
type	Yes	String	Scheduling type. Only the value <b>stop</b> is supported.
time_unit	Yes	String	Scheduling time unit. Options: <ul style="list-style-type: none"> <li>• <b>DAYS</b></li> <li>• <b>HOURS</b></li> <li>• <b>MINUTES</b></li> </ul>
duration	Yes	Integer	Value that maps to the time unit. For example, if the task stops after two hours, set <b>time_unit</b> to <b>HOURS</b> and <b>duration</b> to <b>2</b> .

**Table 7-6** custom\_spec parameters

Parameter	Mandatory	Type	Description
cpu	Yes	Float	Number of required CPUs
memory	Yes	Integer	Required memory capacity, in MB
gpu_p4	No	Float	Number of GPUs, which can be decimals. This parameter is optional. By default, it is not used.

## Response Body

[Table 7-7](#) describes the response parameters.

**Table 7-7** Parameters

Parameter	Type	Description
service_id	String	Service ID
resource_ids	Array of strings	Resource ID array for the resource IDs generated by the target model

## Samples

The following shows how to deploy different types of services.

- Sample request: Creating a real-time service

```
POST https://endpoint/v1/{project_id}/services
{
  "service_name": "mnist",
  "description": "mnist service",
  "infer_type": "real-time",
  "config": [
    {
      "model_id": "xxxmodel-idxxx",
      "weight": "100",
      "specification": "modelarts.vm.cpu.2u",
      "instance_count": 1
    }
  ]
}
```

- Sample request: Creating a real-time service and configuring multi-version traffic distribution

```
{
  "service_name": "mnist",
  "description": "mnist service",
  "infer_type": "real-time",
  "config": [
    {
      "model_id": "xxxmodel-idxxx",
      "weight": "70",
      "specification": "modelarts.vm.cpu.2u",
      "instance_count": 1,
      "envs": {
        "model_name": "mxnet-model-1",
        "load_epoch": "0"
      }
    },
    {
      "model_id": "xxxxxx",
      "weight": "30",
      "specification": "modelarts.vm.cpu.2u",
      "instance_count": 1
    }
  ]
}
```

- Sample request: Creating a real-time service in a dedicated resource pool with custom specifications

```
{
  "service_name": "realtime-demo",
  "description": "",
  "infer_type": "real-time",
  "cluster_id": "8abf68a969c3cb3a0169c4acb24b0000",
  "config": [{
    "model_id": "eb6a4a8c-5713-4a27-b8ed-c7e694499af5",
    "weight": "100",
    "cluster_id": "8abf68a969c3cb3a0169c4acb24b0000",
    "specification": "custom",
    "custom_spec": {
      "cpu": 1.5,
      "memory": 7500,
      "gpu_p4": 0,
    },
    "instance_count": 1
  }]
}
```

- Sample request: Creating a real-time service and setting it to automatically stop

```
{
  "service_name": "service-demo",
  "description": "demo",
}
```

```

"infer_type": "real-time",
"config": [{
  "model_id": "xxxmodel-idxxx",
  "weight": "100",
  "specification": "modelarts.vm.cpu.2u",
  "instance_count": 1
}],
"schedule": [{
  "type": "stop",
  "time_unit": "HOURS",
  "duration": 1
}]
}

```

- Sample request: Creating a batch service and setting **mapping\_type** to **file**

```

{
  "service_name": "batchservicetest",
  "description": "",
  "infer_type": "batch",
  "cluster_id": "8abf68a969c3cb3a0169c4acb24b****",
  "config": [{
    "model_id": "598b913a-af3e-41ba-a1b5-bf065320f1e2",
    "specification": "modelarts.vm.cpu.2u",
    "instance_count": 1,
    "src_path": "https://infern-data.obs.xxx.com/xgboosterdata/",
    "dest_path": "https://infern-data.obs.dxxx.com/output/",
    "req_uri": "/",
    "mapping_type": "file"
  }]
}

```

- Sample request for creating an edge service

```

{
  "service_id": "10eb0091-887f-4839-9929-cbc884f1e20e",
  "resource_ids": [ "INF-f878991839647358@1598319442708" ]
}

```

## Status Code

For details about the status code, see [Table 9-1](#).

## 7.2 Querying a Service List

### Function

This API is used to obtain model services.

### URI

GET /v1/{project\_id}/services

[Table 7-8](#) describes the required parameters.

**Table 7-8** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .

**Table 7-9** Parameters

Parameter	Mandatory	Type	Description
service_id	No	String	Service ID
service_name	No	String	Service name
model_id	No	String	Model ID
cluster_id	No	String	Dedicated resource pool ID, which is left blank by default
workspace_id	No	String	Workspace ID. Default value: <b>0</b>
infer_type	No	String	Inference mode. The value can be <b>real-time</b> or <b>batch</b> . By default, this parameter is left blank.
status	No	String	Service status. By default, the service status is not filtered. You can query information by service status. The possible values are <b>running</b> , <b>deploying</b> , <b>concerning</b> , <b>failed</b> , <b>stopped</b> , and <b>finished</b> .
offset	No	Integer	Start page of the paging list. Default value: <b>0</b>
limit	No	Integer	Maximum number of records returned on each page. The default value is <b>1000</b> . The recommended value ranges from 10 to 50.
sort_by	No	String	Sorting mode. The value can be <b>publish_at</b> or <b>service_name</b> . Default value: <b>publish_at</b>
order	No	String	Sorting order. The value can be <b>asc</b> or <b>desc</b> , indicating ascending or descending order. Default value: <b>desc</b>

## Request Body

None

## Response Body

[Table 7-10](#) describes the response parameters.

**Table 7-10** Parameters

Parameter	Type	Description
total_count	Integer	Total number of services that meet the search criteria when no paging is implemented
count	Integer	Number of services in the query result. If <b>offset</b> and <b>limit</b> are not set, the values of <b>count</b> and <b>total_count</b> are the same.
services	<b>service</b> array	Collection of the queried services. For details, see <a href="#">Table 7-11</a> .

**Table 7-11** service parameters

Parameter	Type	Description
service_id	String	Service ID
service_name	String	Service name
description	String	Service description
tenant	String	Tenant to which a service belongs
project	String	Project to which a service belongs
owner	String	User to which a service belongs
publish_at	Long	Latest service release time, in milliseconds calculated from 1970.1.1 0:0:0 UTC
infer_type	String	Inference mode. The value can be <b>real-time</b> or <b>batch</b> .
workspace_id	String	Workspace ID. Default value: <b>0</b>

Parameter	Type	Description
status	String	<p>Service status. The value can be <b>running</b>, <b>deploying</b>, <b>concerning</b>, <b>failed</b>, <b>stopped</b>, or <b>finished</b>.</p> <ul style="list-style-type: none"> <li>• <b>running</b>: The service is running properly.</li> <li>• <b>deploying</b>: The service is being deployed or scheduling resources are being deployed.</li> <li>• <b>concerning</b>: The backend instances are abnormal. For example, if there are multiple instances and some instances are abnormal, the normal instances will consume resources. In this case, the service status is concerning.</li> <li>• <b>failed</b>: The service fails to be deployed. For details about the failure cause, see the event and log tab pages.</li> <li>• <b>stopped</b>: The service has been stopped.</li> <li>• <b>finished</b>: This state is displayed only for the batch service, indicating that the service running is complete.</li> </ul>
start_time	Number	Batch service start time, in milliseconds calculated from 1970.1.1 0:0:0 UTC. This parameter is returned only when the service is a batch service.
finished_time	Number	Batch service end time, in milliseconds calculated from 1970.1.1 0:0:0 UTC. This parameter is returned only when the service is a batch service.
progress	integer	Deployment progress. This parameter is returned when the status is <b>deploying</b> .
invocation_times	Long	Total number of service calls
failed_times	Long	Number of failed service calls
is_shared	Boolean	Whether a service is subscribed
shared_count	Number	Number of subscribed services
schedule	<b>schedule</b> array	Service scheduling. For details, see <a href="#">Table 7-12</a> .
due_time	number	Time when a real-time service automatically stops, in milliseconds calculated from 1970.1.1 0:0:0 UTC.
operation_time	number	Operation time of a request
is_opened_sample_collection	String	Whether to enable data collection. The default value is <b>false</b> .



Parameter	Type	Description
transition_at	number	Time when the service status changes
is_free	Boolean	Whether a service uses the free-of-charge flavor
additional_properties	Map<String, Object>	Additional service attribute. If this parameter is not set, no value is returned.

**Table 7-12** schedule parameters

Parameter	Mandatory	Type	Description
type	Yes	String	Scheduling type. Only the value <b>stop</b> is supported.
time_unit	Yes	String	Scheduling time unit. Options: <ul style="list-style-type: none"> <li>• <b>DAYS</b></li> <li>• <b>HOURS</b></li> <li>• <b>MINUTES</b></li> </ul>
duration	Yes	Integer	Value that maps to the time unit. For example, if the task stops after two hours, set <b>time_unit</b> to <b>HOURS</b> and <b>duration</b> to <b>2</b> .

## Samples

The following shows how to query model services.

- Sample request  
GET `https://endpoint/v1/{project_id}/services`

- Sample response

```
{
  "count": 2,
  "total_count": 2,
  "services": [
    {
      "service_id": "8da30673-908d-45a7-90a4-65f98e69fc34",
      "service_name": "service-demo",
      "tenant": "xxx",
      "project": "xxx",
      "owner": "xxx",
      "publish_at": 1584622900171,
      "infer_type": "real-time",
      "status": "stopped",
      "progress": 100,
      "invocation_times": 0,
      "failed_times": 0,
      "is_shared": false,
      "shared_count": 0,
      "workspace_id": "0",
      "schedule": [
```

```
{
  "type": "stop",
  "duration": 1,
  "time_unit": "HOURS"
},
{
  "due_time": 1584626633902,
  "operation_time": 1586250354961,
  "is_opened_sample_collection": false,
  "additional_properties": {},
  "is_free": false,
  "transition_at": 1584623163721,
},
{
  "service_id": "912f1a4a-5962-455c-b11c-5fdf06045cb3",
  "service_name": "service-demo2",
  "tenant": "xxx",
  "project": "xxx",
  "owner": "xxx",
  "publish_at": 1584618274410,
  "infer_type": "real-time",
  "status": "stopped",
  "progress": 100,
  "invocation_times": 0,
  "failed_times": 0,
  "is_shared": false,
  "shared_count": 0,
  "workspace_id": "0",
  "schedule": [
    {
      "type": "stop",
      "duration": 1,
      "time_unit": "HOURS"
    }
  ],
  "due_time": 1584622027673,
  "operation_time": 1586250354961,
  "is_opened_sample_collection": false,
  "additional_properties": {},
  "is_free": false,
  "transition_at": 1584618498528,
}
]
```

## Status Code

For details about the status code, see [Table 9-1](#).

## 7.3 Querying the Details About a Service

### Function

This API is used to query the details about a model service based on the service ID.

### URI

GET /v1/{project\_id}/services/{service\_id}

[Table 7-13](#) describes the required parameters.

**Table 7-13** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
service_id	Yes	String	Service ID

## Request Body

None

## Response Body

[Table 7-14](#) describes the response parameters.

**Table 7-14** Parameters

Parameter	Type	Description
service_id	String	Service ID
service_name	String	Service name
description	String	Service description
tenant	String	Tenant to which a service belongs
project	String	Project to which a service belongs
owner	String	User to which a service belongs
publish_at	Number	Latest service release time, in milliseconds calculated from 1970.1.1 0:0:0 UTC
infer_type	String	Inference type, which can be <b>real-time</b> or <b>batch</b>
workspace_id	String	Workspace ID
cluster_id	String	ID of the dedicated resource pool used by the real-time or batch service. This parameter is available only when a dedicated resource pool is used.
vpc_id	String	ID of the VPC to which the real-time service instance belongs. This parameter is available when the network configuration is customized.

Parameter	Type	Description
subnet_network_id	String	ID of the subnet to which the real-time service instance belongs. This parameter is available when the network configuration is customized.
security_group_id	String	Security group to which the real-time service instance belongs. This parameter is available when the network configuration is customized.
status	String	Service status, which can be <b>running</b> , <b>deploying</b> , <b>concerning</b> , <b>failed</b> , <b>stopped</b> , or <b>finished</b>
progress	Integer	Deployment progress. This parameter is available when the status is <b>deploying</b> .
error_msg	String	Error message. When <b>status</b> is <b>failed</b> , an error message carrying the failure cause is returned.
config	<b>config</b> array corresponding to <b>infer_type</b>	Service configuration (If a service is shared, only <b>model_id</b> , <b>model_name</b> , and <b>model_version</b> are returned.) <ul style="list-style-type: none"> <li>• If <b>infer_type</b> is set to <b>real-time</b>, see <a href="#">Table 7-15</a>.</li> <li>• If <b>infer_type</b> is set to <b>batch</b>, see <a href="#">Table 7-16</a>.</li> </ul>
access_address	String	Access address of an inference request. This parameter is available when <b>infer_type</b> is set to <b>real-time</b> .
bind_access_address	String	Request address of a custom domain name. This parameter is available after a domain name is bound.
invocation_times	Number	Total number of service calls
failed_times	Number	Number of failed service calls
is_shared	Boolean	Whether a service is subscribed
shared_count	Number	Number of subscribed services
schedule	<b>schedule</b> array	Service scheduling configuration. If this parameter is not set, no value will be returned. For details, see <a href="#">Table 7-18</a> .
update_time	Number	Time when the configuration used by a service is updated, in milliseconds calculated from 1970.1.1 0:0:0 UTC

Parameter	Type	Description
debug_url	String	Online debugging address of a real-time service. This parameter is available only when the model supports online debugging and there is only one instance.
due_time	number	Time when a real-time service automatically stops, in milliseconds calculated from 1970.1.1 0:0:0 UTC
operation_time	number	Operation time of a request
transition_at	number	Time when the service status changes
is_free	Boolean	Whether a free-of-charge flavor is used
additional_properties	Map<String, Object>	Additional service attribute

**Table 7-15 config parameters of real-time**

Parameter	Type	Description
model_id	String	Model ID
model_name	String	Model name
model_version	String	Model version
source_type	String	Model source. This parameter is returned when a model is created through ExeML. The value is <b>auto</b> .
status	String	Model status. Options: <ul style="list-style-type: none"> <li>● <b>ready</b>: ready (All instances have been started.)</li> <li>● <b>concerning</b>: partially ready (Some instances are started and some are not.)</li> <li>● <b>notReady</b>: not ready (All instances are not started.)</li> </ul>
weight	Integer	Traffic weight allocated to a model
specification	String	Resource flavor. Options: <b>modelarts.vm.cpu.2u</b> , <b>modelarts.vm.gpu.p4</b> , and <b>modelarts.vm.ai1.a310</b>
custom_spec	Object	Custom For details, see <a href="#">Table 7-19</a> .

Parameter	Type	Description
envs	Map<String, String>	(Optional) Environment variable key-value pair required for running a model To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
instance_count	Integer	Number of instances deployed in a model
scaling	Boolean	Whether auto scaling is enabled
cluster_id	String	ID of a dedicated resource pool used by a service instance. This parameter is returned only when a dedicated resource pool is configured.
support_debug	Boolean	Whether a model supports online debugging
additional_properties	Map<String, Object>	Additional model deployment attribute

**Table 7-16 config** parameters of **batch**

Parameter	Type	Description
model_id	String	Model ID
model_name	String	Model name
model_version	String	Model version
specification	String	Resource flavor. Options: <b>modelarts.vm.cpu.2u</b> , <b>modelarts.vm.gpu.p4</b> , and <b>modelarts.vm.ai1.a310</b>
custom_spec	Object	Custom For details, see <a href="#">Table 7-19</a> .
envs	Map<String, String>	(Optional) Environment variable key-value pair required for running a model To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
instance_count	Integer	Number of instances deployed in a model
src_type	String	Data source type. This parameter is returned only when <b>ManifestFile</b> is specified.

Parameter	Type	Description
src_path	String	OBS path of the input data of a batch job
dest_path	String	OBS path of the output data of a batch job
req_uri	String	Inference path of a batch job
mapping_type	String	Mapping type of the input data. The value can be <b>file</b> or <b>csv</b> .
mapping_rule	Map	Mapping between input parameters and CSV data. This parameter is mandatory only when <b>mapping_type</b> is set to <b>csv</b> .
start_time	Number	Task start time, in milliseconds calculated from 1970.1.1 0:0:0 UTC. This parameter is not returned until the task starts.
finished_time	Number	Task finished time, in milliseconds calculated from 1970.1.1 0:0:0 UTC. This parameter is not returned until the task ends.

**Table 7-17** node parameters

Parameter	Type	Description
id	String	Node ID
name	String	Node name
instance_status	String	Status of a model instance on a node. The value can be <b>running</b> , <b>stopped</b> , <b>notReady</b> , or <b>failed</b> .
predict_url	String	Inference URL of a node
node_label	String	Node label
description	String	Description
host_name	String	Host name of a node
os_name	String	OS name
os_type	String	OS type
os_version	String	OS version
arch	String	Node architecture

Parameter	Type	Description
cpu	Integer	Number of CPUs
memory	Integer	Memory size, in MB
gpu_num	Integer	Number of GPUs
enable_gpu	String	Whether to enable the GPU
host_ips	String array	Host IP of a node
deployment_num	Integer	Number of application instances deployed on a node
state	String	Host status. Options: <ul style="list-style-type: none"> <li>● <b>RUNNING</b>: running</li> <li>● <b>FAIL</b>: faulty</li> <li>● <b>UNCONNECTED</b>: disconnected</li> </ul>
created_at	String	Creation time, in the format of <i>YYYY-MM-DDThh:mm:ss</i> (UTC)
updated_at	String	Update time, in the format of <i>YYYY-MM-DDThh:mm:ss</i> (UTC)

**Table 7-18** `schedule` parameters

Parameter	Type	Description
type	String	Scheduling type. Only the value <b>stop</b> is supported.
time_unit	String	Scheduling time unit. Options: <ul style="list-style-type: none"> <li>● DAYS</li> <li>● HOURS</li> <li>● MINUTES</li> </ul>
duration	Integer	Value that maps to the time unit. For example, if the task stops after two hours, set <b>time_unit</b> to <b>HOURS</b> and <b>duration</b> to <b>2</b> .

**Table 7-19** `custom_spec` parameters

Parameter	Type	Description
cpu	Float	Number of CPUs
memory	Integer	Memory capacity in MB
gpu_p4	Float	Number of GPUs



## Samples

The following shows how to query the details about a real-time service based on the service ID.

- Sample request

```
GET https://endpoint/v1/{project_id}/services/{service_id}
```

- Sample response

```
{
  "service_id": "f76f20ba-78f5-44e8-893a-37c8c600c02f",
  "service_name": "service-demo",
  "tenant": "xxxxx",
  "project": "xxxxx",
  "owner": "xxxxx",
  "publish_at": 1585809231902,
  "update_time": 1585809358259,
  "infer_type": "real-time",
  "status": "running",
  "progress": 100,
  "access_address": "https://xxxxx.apigw.xxxx/v1/infers/088458d9-5755-4110-97d8-1d21065ea10b/f76f20ba-78f5-44e8-893a-37c8c600c02f",
  "cluster_id": "088458d9-5755-4110-97d8-1d21065ea10b",
  "workspace_id": "0",
  "additional_properties": {},
  "is_shared": false,
  "invocation_times": 0,
  "failed_times": 0,
  "shared_count": 0,
  "operation_time": 1586249085447,
  "config": [{
    "model_id": "044ebf3d-8bf4-48df-bf40-bad0e664c1e2",
    "model_name": "jar-model",
    "model_version": "1.0.1",
    "specification": "custom",
    "custom_spec": {},
    "status": "notReady",
    "weight": 100,
    "instance_count": 1,
    "scaling": false,
    "envs": {},
    "additional_properties": {},
    "support_debug": false
  }],
  "transition_at": 1585809231902,
  "is_free": false
}
```

## Status Code

For details about the status code, see [Table 9-1](#).

## 7.4 Updating Service Configurations

### Function

This API is used to update configurations of a model service. It can also be used to start or stop a service.

### URI

```
PUT /v1/{project_id}/services/{service_id}
```

[Table 7-20](#) describes the required parameters.

**Table 7-20** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
service_id	Yes	String	Service ID

## Request Body

[Table 7-21](#) describes the request parameters.

**Table 7-21** Parameters

Parameter	Mandatory	Type	Description
description	No	String	Service description, which contains a maximum of 100 characters. If this parameter is not set, the service description is not updated.
status	No	String	Service status. The value can be <b>running</b> or <b>stopped</b> . If this parameter is not set, the service status is not changed. <b>status</b> and <b>config</b> cannot be modified at the same time. If both parameters exist, modify only the <b>status</b> parameter.
config	No	<b>config</b> array corresponding to <b>infer_type</b>	Service configuration. If this parameter is not set, the service is not updated. The model service is modified and the <b>update_time</b> parameter is returned only for requests with <b>config</b> updated. <ul style="list-style-type: none"> <li>If <b>infer_type</b> is set to <b>real-time</b>, see <a href="#">Table 7-22</a>.</li> <li>If <b>infer_type</b> is set to <b>batch</b>, see <a href="#">Table 7-23</a>.</li> </ul>
schedule	No	<b>schedule</b> array	Service scheduling configuration, which can be configured only for real-time services. By default, this parameter is not used. Services run for a long time. For details, see <a href="#">Table 7-24</a> .

Parameter	Mandatory	Type	Description
additional_properties	No	Map<String, Object>	Additional service attribute, which facilitates service management

**Table 7-22 config parameters of real-time**

Parameter	Mandatory	Type	Description
model_id	Yes	String	Model ID
weight	Yes	Integer	Traffic weight allocated to a model. This parameter is mandatory only when <b>infer_type</b> is set to <b>real-time</b> . The sum of the weights must be 100.
specification	Yes	String	Resource specifications. Select specifications based on service requirements.
custom_spec	No	Object	Custom specifications. Set this parameter when you use a dedicated resource pool. For details, see <a href="#">Table 7-6</a> .
instance_count	Yes	Integer	Number of instances for deploying a model. The value must be greater than 0.
envs	No	Map<String, String>	(Optional) Environment variable key-value pair required for running a model. By default, this parameter is left blank. To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
cluster_id	No	string	ID of a dedicated resource pool. By default, this parameter is left blank, indicating that no dedicated resource pool is used.

**Table 7-23 config parameters of batch**

Parameter	Mandatory	Type	Description
model_id	Yes	String	Model ID

Parameter	Mandatory	Type	Description
specification	Yes	String	Resource flavor. Options: <b>modelarts.vm.cpu.2u</b> and <b>modelarts.vm.gpu.p4</b>
instance_count	Yes	Integer	Number of instances for deploying a model.
envs	No	Map<String, String>	(Optional) Environment variable key-value pair required for running a model. By default, this parameter is left blank. To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
src_type	No	String	Data source type. This parameter can be set to <b>ManifestFile</b> . By default, this parameter is left blank, indicating that only files in the <b>src_path</b> directory are read. If this parameter is set to <b>ManifestFile</b> , <b>src_path</b> must be a specific manifest file path. You can specify multiple data paths in the manifest file.
src_path	Yes	String	OBS path of the input data of a batch job
dest_path	Yes	String	OBS path of the output data of a batch job
req_uri	Yes	String	Inference API called in a batch job, which is a REST API in the model image. Select an API URI from the model <b>config.json</b> file for inference. If a ModelArts built-in inference image is used, the value of this parameter is <b>/</b> .

Parameter	Mandatory	Type	Description
mapping_type	Yes	String	<p>Mapping type of the input data. The value can be <b>file</b> or <b>csv</b>.</p> <ul style="list-style-type: none"> <li>If you select <b>file</b>, each inference request corresponds to a file in the input data path. When this mode is used, <b>req_uri</b> of this model can have only one input parameter and the type of this parameter is <b>file</b>.</li> <li>If you select <b>csv</b>, each inference request corresponds to a row of data in the CSV file. When this mode is used, the files in the input data path can only be in CSV format and <b>mapping_rule</b> must be configured to map the index of each parameter in the inference request body to the CSV file.</li> </ul>
mapping_rule	No	Map	<p>Mapping between input parameters and CSV data. This parameter is mandatory only when <b>mapping_type</b> is set to <b>csv</b>.</p> <p>Mapping rule: The mapping rule comes from the input parameter (<b>input_params</b>) in the model configuration file <b>config.json</b>. When <b>type</b> is set to <b>string</b>, <b>number</b>, <b>integer</b>, or <b>boolean</b>, configure the index parameter. For details, see .</p> <p>The index must be a positive integer starting from 0. If the index value does not comply with the rule, this parameter will be ignored in the request. After the mapping rule is configured, the CSV data must be separated by commas (,).</p>

Table 7-24 schedule parameters

Parameter	Mandatory	Type	Description
type	Yes	String	Scheduling type. Only the value <b>stop</b> is supported.
time_unit	Yes	String	Scheduling time unit. Possible values are <b>DAYS</b> , <b>HOURS</b> , and <b>MINUTES</b> .

Parameter	Mandatory	Type	Description
duration	Yes	Integer	Value that maps to the time unit. For example, if the task stops after two hours, set <b>time_unit</b> to <b>HOURS</b> and <b>duration</b> to <b>2</b> .

**Table 7-25 custom\_spec parameters**

Parameter	Mandatory	Type	Description
cpu	Yes	Float	Number of required CPUs
memory	Yes	Integer	Required memory capacity, in MB
gpu_p4	No	Float	Number of GPUs, which can be decimals. This parameter is optional. By default, it is not used.

## Response Body

None

## Samples

The following shows how to update a real-time service.

- **Sample request**  

```
PUT https://endpoint/v1/{project_id}/services/{service_id}
{
  "description": "",
  "status": "running",
  "config": [{
    "model_id": "xxx",
    "weight": "100",
    "specification": "modelarts.vm.cpu.2u",
    "instance_count": 1
  }]
}
```
- **Sample response**  

```
{}
```

## Status Code

For details about the status code, see [Table 9-1](#).

# 7.5 Querying Service Monitoring Information

## Function

This API is used to query service monitoring information.

## URI

GET /v1/{project\_id}/services/{service\_id}/monitor

[Table 7-26](#) describes the required parameters.

**Table 7-26** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
service_id	Yes	String	Service ID

**Table 7-27** Parameters

Parameter	Mandatory	Type	Description
node_id	No	String	ID of the node to be obtained. By default, all nodes are obtained.

## Request Body

None

## Response Body

[Table 7-28](#) describes the response parameters.

**Table 7-28** Parameters

Parameter	Type	Description
service_id	String	Service ID
service_name	String	Service name
monitors	<b>monitor</b> array corresponding to <b>infer_type</b> of a service	Monitoring details <ul style="list-style-type: none"> <li>If <b>infer_type</b> is set to <b>real-time</b>, see <a href="#">Table 7-29</a>.</li> </ul>

**Table 7-29 monitor** parameters of **real-time**

Parameter	Type	Description
model_id	String	Model ID
model_name	String	Model name
model_version	String	Model version
invocation_times	Long	Total number of model instance calls
failed_times	Long	Number of failed model instance calls
cpu_core_usage	Float	Number of used CPUs
cpu_core_total	Float	Total number of CPUs
cpu_memory_usage	Integer	Used memory, in MB
cpu_memory_total	Integer	Total memory, in MB
gpu_usage	Float	Number used GPUs
gpu_total	Float	Total number of GPUs

## Samples

The following shows how to query the monitoring information about a real-time service.

- **Sample request**  
GET `https://endpoint/v1/{project_id}/services/{service_id}/monitor`

- **Sample response**  

```
{
  "service_id": "xxx",
  "service_name": "mnist",
  "monitors": [
    {
      "model_id": "xxx",
      "model_name": "mnist",
      "model_version": "1.0.0",
      "invocation_times": 50,
      "failed_times": 1,
      "cpu_core_usage": "2.4",
      "cpu_core_total": "4",
      "cpu_memory_usage": "2011",
      "cpu_memory_total": "8192",
      "gpu_usage": "0.6",
      "gpu_total": "1"
    }
  ]
}
```



## Status Code

For details about the status code, see [Table 9-1](#).

# 7.6 Querying Service Update Logs

## Function

This API is used to query the update logs of a real-time service.

## URI

GET /v1/{project\_id}/services/{service\_id}/logs

[Table 7-30](#) describes the required parameters.

**Table 7-30** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
service_id	Yes	String	Service ID
update_time	No	Number	Update time for filtering. This parameter can be used to obtain the update logs of a real-time service. By default, the filtering by update time is disabled.

## Request Body

None

## Response Body

[Table 7-31](#) describes the response parameters.

**Table 7-31** Parameters

Parameter	Type	Description
service_id	String	Service ID
service_name	String	Service name
logs	<b>log</b> array	Service update logs. For details, see <a href="#">Table 7-32</a> .

**Table 7-32 log** parameters

Parameter	Type	Description
update_time	Number	Time when a service is updated, in milliseconds calculated from 1970.1.1 0:0:0 UTC
result	String	Update result. The value can be <b>SUCCESS</b> , <b>FAIL</b> , or <b>RUNNING</b> .
config	<b>config</b> array	Updated service configurations. For details, see <a href="#">Table 7-33</a> .
success_num	Number	Number of nodes that are successfully operated. This parameter is returned when <b>infer_type</b> is set to <b>edge</b> .
failed_num	Number	Number of nodes that fail to be operated. This parameter is returned when <b>infer_type</b> is set to <b>edge</b> .
result_detail	<b>result</b> array	Operation result details. This parameter is returned when <b>infer_type</b> is set to <b>edge</b> . For details, see <a href="#">Table 7-34</a> .
cluster_id	String	ID of a dedicated resource pool
extend_config	List	Personalized configuration

**Table 7-33 config** parameters

Parameter	Type	Description
model_id	String	Model ID
model_name	String	Model name
model_version	String	Model version
weight	Integer	Traffic weight allocated to a model. This parameter is returned when <b>infer_type</b> is set to <b>real-time</b> .
specification	String	Resource flavor.
custom_spec	Object	Custom specifications. For details, see <a href="#">Table 7-35</a> .
instance_count	Integer	Number of instances deployed in a model.

Parameter	Type	Description
envs	Map<String, String>	Environment variable key-value pair required for running a model To ensure data security, do not enter sensitive information, such as plaintext passwords, in environment variables.
cluster_id	String	ID of a dedicated resource pool

**Table 7-34 result** parameters

Parameter	Type	Description
node_id	String	Node ID
node_name	String	Node name
operation	String	Operation type. The value can be <b>deploy</b> or <b>delete</b> .
result	Boolean	Operation result. <b>true</b> indicates operation success, and <b>false</b> indicates operation failure.

**Table 7-35 custom\_spec** parameters

Parameter	Type	Description
cpu	Float	Number of CPUs
memory	Integer	Memory capacity in MB
gpu_p4	Float	Number of GPUs

## Samples

The following shows how to query the update logs of the real-time service whose ID is **xxxxxx** and name is **mnist**.

- Sample request  
GET `https://endpoint/v1/{project_id}/services/xxxxxx/logs`

- Sample response  

```
{
  "service_id": "e2122bbd-f7c8-4bf8-bacc-59616276194b",
  "service_name": "service-demo",
  "logs": [{
    "config": [{
      "model_id": "f565ac47-6239-4e8c-b2dc-0665dc52e302",
      "model_name": "model-demo",
      "model_version": "0.0.1",
      "specification": "modelarts.vm.cpu.2u",

```

```

    "custom_spec": {},
    "weight": 100,
    "instance_count": 1,
    "scaling": false,
    "envs": {},
    "cluster_id": "2c9080f86d37da64016d381fe5940002"
  }},
  "extend_config": [],
  "update_time": 1586250930708,
  "result": "RUNNING",
  "cluster_id": "2c9080f86d37da64016d381fe5940002"
}
}

```

## Status Code

For details about the status code, see [Table 9-1](#).

## 7.7 Querying Service Event Logs

### Function

This API is used to query service event logs, including service operation records, key actions during deployment, and deployment failure causes.

### URI

GET /v1/{project\_id}/services/{service\_id}/events

[Table 7-36](#) describes the required parameters.

**Table 7-36** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
service_id	Yes	String	Service ID

**Table 7-37** Parameters

Parameter	Mandatory	Type	Description
event_type	No	String	Type of the event to be filtered. By default, the event type is not filtered. Options: <ul style="list-style-type: none"> <li>• <b>normal</b>: normal events</li> <li>• <b>abnormal</b>: abnormal events</li> </ul>

Parameter	Mandatory	Type	Description
start_time	No	Number	Start time of the event to be filtered. The value is milliseconds between the current time and '1970.1.1 0:0:0 UTC'.
end_time	No	Number	End time of the event to be filtered. The value is milliseconds between the current time and '1970.1.1 0:0:0 UTC'.
offset	No	Integer	Start page of the paging list. Default value: <b>0</b>
limit	No	Integer	Maximum number of records returned on each page. Default value: <b>1000</b>
sort_by	No	String	Specified sorting field. The default value is <b>occur_time</b> .
order	No	String	Sorting mode. The default value is <b>desc</b> . Options: <ul style="list-style-type: none"> <li>• <b>asc</b>: ascending order</li> <li>• <b>desc</b>: descending order</li> </ul>

## Request Body

None

## Response Body

[Table 7-38](#) describes the response parameters.

**Table 7-38** Parameters

Parameter	Type	Description
service_id	String	Service ID
service_name	String	Service name
events	<b>event</b> array	Event logs. For details, see <a href="#">Table 7-39</a> .
total_count	Integer	Total number of events that meet the search criteria when no paging is implemented
count	Integer	Number of events in the query result

**Table 7-39** event structure

Parameter	Type	Description
occur_time	Number	Time when an event occurs. The value is milliseconds between the current time and '1970.1.1 0:0:0 UTC'.
event_type	String	Event type. Possible values are <b>normal</b> and <b>abnormal</b> , indicating whether the event is normal or abnormal.
event_info	String	Event information, including service operation records, key actions during deployment, and deployment failure causes.

## Samples

The following example queries event information of the service whose ID is **35de3ca9-1bca-4ae7-9cb0-914f30fa7d3e**.

- Sample request  
GET `https://endpoint/v1/{project_id}/services/{service_id}/events`

- Sample response
 

```
{
  "service_id": "35de3ca9-1bca-4ae7-9cb0-914f30fa7d3e",
  "service_name": "zctest-07085",
  "count": 9,
  "total_count": 9,
  "events": [
    {
      "occur_time": 1562597251764,
      "event_type": "normal",
      "event_info": "start to deploy service"
    },
    {
      "occur_time": 1562597251788,
      "event_type": "normal",
      "event_info": "building image for model [zctestTF 3.0.0]"
    },
    {
      "occur_time": 1562597251805,
      "event_type": "normal",
      "event_info": "model (zctestTF 3.0.0) build image success"
    },
    {
      "occur_time": 1562597255744,
      "event_type": "normal",
      "event_info": "preparing environment"
    },
    {
      "occur_time": 1562597275915,
      "event_type": "normal",
      "event_info": "[zctestTF 3.0.0] prepare environment success"
    },
    {
      "occur_time": 1562597275921,
      "event_type": "normal",
      "event_info": "[zctestTF 3.0.0] schedule resource success"
    },
    {
      "occur_time": 1562597275928,
```

```

    "event_type": "normal",
    "event_info": "[zctestTF 3.0.0] pulling model image"
  },
  {
    "occur_time": 1562597332570,
    "event_type": "normal",
    "event_info": "[zctestTF 3.0.0] pull image success"
  },
  {
    "occur_time": 1562597332582,
    "event_type": "normal",
    "event_info": "[zctestTF 3.0.0] starting model"
  }
]
}

```

## Status Code

For details about the status code, see [Table 9-1](#).

## 7.8 Deleting a Service

### Function

This API is used to delete a service. You can delete your own services only.

### URI

DELETE /v1/{project\_id}/services/{service\_id}

[Table 7-40](#) describes the required parameters.

**Table 7-40** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
service_id	Yes	String	Service ID. If you want to delete multiple services in batches, use commas (,) to separate multiple <b>service_id</b> values.

### Request Body

None

### Response Body

None

## Samples

The following shows how to delete the model service whose ID is **xxxxxx**.

- Sample request  
DELETE https://endpoint/v1/{project\_id}/services/xxxxxx
- Sample response  
{}

## Status Code

For details about the status code, see [Table 9-1](#).

# 7.9 Querying Supported Service Deployment Specifications

## Function

This API is used to query supported service deployment specifications.

URI

GET /v1/{project\_id}/services/specifications

**Table 7-41** Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
is_personal_cluster	No	Boolean	Whether to query the service deployment specifications supported by dedicated resource pool. The default value is <b>false</b> .
infer_type	No	String	Inference mode. The default value is <b>real-time</b> . The value can be <b>real-time</b> or <b>batch</b> .

## Request Body

None



## Response Body

**Table 7-42** Parameters

Parameter	Type	Description
specifications	<b>specification</b> array	Supported service deployment specifications. For details, see <a href="#">Table 7-43</a> .

**Table 7-43** **specification** parameters

Parameter	Type	Description
specification	String	Unique specifications ID
billing_spec	String	Unique ID of the billing specifications
spec_status	String	Specifications status <ul style="list-style-type: none"> <li>• <b>normal</b>: The specifications are normal.</li> <li>• <b>sellout</b>: The specifications cannot be used to deploy services because they are sold out.</li> </ul>
is_open	Boolean	Whether to enable the specifications. The default value is <b>true</b> . If this parameter is set to <b>false</b> , you need to submit a service ticket to apply for the specifications.
source_type	String	Type of the model to which the specifications apply. <ul style="list-style-type: none"> <li>• Empty: indicates a model generated by the user.</li> </ul>
is_free	Boolean	Whether the flavor is free of charge. The value <b>true</b> indicates that the flavor is free of charge.
over_quota	Boolean	Whether the quota exceeds the upper limit. The value <b>true</b> indicates that the quota exceeds the upper limit.
extend_params	Integer	Billing item
display_en	String	Specifications description in English
display_cn	String	Specifications description in Chinese

## Samples

- Sample request  
GET [https://endpoint/v1/{project\\_id}/services/specifications](https://endpoint/v1/{project_id}/services/specifications)

- Sample response

```

{
  "specifications": [
    {
      "specification": "modelarts.vm.cpu.2u",
      "billing_spec": "modelarts.vm.cpu.2u",
      "is_open": true,
      "spec_status": "normal",
      "is_free": false,
      "over_quota": false,
      "extend_params": 1
    },
    {
      "specification": "modelarts.vm.gpu.p4",
      "billing_spec": "modelarts.vm.gpu.p4",
      "is_open": true,
      "spec_status": "normal",
      "is_free": false,
      "over_quota": false,
      "extend_params": 1
    },
    {
      "specification": "modelarts.vm.high.p3",
      "billing_spec": "modelarts.vm.high.p3",
      "is_open": true,
      "source_type": "auto",
      "spec_status": "normal",
      "is_free": false,
      "over_quota": false,
      "extend_params": 1
    },
    {
      "specification": "modelarts.vm.high.p2",
      "billing_spec": "modelarts.vm.high.p2",
      "is_open": true,
      "source_type": "auto",
      "spec_status": "normal",
      "is_free": false,
      "over_quota": false,
      "extend_params": 1
    },
    {
      "specification": ,
      "billing_spec": ,
      "is_open": false,
      "spec_status": "normal",
      "is_free": false,
      "over_quota": false,
      "extend_params": 1
    }
  ]
}

```

## Status Code

For details about the status code, see [Table 9-1](#).

## 7.10 Querying Dedicated Resource Pools

### Function

This API is used to query dedicated resource pools.

## URI

GET /v1/{project\_id}/clusters

**Table 7-44** Parameters

Parameter	Mandator y	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see <a href="#">9.3 Obtaining a Project ID and Name</a> .
cluster_name	No	String	Cluster name. By default, the cluster name is not filtered.
status	No	String	Cluster status. By default, the status is not filtered.
offset	No	integer	Start page of the paging list. Default value: <b>0</b>
limit	No	integer	Maximum number of records returned on each page. The default value is <b>1000</b> . The recommended value ranges from 10 to 50.
sort_by	No	String	Sorting field. The options are as follows: <ul style="list-style-type: none"> <li>• <b>created_at</b>: default value</li> <li>• <b>cluster_name</b></li> </ul>
order	No	String	Sorting mode. The options are as follows: <ul style="list-style-type: none"> <li>• <b>asc</b>: ascending order</li> <li>• <b>desc</b>: descending order. The default value is <b>desc</b>.</li> </ul>

## Response Body

**Table 7-45** Parameters

Parameter	Type	Description
total_count	integer	Total number of clusters that meet the search criteria when no paging is implemented
count	integer	Number of clusters in the query result. If <b>offset</b> and <b>limit</b> are not set, the values of <b>count</b> and <b>total</b> are the same.
clusters	<b>cluster</b> array	List of queried clusters. For details, see <a href="#">Table 7-46</a> .

**Table 7-46 cluster parameters**

Parameter	Type	Description
cluster_id	String	Cluster ID
cluster_name	String	Cluster name
description	String	Cluster remarks
tenant	String	Tenant to which a cluster belongs
project	String	Project to which a cluster belongs
owner	String	User to which a cluster belongs
created_at	integer	Time when a cluster is created, in milliseconds calculated from 1970.1.1 0:0:0 UTC
status	String	Cluster status. The value can be <b>deploying</b> , <b>running</b> , <b>concerning</b> , or <b>abnormal</b> .
nodes	Object	Node configuration. For details, see <a href="#">Table 7-47</a> .
allocatable_cpu_cores	float	Number of available CPU cores
allocatable_memory	integer	Number of available memory resources
allocatable_gpus	float	Number of available GPU cores
product_id	String	Product ID
order_id	String	Order ID
period_type	String	Subscription period type
period_num	integer	Number of subscription periods

**Table 7-47 node parameters**

Parameter	Type	Description
specification	String	Node specifications
count	integer	Number of nodes
available_count	integer	Number of available nodes

## Samples

- Sample request  
GET `https://endpoint/v1/{project_id}/clusters`

- Sample response

```
{
  "total_count": 1,
  "count": 1,
  "clusters": [
    {
      "cluster_id": "ff808081673fbb3d01673fbb824d0000",
      "cluster_name": "my-cluster",
      "description": "",
      "tenant": "tenant_id",
      "project": "project_id",
      "owner": "owner_id",
      "created_at": 1574923077927,
      "status": "running",
      "nodes": {
        "specification": "modelarts.vm.cpu.8ud",
        "count": 1,
        "available_count": 1
      },
      "allocatable_cpu_cores": 5.5,
      "allocatable_memory": 4096,
      "allocatable_gpus": 0.5
    }
  ]
}
```

## Status Code

For details about the status code, see [Table 9-1](#).

# 8 Authorization Management

- [8.1 Configuring Authorization](#)
- [8.2 Viewing an Authorization List](#)
- [8.3 Deleting Authorization](#)
- [8.4 Creating a ModelArts Agency](#)

## 8.1 Configuring Authorization

### Function

This API is used to configure ModelArts authorization. ModelArts functions such as training management, development environment, data management, and real-time services can be properly used only after required authorization is configured. This API allows the administrator to configure an agency for IAM users and set an access key of the current user.

### URI

POST /v2/{project\_id}/authorizations

**Table 8-1** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">Obtaining a Project ID</a> .

## Request Parameters

**Table 8-2** Request body parameters

Parameter	Mandatory	Type	Description
user_id	No	String	User ID. For details about how to obtain a user ID, see <a href="#">Obtaining a User ID</a> . If <b>user_id</b> is set to <b>all-users</b> , authorization is configured for all IAM users. If some users have been authorized, their authorization will be updated. This parameter is mandatory only if the authorization method is set to <b>Agency</b> .
type	No	String	Authorization type. <b>Agency</b> is recommended. Options: <ul style="list-style-type: none"> <li>• <b>agency</b>: authorization through an agency</li> <li>• <b>credential</b>: authorization through an access Key (AK/SK)</li> </ul> Default: <b>agency</b>
content	Yes	String	Authorization content. <ul style="list-style-type: none"> <li>• If <b>Authorization Type</b> is set to <b>Agency</b>, this field indicates the agency name.</li> <li>• If <b>Authorization Type</b> is set to <b>AK/SK</b>, this field indicates the access key ID (AK).</li> </ul>
secret_key	No	String	Secret Access Key (SK). This field is required only when <b>Authorization Method</b> is set to <b>AK/SK</b> .

## Response Parameters

None

## Example Requests

Upload authorization.

```
POST https://{endpoint}/v2/{project_id}/authorizations
{
  "user_id" : "****d80fb058844ae8b82aa66d9fe****",
  "type" : "agency",
  "content" : "modelarts_agency"
}
```

## Example Responses

**Status code: 200**

OK

```
{
  "result" : "true"
}
```

## Status Codes

Status Code	Description
200	OK
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

## 8.2 Viewing an Authorization List

### Function

This API is used to view an authorization list.

### URI

GET /v2/{project\_id}/authorizations

**Table 8-3** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">Obtaining a Project ID</a> .



**Table 8-4** Query Parameters

Parameter	Mandatory	Type	Description
sort_by	No	String	Sorting field. Options: <ul style="list-style-type: none"> <li>• <b>user_name</b>: IAM user</li> <li>• <b>create_time</b>: creation time</li> </ul> Default: <b>user_name</b>
order	No	String	Sorting method. Options: <ul style="list-style-type: none"> <li>• <b>asc</b>: ascending order</li> <li>• <b>desc</b>: descending order</li> </ul> Default: <b>asc</b>
limit	No	Integer	Maximum number of records returned on each page. Default value: <b>1000</b> The value ranges from 1 to 1000.
offset	No	Integer	Start page of the paging list. The default value is <b>0</b> .

## Request Parameters

None

## Response Parameters

**Status code: 200**

**Table 8-5** Response body parameters

Parameter	Type	Description
total_count	Number	Authorization information.
auth	Array of <b>AuthorizationResponse</b> objects	Authorization information list.

**Table 8-6** AuthorizationResponse

Parameter	Type	Description
user_id	String	User ID. For details about how to obtain a user ID, see <a href="#">Obtaining a User ID</a> .  If <b>user_id</b> is set to <b>all-users</b> , authorization is configured for all IAM users. If some users have been authorized, their authorization will be updated.  This parameter is mandatory only if the authorization method is set to <b>Agency</b> .
type	String	Authorization type. <b>Agency</b> is recommended. Options: <ul style="list-style-type: none"> <li>• <b>agency</b>: authorization through an agency</li> <li>• <b>credential</b>: authorization through an access Key (AK/SK)</li> </ul> Default: <b>agency</b>
content	String	Authorization content. <ul style="list-style-type: none"> <li>• If <b>Authorization Type</b> is set to <b>Agency</b>, this field indicates the agency name.</li> <li>• If <b>Authorization Type</b> is set to <b>AK/SK</b>, this field indicates the access key ID (AK).</li> </ul>
secret_key	String	Secret Access Key (SK). This field is required only when <b>Authorization Method</b> is set to <b>AK/SK</b> .
create_time	Long	Timestamp when a training job was created

## Example Requests

View an authorization list.

```
GET https://{endpoint}/v2/{project_id}/authorizations
```

## Example Responses

**Status code: 200**

OK

```
{
  "total_count": 1,
  "auth": [ {
    "user_id": "****d80fb058844ae8b82aa66d9fe****",
    "user_name": "iam-user01",
    "type": "agency",
    "content": "modelarts_agency",
    "create_time": 15657747821288
  } ]
}
```

## Status Codes

Status Code	Description
200	OK
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

# 8.3 Deleting Authorization

## Function

This API is used to delete the authorization of a specified user or all users.

## URI

DELETE /v2/{project\_id}/authorizations

**Table 8-7** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">Obtaining a Project ID</a> .

**Table 8-8** Query Parameters

Parameter	Mandatory	Type	Description
user_id	No	String	User ID. If <b>user_id</b> is set to <b>all-users</b> , the authorization of all IAM users will be deleted.

## Request Parameters

None

## Response Parameters

None

## Example Requests

Delete the authorization of a specified user.

```
DELETE https://{endpoint}/v2/{project_id}/authorizations?user_id=****d80fb058844ae8b82aa66d9fe****
```

## Example Responses

**Status code: 200**

OK

```
{  
  "result" : "true"  
}
```

## Status Codes

Status Code	Description
200	OK
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

# 8.4 Creating a ModelArts Agency

## Function

This API is used to create a ModelArts agency for dependent services such as OBS, SWR, and IEF.

## URI

POST /v2/{project\_id}/agency

**Table 8-9** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see <a href="#">Obtaining a Project ID</a> .

## Request Parameters

**Table 8-10** Request body parameters

Parameter	Mandatory	Type	Description
agency_name_suffix	No	String	<p>Agency name suffix.</p> <p>The parameter contains a maximum of 50 characters.</p> <p>The agency name prefix is consistently to be <b>ma_agency</b>.</p> <p>For example, if the value of this parameter is <b>iam-user01</b>, the name of the created agency is <b>ma_agency_iam-user01</b>.</p> <p>The value of this parameter is left blank by default, indicating that an agency named <b>modelarts_agency</b> is created.</p>

## Response Parameters

None

## Example Requests

Create a ModelArts agency.

```
POST https://{endpoint}/v2/{project_id}/agency
```

```
{
  "agency_name_suffix" : "iam-user01"
}
```

## Example Responses

**Status code: 200**

OK

```
{  
  "agency_name" : "ma_agency_iam-user01"  
}
```

## Status Codes

Status Code	Description
200	OK
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found

## Error Codes

See [Error Codes](#).

# 9 Common Parameters

[9.1 Status Code](#)

[9.2 Error Codes](#)

[9.3 Obtaining a Project ID and Name](#)

[9.4 Obtaining an Account Name and ID](#)

[9.5 Obtaining a Username and ID](#)

## 9.1 Status Code

**Table 9-1** describes the status codes.

**Table 9-1** Status codes

Status Code	Code	Status Code Description
100	Continue	The client continues sending the request. This provisional response informs the client that part of the request has been received and has not yet been rejected by the server.
101	Switching Protocols	Switching protocols. The target protocol must be more advanced than the source protocol. For example, the current HTTP protocol is switched to a later version of HTTP.
200	OK	The request has been fulfilled.
201	Created	The request for creating a resource has been fulfilled.

Status Code	Code	Status Code Description
202	Accepted	The request has been accepted, but the processing has not been completed.
203	Non-Authoritative Information	Non-authoritative information. The request is successful.
204	NoContent	The request has been fulfilled, but the HTTP response does not contain a response body. The status code is returned in response to an HTTP OPTIONS request.
205	Reset Content	The server has fulfilled the request, but the requester is required to reset the content.
206	Partial Content	The server has successfully processed a part of the GET request.
300	Multiple Choices	There are multiple options for the location of the requested resource. The response contains a list of resource characteristics and addresses from which the user or user agent (such as a browser) can choose the most appropriate one.
301	Moved Permanently	The requested resource has been assigned a new permanent URI, and the new URI is contained in the response.
302	Found	The requested resource resides temporarily under a different URI.
303	See Other	The response to the request can be found under a different URI, and should be retrieved using a GET or POST method.
304	Not Modified	The requested resource has not been modified. When the server returns this status code, it does not return any resources.
305	Use Proxy	The requested resource must be accessed through a proxy.
306	Unused	The HTTP status code is no longer used.



Status Code	Code	Status Code Description
400	BadRequest	The request is invalid. Do not retry the request before modification.
401	Unauthorized	The status code is returned after the client provides the authentication information, indicating that the authentication information is incorrect or invalid.
402	Payment Required	This status code is reserved for future use.
403	Forbidden	The request has been rejected. The server has received and understood the request; yet it refused to respond, because the request is set to deny access. Do not retry the request before modification.
404	NotFound	The requested resource cannot be found. Do not retry the request before modification.
405	MethodNotAllowed	The request contains one or more methods not supported for the resource. Do not retry the request before modification.
406	Not Acceptable	The server cannot fulfill the request according to the content characteristics of the request.
407	Proxy Authentication Required	This status code is similar to 401, but the client must first authenticate itself with the proxy.
408	Request Time-out	The request timed out. The client may repeat the request without modifications at any time later.

Status Code	Code	Status Code Description
409	Conflict	The request could not be processed due to a conflict with the current state of the resource. This status code indicates that the resource that the client attempts to create already exists, or the requested update failed due to a conflict.
410	Gone	The requested resource is no longer available. The status code indicates that the requested resource has been deleted permanently.
411	Length Required	The server refuses to process the request without a defined <b>Content-Length</b> .
412	Precondition Failed	The server does not meet one of the preconditions that the requester puts on the request.
413	Request Entity Too Large	The request is larger than that a server is able to process. The server may close the connection to prevent the client from continuing the request. If the server cannot process the request temporarily, the response will contain a <b>Retry-After</b> header field.
414	Request-URI Too Large	The URI provided was too long for the server to process.
415	Unsupported Media Type	The server is unable to process the media format in the request.
416	Requested range not satisfiable	The requested range is invalid.
417	Expectation Failed	The server fails to meet the requirements of the <b>Expect</b> request-header field.
422	UnprocessableEntity	The request is well-formed but is unable to be processed due to semantic errors.

Status Code	Code	Status Code Description
429	TooManyRequests	The client has sent excessive number of requests to the server within a given time (exceeding the limit on the access frequency of the client), or the server has received an excessive number of requests within a given time (beyond its processing capability). In this case, the client should resend the request after the time specified in the <b>Retry-After</b> header of the response has elapsed.
500	InternalServerError	The server is able to receive but unable to understand the request.
501	Not Implemented	The server does not support the requested function.
502	Bad Gateway	The server acting as a gateway or proxy has received an invalid request from a remote server.
503	ServiceUnavailable	The requested service is invalid. Do not retry the request before modification.
504	ServerTimeout	The request cannot be fulfilled within a given time. This status code is returned to the client only when the <b>Timeout</b> parameter is specified in the request.
505	HTTP Version not supported	The server does not support the HTTP protocol version used in the request.

## 9.2 Error Codes

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.0104	Parameter error.	Parameter error.	Check the parameter settings.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.0113	Create Notebook failed. Quota: {} is exhausted.	Failed to create the notebook instance due to the exhausted quota.	Contact the administrator for a higher quota.
400	ModelArts.6301	The instance already exists.	The instance already exists.	Enter another instance name.
400	ModelArts.6302	The instance count already reaches the maximum value.	The maximum number of instances has been reached.	Delete unnecessary instances.
400	ModelArts.6303	The field does not support sorting.	This field does not support sorting.	Delete the field from the sorting parameters.
400	ModelArts.6304	Please stop the instance before deleting.	Failed to delete the instance in the running state.	Refresh the page. Stop the instance and then delete it.
400	ModelArts.6305	The instance is already running.	The instance is in the running state.	Do not start it again.
400	ModelArts.6306	The instance is starting.	Other operations cannot be performed because the instance is being started.	Perform other operations later.
400	ModelArts.6307	The instance has already been stopped.	The instance has been stopped.	Refresh the page and view the instance state.
400	ModelArts.6308	The instance is stopping.	The instance is being stopped.	Refresh the page and view the instance state.
400	ModelArts.6309	The instance does not exist.	The instance does not exist.	Ensure that the instance has been deleted.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6316	The param 'storage' is needed for creating notebook instance.	Incorrect parameters during instance creation.	Add the storage parameter.
400	ModelArts. 6317	The 'path' parameter is required when the storage type is OBS.	Incorrect parameters during instance creation.	Add the path parameter.
400	ModelArts. 6318	The param 'path' needs to end with /.	Incorrect parameters during instance creation.	Ensure that the value of the path parameter ends with a slash (/).
400	ModelArts. 6319	There is no ak/sk in the global settings. Please add it by access ModelArts console.	The AK/SK have not been configured in the global settings of ModelArts.	Configure the AK/SK in the global settings of ModelArts.
400	ModelArts. 6320	Access obs error. Reason is {}.	OBS access error.	Ensure that the OBS path is correct.
400	ModelArts. 6323	The flavor is not supported, please check it.	The flavor is not supported.	Ensure that the flavor is correctly configured.
400	ModelArts. 6324	This location type is not supported. Please check it.	The storage type is not supported.	Ensure that the storage type is correctly configured.
400	ModelArts. 6326	The instance is frozen. Check whether your account is in arrears in Billing Center.	The instance has been frozen.	Check the account balance and top up the account.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6327	The instance is not in running. Please refresh the page and start it.	The instance is not in the running state.	Refresh the page and try again.
400	ModelArts. 6328	Sorry, you currently do not have permission for this flavor. Please apply it firstly.	You do not have permission to use the flavor.	Contact technical support.
400	ModelArts. 6329	Sorry, this flavor specification is sold out. Please try others.	The flavor is sold out.	Use another flavor or try again later.
400	ModelArts. 6330	The flavor type of profile does not match the type of flavor. Please check it.	The types are not matched.	Ensure that the flavor type matches the profile type.
400	ModelArts. 6331	The evs volume size ranges from {} GB to {} GB.	The EVS disk size exceeds the upper limit.	Check the EVS disk size.
400	ModelArts. 6332	Incorrect parameter type. The '{}' parameter must be of the '{}' type.	Parameter type error.	Ensure that the parameter type meets the requirements.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6333	The notebook is being restored. Refresh the page and wait for several minutes. The fault may be caused by instance overload.	Notebook instance fault.	The instance is recovering. Try again later.
400	ModelArts. 6334	Invalid value for name or description. The character `{}` is not allowed.	The description parameter is incorrect.	Enter a valid description value.
400	ModelArts. 6335	`{}` is a required property.	Parameter missing.	Ensure that the corresponding parameter is available.
400	ModelArts. 6336	`{}` property value is incorrect.	Incorrect parameter value.	Ensure that the corresponding parameter is correct.
400	ModelArts. 6341	The repository does not exist or has been deleted.	The Git repository does not exist or has been deleted.	Check the corresponding parameter.
400	ModelArts. 6343	The repository name already exists.	The Git repository already exists.	Check the corresponding parameter.
400	ModelArts. 6344	Delete failed. Please delete the associated development environment instance first.	Failed to delete the repository.	Delete the corresponding notebook instance first.
400	ModelArts. 6345	Currently the OBS type instance does not support git capability.	The Git repository cannot be used for OBS instances.	Use notebook instances of the EVS type.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6346	The timestamp of auto stop must be later than the current timestamp.	This parameter cannot be modified.	Check the corresponding parameter and ensure that the automatic end time is later than the current time.
400	ModelArts. 6347	When the instance is in the '{}' status, the '{}' parameter cannot be modified.	Check the parameters.	Check the corresponding parameter.
400	ModelArts. 6348	The 'duration' parameter is mandatory for enabling auto stop.	The description parameter is missing.	Configure the duration parameter.
400	ModelArts. 6349	The 'duration' parameter is incorrect. The value ranges from {} to {}.	The value of duration parameter exceeds the threshold.	Configure the duration parameter.
400	ModelArts. 6350	Failed to access OBS because of incorrect AK/SK or insufficient permissions.	Access to OBS is rejected.	Ensure that the AK/SK is correct and you have the permission to access OBS.
400	ModelArts. 6353	Failed to verify the AK/SK. Please check and try again.	Incorrect AK/SK.	Ensure that the AK/SK in the global settings of ModelArts is correct.
400	ModelArts. 6354	The AK/SK do not belong to the user. Please check and enter the correct ones.	Incorrect AK/SK.	Ensure that the AK/SK in the global settings of ModelArts is correct.



Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6355	The resource is initializing. Please wait one minute and try again.	Resources in the dedicated resource pool are being initialized.	Initializing the resource. Please wait...
400	ModelArts. 6357	The operation is not allowed because another operation is being performed on the instance or the instance is in the target state.	The operation is not allowed.	Try again later.
400	ModelArts. 6358	The path parameter is incorrect. It cannot be the root directory of an OBS bucket, but must be a specific directory in the OBS bucket.	The OBS path parameter is incorrect.	Ensure that the path parameter is correct.
400	ModelArts. 6361	ModelArts internal service or configuration error. Submit a service ticket to get professional technical support.	Internal error.	System error. Contact technical support.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6371	Currently, notebooks support only OBS buckets whose Storage Class is Standard. Change the OBS bucket and try again.	Notebook instances support only standard OBS buckets.	Use standard OBS buckets.
400	ModelArts. 6374	The credential can be added only when type is set to AK/SK or agency.	The authentication type can only be AK/SK or agency.	Ensure that the authentication type is AK/SK or agency.
400	ModelArts. 6376	Please make sure agency exists.	The IAM agency does not exist.	Ensure that the agency exists on IAM.
400	ModelArts. 6377	The user id cannot be left blank.	The user ID cannot be left blank.	Ensure that the user ID parameter is available.
400	ModelArts. 6378	The agency name cannot be left blank.	The agency name cannot be left blank.	Ensure that the agency name parameter is available.
400	ModelArts. 6379	No IAM agency created in Settings. Create an IAM agency on the ModelArts management console.	No agency is created in the global settings.	Create an agency in the global settings.
400	ModelArts. 6528	No EVS available. Please try again later.	The EVS disk has been sold out.	Try again later or contact technical support.
401	ModelArts. 6201	The user's account has been suspended.	The user account is frozen.	Check the account balance and top up the account.

Status Code	Error Codes	Error Message	Description	Solution
401	ModelArts. 6203	The user's account has been restricted.	The user account is restricted.	Check the account balance and top up the account.
403	ModelArts. 0112	Policy doesn't allow {} {} to be performed.	The permission on the workspace is restricted.	Ensure that you have the permission on the workspace.
408	ModelArts. 6100	The request timed out. Please try again.	Timeout.	System error. Contact technical support.
429	ModelArts. 6101	The system is busy now. Please try again later.	The system is busy.	The system is busy. Please try again. If the retry still fails, contact technical support.
500	ModelArts. 6102	The server has encountered an error and fails to process the request. Please try again later or submit a service ticket.	Internal error.	System error. Contact technical support.
500	ModelArts. 6200	No resources available. Please try again later or submit a service ticket.	Internal error.	System error. Contact technical support.
400	ModelArts. 1002	OBS operation failed.	Failed to perform OBS operations.	Check whether OBS is available.
400	ModelArts. 6600	Check whether the parameter is valid.	Failed to verify the parameters.	Ensure that the parameter is valid.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 6651	Unsupport entity.	Unsupported project objects.	Ensure that the project object is supported.
400	ModelArts. 6652	Please delete resources from the project first.	Failed to delete the project resources.	Delete the datasets and notebook instances under the project and ensure that all training jobs have been completed.
400	ModelArts. 6690	The image size cannot exceed 8 MB.	The image size exceeds 8 MB.	Ensure that the image size does not exceed 8 MB.
401	ModelArts. 6608	Please refresh user info.	Failed to obtain the user information.	Refresh the user information.
401	ModelArts. 6620	Please refresh the user token.	Invalid user token.	Refresh the user token.
403	ModelArts. 6653	Contact the project owner.	You are not authorized to operate the project.	Contact the project owner to obtain the authorization.
404	ModelArts. 6624	Ensure that the storage path already exists.	Failed to find the corresponding storage path.	Ensure that the storage path already exists.
404	ModelArts. 6650	Ensure that the project already exists.	Failed to find the corresponding project.	Ensure that the project already exists.
404	ModelArts. 6655	Can't find ai project template.	Failed to find the corresponding project template.	Ensure that the corresponding project template already exists.
417	ModelArts. 6654	Project with the same name already exists.	A project with the same name already exists.	Use another project name.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 6691	System error. Check the service status.	The algorithm service is abnormal.	System error. Check the service state.
500	ModelArts. 6699	Internal error.	Network error.	Check network connectivity.
400	ModelArts. 4111	Invalid Region header.	The region value in the request header is invalid.	Check whether the region value in the request header is correct.
400	ModelArts. 4205	A subdirectory must be specified as the dataset input or output path.	A subdirectory must be specified as the dataset input or output path.	A subdirectory must be specified as the dataset input or output path.
400	ModelArts. 4313	OBS path is invalid	Invalid characters in the OBS path.	Ensure that the OBS path consists of valid characters, including digits, letters, hyphens (-), underscores (_), slashes (/), and Chinese characters.
400	ModelArts. 4314	Obs error	OBS access error.	Ensure that you have the permission to access OBS and that the OBS path is valid.
400	ModelArts. 4345	File not found	The HDFS file does not exist.	Ensure that the OBS path is correct and that the file is available in the OBS path.
400	ModelArts. 4347	List files failed	Failed to obtain HDFS files.	Ensure that the OBS path is correct and that the files are available in the OBS path.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 4359	Export task does not exist	The export task ID does not exist.	Ensure that the export task ID is correct.
400	ModelArts. 4368	Parse pc bin file error	Failed to parse the point cloud binary file.	Ensure that the point cloud binary file is not damaged.
400	ModelArts. 4375	Parse pc obs image error	Failed to parse the point cloud data image in OBS.	Ensure that the point cloud data image is correct.
400	ModelArts. 4376	Unsupported pc pcd format error	The PCD attribute is not supported.	Check the point cloud data in PCD format.
400	ModelArts. 4377	Pc pcd format error	Failed to parse the point cloud data in PCD format.	Ensure that the PCD file is valid.
400	ModelArts. 4378	Parse pc pcd file error	Failed to parse the point cloud data in PCD format.	Ensure that the PCD file is correct.
400	ModelArts. 4379	Unsupported pc file format error	The point cloud data format is not supported.	Ensure that the imported point cloud data is in BIN or PCD format.
400	ModelArts. 4380	Parse kitti calibration file error	Failed to parse the Kitti data.	Ensure that the data is correct.
400	ModelArts. 4502	The IAM agency name already exists, please delete the agency in IAM first and retry	The default IAM agency already exists.	Delete the IAM agency and create a new one.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 4601	The workforce does not exist	The team ID does not exist.	Ensure that the team ID is correct.
400	ModelArts. 4602	The workforce already exists	A team whose name is the workforce_name value already exists.	Ensure that the workforce_name value is correct.
400	ModelArts. 4603	Update workforce state failed	Failed to delete the team.	Check whether the team has been deleted.
400	ModelArts. 4604	The worker does not exist	The team member specified by work_id does not exist.	Ensure that the workforce_id and work_id values are correct.
400	ModelArts. 4609	Change password failed	Failed to change the account password.	Ensure that the new password complies with specifications.
400	ModelArts. 4651	Get obs sample error	Failed to read the sample from OBS.	Ensure that the sample in OBS is correct.
400	ModelArts. 4700	Task does not exist	The task ID does not exist.	Ensure that the task ID is correct.
401	ModelArts. 4117	User is unverified.	Unauthenticated user.	Ensure that the user has been granted the permission through IAM configurations.
401	ModelArts. 4504	Iam error	IAM error.	Ensure that the AK/SK and token are correct.
403	ModelArts. 4116	User has been owed, please check the account status and balance.	The account is restricted. Check the account status and balance.	Check whether the account is in arrears.

Status Code	Error Codes	Error Message	Description	Solution
403	ModelArts. 4118	User has been suspended, please check the account balance.	The account is frozen. Check the account balance.	Check the account balance.
403	ModelArts. 4310	OBS action is forbidden, please check iam agency or OBS and so on	The user does not have the permission to access OBS.	Grant the permission to access OBS to the account.
403	ModelArts. 4335	Iam agency is invalid	Invalid IAM agency.	Verify the IAM permission.
403	ModelArts. 4336	The user hasn't permission	No permission for the operation.	Check the user permission.
403	ModelArts. 4348	Check dli agency failed	Failed to verify the DLI agency.	Check the DLI agency permission.
403	ModelArts. 4500	The number of iam agencies has reached the maximum	Insufficient quota for IAM agencies.	Delete unnecessary agencies.
403	ModelArts. 4501	The iam agency create action is forbidden	IAM agency creation is forbidden.	Check whether you have the permission to create an IAM agency.
403	ModelArts. 4600	The worker action is forbidden	The operation of the team member is forbidden.	Check whether the team member has the permission to perform this operation.
403	ModelArts. 4613	Task not finish	Failed to obtain the task result because the task is not complete.	Try again later.



Status Code	Error Codes	Error Message	Description	Solution
403	ModelArts.4850	Process task is initializing, the operation is forbidden	The task is being initialized and cannot be deleted.	Check the task status.
204	ModelArts.2776	NotReadyToFetchLog	The log is not ready. Wait for the training data to be returned.	Try again later.
204	ModelArts.2777	NotReadyToFetchMetric	The metric is not ready. Wait for the training data to be returned.	Try again later.
400	ModelArts.0118	QuotaInsufficient	The quota is insufficient.	Release idle resources or contact technical support to increase the quota.
400	ModelArts.2750	DuplicateEvaluationJobName	Duplicate evaluation job (name %s).	Change the evaluation job name.
400	ModelArts.2751	DuplicateTrainingJobName	Duplicate training job (name %s).	Change the training job name.
400	ModelArts.2752	DuplicateAlgorithmNameAndVersion	An algorithm with the same name and version already exists.	Check whether the algorithm information in the request is valid.
400	ModelArts.2753	InputsOutputsMessageError	The input and output path mapping configuration is incorrect.	Check whether the input and output path mapping configuration in the request is valid.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2754	ModelartsHostedNumError	Only one output path can be configured as ModelArts hosted output.	Check whether the output path information in the request is valid.
400	ModelArts.2755	AiAlgorithmNotFound	The algorithm is not found.	Check whether the algorithm information in the request is valid.
400	ModelArts.2757	CodeDirError	The code directory is incorrect.	Check whether the code directory and boot file in the request are correct.
400	ModelArts.2758	BootFileDirError	The path of the code boot file is incorrect.	Ensure that the code directory and boot file in the request are correct.
400	ModelArts.2759	TooManyCodeFiles	There are too many code files. A maximum of %s files can be uploaded.	Check the number of code files.
400	ModelArts.2760	CodeFolderTooDeep	There are too many levels in a code directory. A maximum of %s levels are supported.	Check the code directory depth.
400	ModelArts.2761	CodeFilesSizeTooLarge	The code file is too large. A maximum of %s GB is supported.	Check the size of the code file.
400	ModelArts.2762	DuplicateFlavorCode	The instance flavor (%s) already exists.	Change the instance flavor name.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2763	DoNotHaveFlavor	The selected instance flavor is invalid.	Check whether the instance flavor in the request is valid.
400	ModelArts.2764	QueryParamsError	The query parameter (%s) is invalid.	Ensure that the request parameters are valid.
400	ModelArts.2765	StringParameterError	The string parameter is not within the preset parameter range.	Enter a variable value within the preset range.
400	ModelArts.2766	DoNotHaveDefaultValue	The default value is missing.	Enter a default value.
400	ModelArts.2767	ParameterKeyRepeat	The parameter name already exists.	Rename the parameter.
400	ModelArts.2768	DefaultValueTypeError	The type of the default value is incorrect.	Check the type of the default value.
400	ModelArts.2769	DefaultValuesNotInRange	The default value is not within the specified range.	Ensure that the default value is within the specified range.
400	ModelArts.2770	RangeError	The parameter value range is incorrect.	Configure the parameter value range again.
400	ModelArts.2771	NotHavePermission	You do not have the modification permission.	Check your permissions.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2772	OriginalAlgorithmCodeInfoError	Failed to create the algorithm. Select another code directory and boot file to ensure that the algorithm is available.	Select another code directory and boot file.
400	ModelArts.2773	GetObsObjectContextError	Failed to obtain the file content.	Check the file permission.
400	ModelArts.2774	ParseParameterError	Failed to parse hyperparameters.	Hyperparameter parsing is a beta function. If the parsing fails, manually enter the result.
400	ModelArts.2775	TrainingJobNotFound	The training job (ID: %s) is not found.	Check whether the training job information in the request is valid.
400	ModelArts.2778	EvalJobNotFound	The model evaluation job (ID: %s) is not found.	Check whether the job_id value in the request is valid.
400	ModelArts.2779	EvalVerNotFound	The model evaluation job version (ID: %s) is not found.	Check whether the model evaluation job version in the request is valid.
400	ModelArts.2780	EngineNotFound	The AI engine (ID: %s) is not found.	Check whether the engine information in the request is valid.
400	ModelArts.2781	FlavorNotFound	The flavor (%s) is not found.	Check whether the flavor in the request is valid.
400	ModelArts.2782	DatasetVersionNotFound	The dataset version (ID: %s) is not found.	Check whether the dataset_version_id value in the request is valid.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2783	DatasetNotFound	The dataset (ID: %s) is not found.	Check whether the dataset_id value in the request is valid.
400	ModelArts.2787	InvalidJsonBody	The JSON request body is invalid.	Check whether the request body is valid.
400	ModelArts.2788	InvalidParam	The parameter (%s) is invalid.	Ensure that the request parameter is valid.
400	ModelArts.2789	UnsupportedFilterBy	The filtering criterion is unsupported.	Check whether the filtering criterion is valid.
400	ModelArts.2790	UnsupportedSortBy	The sorting item is unsupported.	Check whether the sorting item is valid.
400	ModelArts.2791	InvalidObsPath	Invalid OBS path: %s.	Ensure that the OBS path is correct.
400	ModelArts.2792	BootFileNotBelongToPackage	The boot file does not belong to the package_id directory.	Ensure that the boot_file and package_id values are correct.
400	ModelArts.2793	FlavorOutOfRange	The number of flavor instances (%d) exceeds the maximum (%d).	Check the flavor.
400	ModelArts.2794	InvalidModelURL	The model URL is invalid.	Ensure that the model URL is valid.
400	ModelArts.2795	GetModel	Failed to obtain the model: %s.	Ensure that the model is valid.
400	ModelArts.2797	EvalResultsNotPrepared	The evaluation result is not generated.	Wait for the evaluation result to be generated.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2798	Unsupported Model	Unsupported model ID: %s.	Ensure that the model ID is correct.
400	ModelArts.2801	FederationNot Found	Federated training (%s) does not exist.	Check whether the federated training ID in the request is valid.
400	ModelArts.2802	InvalidCodeDir	Invalid code directory path: %s.	Ensure that the code directory path is valid.
400	ModelArts.2804	InsufficientPermissionToAuthorize	The user does not have the permission to authorize all sub-users of the tenant.	Check the user permission.
400	ModelArts.2805	FederationInviteUserError	The invited users include the IAM user ID (%s) of the current account.	Ensure that the invited user list does not contain the IAM user ID of the current account.
400	ModelArts.2806	MustHaveCommandAndImage	The values of command and engine.url must be specified.	Ensure that the command and engine.url values in the request are specified.
400	ModelArts.2807	UnsupportedConditionKey	The condition key (%s) is not supported.	Ensure that the condition key in the request is valid.
400	ModelArts.2808	UnsupportedConditionOperator	The condition operator (%s) is not supported.	Ensure that the condition operator in the request is valid.
400	ModelArts.2809	UnsupportedConditionValue	The condition value (%s) is not supported.	Ensure that the condition value in the request is valid.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2810	SWRQueryImageInfoError	Failed to obtain the custom image information.	Check whether the image_url value in the request is correct.
400	ModelArts.2811	SWRCreatShareError	Failed to share a custom image.	Check whether the image_url value in the request is correct.
400	ModelArts.2812	Unsupported ActionType	Unsupported operation type: %s.	Check whether the operation type is valid.
400	ModelArts.2814	AlgorithmNot Match	The job algorithm configuration (%s) is inconsistent with the algorithm configuration in algorithm management.	Ensure that the parameters are correct.
400	ModelArts.2815	ExceedQuotaLimit	The quota limit of the resource (%s) has been exceeded.	Release resources in use or increase the quota.
400	ModelArts.2816	ParamRangeError	The (%s) parameter value is not within the specified range %s.	Configure the parameter value range again.
400	ModelArts.2817	AiAlgorithmShareError	The algorithm (%s) is not ready and cannot be shared.	Wait until the algorithm is ready.
400	ModelArts.2818	LogFileNotGenerated	The log file is not generated.	View the log after it is generated.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2819	LogFileHasCleared	The log file has been deleted.	Select an OBS path for storing log files when creating a training job.
400	ModelArts.2820	LogPathNotFound	Failed to find the log storage path.	Use the API of the earlier version to view logs.
400	ModelArts.2821	DuplicateAlgorithmName	The algorithm (name %s) already exists.	Change the algorithm name.
400	ModelArts.2822	LogExportPathNotSet	The log path is not configured.	Configure the log path.
400	ModelArts.2823	DomainIdNotMatched	You are not authorized to perform the operation.	Check whether the domain id value in the configuration file is the same as that in the request header.
400	ModelArts.2824	SearchIndicatorsError	Duplicate search indicators.	Check whether the search indicator is duplicate.
400	ModelArts.2825	ParamTypeError	Parameter type (%s) error.	Check the parameter type.
400	ModelArts.2826	SearchParamsError	Incorrect search parameters.	Configure the search parameters again.
400	ModelArts.2827	FailureAnalysisNotPossible	Failure analysis cannot be performed for jobs that have not failed.	Perform failure analysis on training jobs that have failed.
400	ModelArts.2828	FailureAnalysisFailed	Failed to obtain the failure analysis result of the training job.	Contact technical support.



Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.2829	DuplicateEngineId	The engine (name %s) already exists.	Change the training engine name.
400	ModelArts.2830	MustHaveEngineId	The engine_id value must be specified.	Check whether the engine_id value in the request is valid.
400	ModelArts.2831	FeedbackFailureAnalysisNotPossible	The failure analysis feedback failed.	Provide feedback on jobs whose failure causes have been analyzed.
400	ModelArts.2832	EngineNeedUpgrade	The AI engine version has been discontinued.	Use the latest AI engine.
400	ModelArts.2833	ExceedFreeFlavorQuota	The job quantity exceeds the maximum number (%d) of jobs that can be created by a single user of the free flavor.	Delete other jobs using the free flavor.
400	ModelArts.2834	UnsupportedRemoteDataType	The data type (%s) is not supported.	Use a supported data type.
400	ModelArts.2835	GetSizeOfChannelTimeout	Obtaining the size of the input pipeline file timed out.	Obtain the size from the local file system or OBS.
400	ModelArts.2837	FrozenAccount	The account is restricted or frozen.	Check whether the account is available.
400	ModelArts.2838	WorkspacePolicyLimit	You are not authorized to perform the operation (%s).	Check the configuration of the fine-grained policy in IAM.

Status Code	Error Codes	Error Message	Description	Solution
403	ModelArts. 2784	InvalidToken	Invalid token.	Check whether the token is valid.
403	ModelArts. 2785	Authorization NotFound	ModelArts cannot be used because the user is not authorized to use ModelArts.	Assign the permission of using ModelArts with the user.
404	ModelArts. 2786	TokenProjectIDNotMatch	The project ID (%s) in the request does not match that in the token.	Change the request token or change the project ID in the request.
404	ModelArts. 2836	PathNotFound	The path is not found.	Check whether the path is correct.
405	ModelArts. 2803	MethodNotAllowed	The method is not allowed.	Ensure that the HTTP method is allowed.
409	ModelArts. 2796	NotAllowedTo Terminate	The job cannot be terminated.	Check whether the job status supports termination.
409	ModelArts. 2813	NotAllowedTo Restart	The job cannot be restarted.	Check whether the operation type is valid.
429	ModelArts. 2799	TooManyRequests	The service request frequency exceeds the limit.	Try again later.
500	ModelArts. 2950	Unknown	Unknown error.	System error. Contact technical support.
500	ModelArts. 2951	DatasetService	The dataset service is abnormal.	System error. Contact technical support.
500	ModelArts. 2952	ExtServiceDB	The database service is abnormal.	System error. Contact technical support.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 2953	ExtServiceIAM	The IAM service is abnormal.	System error. Contact technical support.
500	ModelArts. 2954	ExtServiceWorkspace	The workspace service is abnormal.	System error. Contact technical support.
500	ModelArts. 2955	ExtServiceAOM	The AOM service is abnormal.	System error. Contact technical support.
500	ModelArts. 2956	ExtServiceAIG	The AIG service is abnormal.	System error. Contact technical support.
400	ModelArts. 0101	Invalid Argument.	Invalid parameter.	Enter the correct parameter as prompted.
400	ModelArts. 0107	The values of the request parameters ({0},{1}) are invalid.	Invalid parameter values ({0}, {1}).	Check whether the parameter values are valid.
400	ModelArts. 0204	Token must contain projectId info.	No project ID included in the token.	Ensure that the project token is used.
400	ModelArts. 3015	Config json file does not conform to the specification.	The model configuration file does not comply with file specifications.	Check whether config.json or initial_config complies with the specifications.
400	ModelArts. 3016	Failed to parse config json file because of unsupported fields, types, or formats({0}, {1}).	Failed to parse the configuration file because the field, type, or format is not supported.	Check whether the field is correct as prompted.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3017	Failed to publish model because source location noncompliance.	Failed to publish the model because the model source path does not meet specifications.	Check whether the source_location value complies with the specifications.
400	ModelArts. 3023	Invalid labels({0}) of model.	Invalid model label {0}.	Ensure that a model label starts with a letter or a Chinese character and contains a maximum of 64 characters, including letters, digits, underscores (_), and Chinese characters.
400	ModelArts. 3024	The templateInputs field is incorrectly configured, check if the input is consistent with the template requirements.	Incorrect configuration. Check whether the configuration complies with the template requirements.	The parameter configuration does not comply with the template requirements. Modify the configuration.
400	ModelArts. 3025	User ({0}) has only a single share permission and cannot be shared with all users.	User {0} does not have permission to share data with all users.	Only the administrator or accounts in the whitelist have permission to share data with all users.
400	ModelArts. 3026	Failed to delete infer format, infer format ({0}) already be used by template.	Failed to delete input/output mode {0} because it is being used by a template.	Find the template that is using the input/output mode, disassociate the mode from the template, and delete the mode again.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3027	The model used by the template ({0}) is private and belongs to other users and cannot be shared.	Input/Output mode {0} used by the template cannot be shared.	Select another mode.
400	ModelArts. 3028	Failed to publish model, please select input and output mode.	Failed to publish the model. Select an input/output mode.	Select another input/output mode and publish the model again.
400	ModelArts. 3029	Model publishing failed because the Template model must provide the template ID used.	Failed to publish the model because the template ID is unavailable.	Enter the template ID.
400	ModelArts. 3030	Model publishing failed, template ({0}) does not support modifying its built-in input and output mode.	Failed to publish the model because the built-in input/output mode of template {0} cannot be changed.	Do not change the input/output mode of a template when publishing the template model.
400	ModelArts. 3031	Cancel sharing failed, ({0}) has not been shared with other tenants.	Failed to cancel the sharing because image {0} is not shared with other users.	Ensure that image {0} is not shared with other users.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts.3032	Image ({0}) cannot be shared to admin ({1}), please check the image permissions.	Failed to share image {0} with the administrator {0}. Check the image permission.	Perform operations according to the error message.
400	ModelArts.3033	Template publishing failed, please provide template label.	Failed to publish the template model because its label is left blank.	Set the model label.
400	ModelArts.3034	Template model failed to be published, template field is required.	Failed to publish the template model because the template field is left blank.	Set template.
400	ModelArts.3035	Profile preview failed, sourceLocation and previewConfig fields need to provide at least one.	Failed to preview the configuration file.	Either source_location or preview_config must be specified.
400	ModelArts.3036	Parameter verification failed, parameter ({0}) is required.	Failed to check parameter {0} because it is left blank.	Set parameters according to the error message.
400	ModelArts.3037	Parameter ({0}:{1}) is invalid.	Invalid parameter {0}:{1}.	Modify passwords as prompted.
400	ModelArts.3038	When isSpecific is true, domainId is required.	Failed to perform the operation because domain_id is left blank.	Set domain_id as prompted.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3039	Template input input_id cannot be repeated.	Failed to perform the operation because input_id is repetitive.	Ensure that the input_id value is unique.
400	ModelArts. 3040	When the installer installer is yum or apt-get, and the version packageVersion exists, the version constraint restraint can only be EXACT.	Failed to perform the operation because restraint can only be EXACT.	Change the restraint value to EXACT.
400	ModelArts. 3041	When the installer installer is conda or pip, and the version packageVersion exists, the version constraint restraint can only be EXACT, ATLEAST, or ATMOST.	Failed to perform the operation because restraint can only be EXACT, ATLEAST, or ATMOST.	Change the restraint value to EXACT, ATLEAST, or ATMOST.
400	ModelArts. 3063	Mode unshared failed, the template using this mode has been shared, you need to cancel the sharing of the template first.	Failed to cancel mode sharing because the template using the mode is being shared.	Perform operations according to the error message.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3070	There is a model name that does not belong to this tenant: ({0}).	The model does not belong to user {0}.	The domain ID of the subscribed model is different from the entered domain ID. Contact the model subscription service and check whether the entered domain ID is correct.
400	ModelArts. 3072	The domain id is the same and does not support subscribing to your own model.	You cannot subscribe to your own model.	Use another account to subscribe to the model.
400	ModelArts. 3074	Unable to delete subscribed model.	Failed to delete the subscribed model.	Unsubscribe from the model and try again.
400	ModelArts. 3077	Model is a subscription model that cannot be broadcast.	Failed to perform the operation because the model has been subscribed.	The model_source of the model has been set to subscribe.
400	ModelArts. 3078	The model status is not normal and cannot be broadcast.	Failed to perform the operation because the model status is abnormal.	Check the model status.
400	ModelArts. 3079	Purchased license, can't cancel subscription.	Failed to unsubscribe from the model because a license has been configured for the model.	Delete the license and unsubscribe from the model.



Status Code	Error Codes	Error Message	Description	Solution
403	ModelArts.0108	You are not authorized to perform the ({0}) operation.	You do not have permission to perform {0}.	Check whether you are authorized to perform operations on OBS or APIs.
403	ModelArts.0203	Invalid token.	Invalid token.	Obtain a new token and try again.
403	ModelArts.0206	Invalid AK/SK.	Invalid AK/SK.	Check whether the token is valid.
403	ModelArts.3010	Failed to copy model, you don't have permission to copy the model ({0}).	You do not have the permission to copy model {0}.	Check whether the entered token or model ID is correct.
403	ModelArts.3075	Model ({0}) is a subscription model and cannot create a new version.	Failed to create a new version because model {0} has been subscribed.	No new version can be created for a subscribed model.
404	ModelArts.3001	Model ({0}) does not exist.	Model {0} does not exist.	Check whether the entered model ID is correct.
404	ModelArts.3003	Failed to get model names list.	Failed to obtain the model name list.	Check whether the account is correct.
404	ModelArts.3019	Infer format ({0}) does not exist.	Input/Output mode {0} does not exist.	Change the input/output mode.
404	ModelArts.3021	Template ({0}) does not exist.	Template {0} does not exist.	Select another template.
404	ModelArts.3071	The subscription ({0}) does not exist.	Subscription {0} does not exist.	Subscribe to the model and try again.

Status Code	Error Codes	Error Message	Description	Solution
404	ModelArts. 3080	Model optimization job ({0}) does not exist.	Model optimization task {0} does not exist.	The task is unavailable.
409	ModelArts. 3002	Model ({0}, {1}) already exists.	Model ({0}, {1}) already exists.	Change the model name or version and try again.
409	ModelArts. 3020	Infer format ({0}) already exists.	Input/Output mode {0} already exists.	Change the input/output mode.
409	ModelArts. 3022	Template ({0}) already exists.	Template {0} already exists.	Select another template.
409	ModelArts. 3073	model ({0}) already exists, no subscription required.	Model {0} already exists.	Do not subscribe to another model with the same name.
500	ModelArts. 0010	Internal error.	Internal error.	Contact R&D and O&M personnel.
500	ModelArts. 0109	Unauthorized account.	Unauthorized account.	Only the administrator can call alarm APIs.
500	ModelArts. 3006	Failed to publish model.	Failed to publish the model.	The model metadata failed to be stored to the database. Contact R&D and O&M personnel.
500	ModelArts. 3009	Failed to delete model, model ({0}) already deploy service.	Failed to delete model {0} because it has been deployed as a service.	Delete the deployed service and try again.
500	ModelArts. 3043	User ({0}) does not have obs: object: PutObjectAcl permission.	User {0} does not have the obs:object:Put ObjectAcl permission.	Add the permission and try again.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3044	Model file ({0}) is larger than 5G and cannot be imported.	Failed to import model file {0}.	Ensure that the file is at most 5 GB in size.
500	ModelArts. 3045	Parameter ({0}) is null.	Parameter {0} is left blank.	Check the parameter setting as prompted.
500	ModelArts. 3047	ExeML model({0}) cannot be converted.	Failed to convert model {0}.	ExeML models cannot be converted.
500	ModelArts. 3048	Model({0}) is being imported and cannot be converted.	Failed to convert model {0} because the model status is abnormal.	Convert the model after the model status changes to normal.
500	ModelArts. 3049	Cannot convert models belonging to other users.	Models of other users cannot be converted.	You can only convert your models.
500	ModelArts. 3050	Get user temporary credential failed.	Failed to obtain the temporary user certificate.	Check whether the token is valid.
500	ModelArts. 3052	Chip Type ({0}) not support.	Chip type {0} is not supported.	Check whether the chip is of GPU, Arm, or general type.
500	ModelArts. 3053	Model Type ({0}) not support.	Model type {0} is not supported.	This type of model is not supported.
500	ModelArts. 3054	Task ({0}) does not exist.	Task {0} does not exist.	The task is unavailable.
500	ModelArts. 3055	Task ({0}) is running cannot be deleted.	Failed to delete task {0} because it is running.	Delete the task after it is complete.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3056	Task name ({0}) not meeting the specification.	Task name {0} does not comply with specifications.	Ensure that a task name starts with a lowercase letter, ends with a lowercase letter or digit, and contains 2 to 24 characters, including lowercase letters, digits, and hyphens (-).
500	ModelArts. 3057	Task description ({0}) not meeting the specification.	Task description {0} does not comply with specifications.	Ensure that task description contains 1 to 100 characters and cannot contain the following characters: &! \ "<>=.
500	ModelArts. 3058	Task input ({0}) not meeting the specification.	Task input {0} does not comply with specifications.	Perform operations according to the error message.
500	ModelArts. 3059	Task output ({0}) not meeting the specification.	Task output {0} does not comply with specifications.	Ensure that the task output is a valid HTTP or HTTPS address.
500	ModelArts. 3060	Task spec ({0}) not meeting the specification.	Advanced task option {0} does not comply with specifications.	Ensure that the advanced option does not contain Chinese characters or the following characters: ( ) & \$ ? < > . Ensure that the value is less than 4000.
500	ModelArts. 3061	get Task ({0}) log parameter not meeting the specification.	Log parameters of task {0} do not comply with specifications.	Ensure that the offset or lines value is greater than or equal to 0.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3062	Task ({0}) exists.	Task {0} already exists.	Change the name and try again.
500	ModelArts. 3064	DL Framework Type ({0}) not support.	Deep learning framework {0} is not supported.	This type of framework is not supported.
500	ModelArts. 3065	The image of the model is being built so the runtime cannot be updated.	Failed to update runtime because the model image is being created.	Wait until the image is created.
500	ModelArts. 3301	Failed to build image.	Failed to create the image.	Check the image, or contact R&D and O&M personnel to rectify the fault.
500	ModelArts. 3801	invalid token, can not get template ak/sk.	Failed to obtain the template AK/SK due to an invalid token.	Obtain a new token and try again.
500	ModelArts. 3802	create encrypt path or file failed.	Failed to create the encryption path or file.	Contact R&D and O&M personnel.
500	ModelArts. 3803	download file from obs failed.	Failed to download the file from OBS.	Check whether the OBS path is available.
500	ModelArts. 3804	upload file to obs failed.	Failed to upload the file to OBS.	Contact R&D and O&M personnel.
500	ModelArts. 3805	file can not be empty.	The file cannot be left blank.	Set file.
500	ModelArts. 3901	license id ({0}) is not exist.	License ID {0} does not exist.	Check whether the license ID is valid.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3902	Failed to get license info because ({0}).	Failed to obtain the license because {Reason}.	Locate the fault based on the failure cause.
500	ModelArts. 3903	Renew license failed because ({0}).	Failed to renew the license because {Reason}.	Locate the fault based on the failure cause.
500	ModelArts. 3904	Upload data failed because ({0}).	Failed to report the used quota because {Reason}.	Locate the fault based on the failure cause.
500	ModelArts. 3905	Failed to get app key.	Failed to obtain the app key.	Contact R&D and O&M personnel.
500	ModelArts. 3906	Failed to create license because ({0}).	Failed to create the license because {Reason}.	Locate the fault based on the failure cause.
500	ModelArts. 3907	Failed to delete license because ({0}).	Failed to delete the license because {Reason}.	Locate the fault based on the failure cause.
500	ModelArts. 3908	Failed to get CBC resources.	Failed to obtain CBC resources.	Check the license ID or the associated license configuration.
500	ModelArts. 3909	access CBC failed.	Failed to access CBC.	Contact R&D and O&M personnel.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3910	Check CBC auth failed because ({0}).	Failed to authorize CBC operations because {Reason}.	Locate the fault based on the failure cause. Renewal authentication fails because cloudservicetype is not provided. Unsubscription authentication fails because an instance is being deployed.
500	ModelArts. 7001	Internal error occurred in workspace manager.	An internal error occurred in the workspace manager.	Contact R&D and O&M personnel.
400	ModelArts. 3514	Field [input_params] must be set for the model that is used to deploy the batch service.	The input_params parameter for the batch service model is left blank.	Set input_params.
400	ModelArts. 3515	The model {id} cannot be used for deploying services because it is still being published.	Failed to deploy the service because model {ID} is not ready.	Try again after the model is ready.
400	ModelArts. 3516	Failed to deploy services because the version of the model that is used for deploying services is the same.	Failed to deploy the service due to duplicate model versions.	Correct the model version list to ensure that no duplicate model versions exist.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3518	The {service_type} service has not been enabled or authorized.	Service {type} has not been enabled or authorized.	Enable or authorize the service.
400	ModelArts. 3519	Services only in one of states in [deploying, running, stopping, deleting] can be updated.	Services in the deploying, running, stopping, or deleting state cannot be updated.	Do not update services in the deploying, running, stopping, or deleting state.
400	ModelArts. 3520	A maximum of {number} {service_type} services are allowed.	The total number of {type} services has reached the maximum allowed limit {quantity}.	Delete the services that are no longer used or contact service O&M personnel to increase the quantity quota.
400	ModelArts. 3521	A maximum of {number} {service_type} services in running status are allowed.	The total number of {type} services in the running state has reached the maximum allowed limit {quantity}.	Delete the services that are no longer used or contact service O&M personnel to increase the quantity quota.
400	ModelArts. 3522	A maximum of {number} {service_type} service instances are allowed.	The total number of {type} service instances has reached the maximum allowed limit {quantity}.	Delete the service instances that are no longer used or contact service O&M personnel to increase the quantity quota.
400	ModelArts. 3523	Service {name} has been subscribed.	Service {name} has been subscribed.	Directly use the subscribed service.



Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3524	Failed to subscribe to the service because {reason}.	Failed to subscribe to the service because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3525	Forbidden to update service {name} because it is a shared service.	Failed to update service {name} because it is a shared service.	Do not update a shared service.
400	ModelArts. 3527	Forbidden to subscribe to service {id} because it is a {service_type} service.	Failed to subscribe to service {ID} because it is a {type} service.	The service of this type cannot be subscribed to.
400	ModelArts. 3528	Forbidden to subscribe to service {id} because it is released by yourself.	Failed to subscribe to service {ID} because it is your service.	You cannot subscribe to services published by yourself.
400	ModelArts. 3529	Model {id} under service {id} does not exist.	Model {ID} of service {ID} does not exist.	Ensure that the model ID is correctly set and that the model belongs to the target service.
400	ModelArts. 3531	Service {id} has created the QR code.	A QR code has been created for service {ID}.	The QR code has been created for the service and does not need to be created again.
400	ModelArts. 3532	No QR code found for service {id}.	A QR code has not been created for service {ID}.	Create a QR code for the service and try again.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3534	The security group must contain at least one inbound rule to allow the TCP request from source address 0.0.0.0/0 and port 8080.	The security group must contain at least one inbound rule to permit the requests whose protocol is TCP, source address is 0.0.0.0/0, and port number is 8080.	Add the inbound rule to the security group.
400	ModelArts. 3535	Subservice {name} of service {name} does not exist.	Subservice {name} of service {name} does not exist.	Ensure that the subservice name is correctly set and that the subservice belongs to the target service.
400	ModelArts. 3536	Subservice {name} of service {name} has been subscribed.	You have subscribed to subservice {name} of service {name}.	Directly use the subscribed subservice.
400	ModelArts. 3538	The requirement notification of service {name} should not exceed one.	At most one requirement notification is allowed for service {name}.	Check the configuration and ensure that no more than one requirement notification is configured for service {name}.
400	ModelArts. 3540	Operation failed because you are not the owner of service {name}.	You are not the owner of service {name}.	This operation can be performed only by the service owner.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3541	Error code {error_code} of service {name} does not exist.	Error code {error code} of service {name} does not exist.	Ensure that the error code is correctly set and that the error code belongs to the target service.
400	ModelArts. 3542	Error code {error_code} of service {name} already exists.	Error code {error code} of service {name} already exists.	Change the error code and try again.
400	ModelArts. 3544	URL domain CNAME resolution failed.	Failed to parse the CNAME domain.	Check whether the URL is correct.
400	ModelArts. 3545	Invalid certificate or private key.	Invalid certificate or private key.	Check whether the certificate or private key is correctly configured.
400	ModelArts. 3547	Cluster {id} does not exist.	Cluster {ID} does not exist.	Check whether the cluster ID is correct.
400	ModelArts. 3548	Path {path} is not a valid regex.	Path {path} is not a valid regular expression.	Check whether the path is correct.
400	ModelArts. 3549	Error code {code} is duplicated.	Duplicate error code {error code} in the request body.	Modify the error code to ensure that the error code is unique.
400	ModelArts. 3550	Domain {name} has been used.	Domain {noun} has been used.	Change the domain name and try again.
400	ModelArts. 3551	OBS path {path} does not exist.	OBS path {path} does not exist.	Check whether the OBS path is correct.
400	ModelArts. 3552	The length of [resource_id] must be in the range of [0, 64].	The resource_id value is not in the range from 0 to 64.	Check whether RESOURCE_SPEC_CODE is too long.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3553	Service {name} not subscribed yet.	Service {name} has not been subscribed to.	Subscribe to the service and try again.
400	ModelArts. 3554	Cluster name {name} has been used.	Cluster name {name} has been used.	Change the cluster name and try again.
400	ModelArts. 3556	Forbidden to share ai-service {id} because ai-service is unsharable.	AI service {ID} cannot be shared.	AI services cannot be shared.
400	ModelArts. 3559	Source error code {error_code} of service {name} already exists.	Source error code {error_code} of service {name} already exists.	Change the source error code and try again.
400	ModelArts. 3560	Project {project_id} has not subscribed to subservice {id}.	Subservice {ID} has not been subscribed for project {ID}.	Subscribe to the subservice and try again.
400	ModelArts. 3561	Insufficient node quota.	Insufficient node quota.	Contact service O&M personnel to increase the quota or delete unnecessary nodes to release resources.
400	ModelArts. 3562	The value of field {due_time} must be a future time.	The due_time value must be later than the current time.	Set the due_time parameter to a time later than the current time.
400	ModelArts. 3564	The sample collection task has been created for service {id}.	Sample collection for service {ID} has been created.	Do not create the task again.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3565	No sample collection task is created for service {id}.	Sample collection for service {ID} has not been created.	Create a service sample collection task and try again.
400	ModelArts. 3566	Forbidden to modify the default workspace.	The default workspace cannot be modified.	Do not modify the default workspace.
400	ModelArts. 3567	OBS error occurs because {reason}.	OBS error because {cause}.	Locate the fault based on the failure cause.
400	ModelArts. 3568	OBS client error occurs.	The OBS client is abnormal.	Contact service O&M personnel.
400	ModelArts. 3572	Invalid OBS URL {url}.	Invalid OBS path {path}.	Check whether the OBS path is correct.
400	ModelArts. 3573	Failed to obtain the bucket name from OBS URL {url}.	Failed to obtain the bucket name from OBS path {path}.	Check whether the OBS path is correct.
400	ModelArts. 3574	Failed to validate the correctness of OBS URL {url}.	Failed to check OBS path {path}.	Check whether the OBS path is correct.
400	ModelArts. 3576	Failed to query the model quota.	Failed to obtain the model quota.	Contact service O&M personnel.
400	ModelArts. 3577	Failed to update the model quota.	Failed to update the model quota.	Contact service O&M personnel.
400	ModelArts. 3578	Insufficient model quota. Increase the quota or delete any unnecessary services.	Insufficient model quota.	Increase the quota or delete the models that are no longer used, and try again.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3580	Model not purchased.	The model has not been purchased.	Purchase the model and try again.
400	ModelArts. 3582	Failed to create edge configurations	Failed to create edge configurations	Contact service O&M personnel.
400	ModelArts. 3583	Failed to create the edge application due to IEF error.	Failed to create the edge application due to an IEF platform error.	Contact service O&M personnel.
400	ModelArts. 3584	Failed to update the edge application.	Failed to update the edge application.	Contact service O&M personnel.
400	ModelArts. 3585	The host port has been used by another edge application.	The host port has been used by another edge application.	Use another port or contact service O&M personnel.
400	ModelArts. 3586	Failed to create the edge application.	Failed to create the edge application.	Contact service O&M personnel.
400	ModelArts. 3587	Failed to delete the edge application.	Failed to delete the edge application.	Contact service O&M personnel.
400	ModelArts. 3588	Failed to create edge volumes and environments.	Failed to create edge parameters.	Contact service O&M personnel.
400	ModelArts. 3589	Model {id} cannot be used to deploy {service_type} service.	Model {ID} cannot be used to deploy the {type} service.	Select another deployment type.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3590	Invalid expression rule. Create a rule using Spring Expression Language and the desired result type is Boolean.	Invalid expression rule. Ensure that the rule complies with the Spring expression language syntax, and the expected result is of Boolean type.	Modify the expression so that it complies with the expression rule.
400	ModelArts. 3591	There are duplicate rules in the extend-configs.	Duplicate rules in extend-configs.	Modify the expression specifications to prevent duplicate expressions.
400	ModelArts. 3592	Incorrect model health configuration.	Incorrect model health check parameters.	Check whether the health check parameters of the model are correct.
400	ModelArts. 3593	The model has been expired.	The model has expired.	Purchase or subscribe to the model again.
400	ModelArts. 3594	Failed to query IEF instances.	Failed to obtain the edge instance.	Contact service O&M personnel.
400	ModelArts. 3595	Failed to create the IEF application mesh.	Failed to create the application mesh.	Contact service O&M personnel.
400	ModelArts. 3596	Failed to update the IEF application mesh.	Failed to update the application mesh.	Contact service O&M personnel.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3597	Please authorize the development environment to use and store your AK and SK.	Failed to use the service because the development environment has not been authorized to store and use your AK and SK.	Authorize the development environment to store and use your AK and SK.
400	ModelArts. 3598	Only nodes in the [Running] state can be selected.	Only running nodes can be selected.	Select a running node and try again.
400	ModelArts. 3610	Parameter {name} cannot be empty.	Parameter {name} cannot be left blank.	Set the parameter and try again.
400	ModelArts. 3611	Failed to query the batch task run log.	Failed to obtain batch processing task logs.	Contact service O&M personnel.
400	ModelArts. 3612	Failed to {create/update} the service payload due to error code {code}. Please try later or submit a service ticket for professional technical support.	Failed to {create/update} service workload. The error code is {error code}. Try again later or submit a service ticket.	Try again or contact service O&M personnel.
400	ModelArts. 3613	Failed to register the API. Please try later or submit a service ticket for professional technical support.	Failed to register the service API. Try again later or submit a service ticket.	Try again or contact service O&M personnel.



Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3620	Failed to get the number of associated services.	Failed to obtain the number of associated services.	Contact service O&M personnel.
400	ModelArts. 3811	Failed to query the agency because {reason}.	Failed to obtain the agency because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3812	Failed to create AI resource specification code {code} because {reason}.	Failed to create resource flavor code {code} because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3813	Failed to update AI resource specification code {code} because {reason}.	Failed to update resource flavor code {code} because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3814	Failed to delete AI resource specification code {code} because {reason}.	Failed to delete resource flavor code {code} because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3815	Failed to delete AI subservice {id} because {reason}.	Failed to delete subservice {ID} because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3816	Failed to create the AI proxy mapping because {reason}.	Failed to create the proxy mapping because {reason}.	Locate the fault based on the failure cause.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3817	Failed to update the AI proxy mapping because {reason}.	Failed to update the proxy mapping path because {reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3818	The agency of service {name} has been defined.	The agency of service {name} has been configured.	Do not repeat the operation.
400	ModelArts. 3822	The batch service task does not exist.	The batch service does not exist.	Enter the correct batch service ID.
400	ModelArts. 3825	Failed to generate the SDR data because {reason}.	Failed to generate CDR data because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3826	Failed to create the API because {reason}.	Failed to create the API because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3827	Failed to subscribe to the API because {reason}.	Failed to subscribe to the API because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3828	Failed to unsubscribe from the API because {reason}.	Failed to unsubscribe from the API because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3829	Failed to modify the API subscription status because {reason}.	Failed to update the API subscription because {Reason}.	Locate the fault based on the failure cause.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3830	Operation not allowed. Change the charging mode from postpaid to prepaid in CBC.	You are not allowed to change the billing mode from postpaid to prepaid.	Change the billing mode in CBC.
400	ModelArts. 3831	Operation not allowed. Change the charging mode from prepaid to postpaid in CBC.	You are not allowed to change the billing mode from prepaid to postpaid.	Change the billing mode in CBC.
400	ModelArts. 3832	The subscription configuration is not modified and does not need to be updated. Please check.	Failed to perform the operation because the subscription configuration has not modified.	Change the subscription configuration and try again.
400	ModelArts. 3833	Failed to delete the API because {reason}.	Failed to delete the API because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3834	Failed to update metadata in CBC because {reason}.	Failed to update the CBC metadata because {Reason}.	Locate the fault based on the failure cause.
400	ModelArts. 3835	Resource specification code {code} of service {name} does not exist.	Resource flavor code {code} of service {name} does not exist.	Ensure that the resource flavor code is correctly set and that the code belongs to the target service.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3836	Resource specification code {code} of project {id} does not exist.	Resource flavor code {code} of project {1} does not exist.	Ensure that the resource flavor code is correctly set and that the code belongs to the target project.
400	ModelArts. 3837	Resource ID {id} of project {id} does not exist.	Resource {ID} of project {1} does not exist.	Ensure that the resource ID is correctly set and that the resource belongs to the target project.
400	ModelArts. 3838	The hard-select has not been enabled for service {id}.	Hard example filtering of service {0} has not been enabled.	Enable hard example filtering for the service and try again.
400	ModelArts. 3839	The hard-select has been enabled for service {id}.	Hard example filtering of service {0} has been enabled.	You do not need to enable it again.
400	ModelArts. 3843	Failed to query the information about dataset {id}.	Failed to obtain database {0}.	Contact service O&M personnel.
400	ModelArts. 3844	Failed to import samples to dataset {id}.	Failed to import samples to dataset {id}.	Contact service O&M personnel.
400	ModelArts. 3845	No sample is available for import under the OBS path {path} of service {id}.	No sample is available to be imported to OBS path {path} of service {ID}.	Try again or contact service O&M personnel.
400	ModelArts. 3846	Failed to add the OBS bucket lifecycle rule for service {id}.	Failed to add the lifecycle rule for the OBS bucket of service {ID}.	Contact service O&M personnel.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3847	Failed to delete the OBS bucket lifecycle rule for service {id}.	Failed to delete the lifecycle rule for the OBS bucket of service {ID}.	Contact service O&M personnel.
400	ModelArts. 3848	Service {id} in the information of dataset {import_type} already exists.	The service {ID} of the {import type} dataset already exists.	Check the request and select the correct service ID.
400	ModelArts. 3849	Service {id} in the information of dataset {import_type} does not exist.	The service {ID} of the {import type} dataset does not exist.	Check whether the service ID is correct.
400	ModelArts. 3850	The hard-sample-select task {id} of service {id} does not exist.	Hard example task {ID} of service {ID} does not exist.	Ensure that the hard example task ID is correctly set and that the task belongs to the target service.
400	ModelArts. 3851	The status of hard-sample-select task {name} cannot be changed from {status} to {status}.	The status {status value} of the hard example task {name} cannot be updated to {status value}.	Try again or contact service O&M personnel.
400	ModelArts. 3852	Failed to start hard-sample-select task {id} because related OBS files have been deleted.	Failed to start hard example task {ID} because key OBS files have been deleted.	Try again or contact service O&M personnel.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3853	The hard-sample-select quota of project {id} does not exist.	The quota for selecting hard samples for project {ID} does not exist.	Create the quota and try again.
400	ModelArts. 3854	The hard-sample-select quota of project {id} already exists.	The quota for selecting hard samples for project {ID} already exists.	You do not need to create it again.
400	ModelArts. 3856	A maximum of {number} free services are allowed.	The number of free services has reached the maximum allowed limit {Number}.	Delete unnecessary free services to release resources.
400	ModelArts. 3857	A maximum of {number} free service instances are allowed.	The number of free services has reached the maximum allowed limit {Number}.	Delete unnecessary free services to release resources.
400	ModelArts. 3862	Subservice {id} has been added to whitelist URL {url}.	The URL {URL} has been added to the whitelist of the sub-service {ID}.	Do not repeat the operation.
400	ModelArts. 3863	Whitelist URL {id} of service {name} does not exist.	The whitelist URL {ID} of the service {name} does not exist.	Ensure that the URL ID in the whitelist is correct and that the URL belongs to the corresponding service.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3864	Subservice {id} of service {name} does not exist.	The sub-service {ID} of service {name} does not exist.	Ensure that the sub-service ID is correct and that the sub-service belongs to the corresponding service.
400	ModelArts. 3865	The size of the download whitelist of service {name} exceeds the maximum number {number} allowed.	The number of the whitelist records downloaded by service {name} exceeds the upper limit {value}.	Contact service O&M personnel.
400	ModelArts. 3866	Domain ID {id} and user ID {id} already exist.	The domain ID {ID} and user ID {ID} already exist.	Do not repeat the operation.
400	ModelArts. 3867	Domain ID {id} does not exist.	The domain ID {ID} does not exist.	Check the request and enter the correct domain ID.
400	ModelArts. 3868	Domain ID {id} and user ID {id} do not exist.	The domain ID {ID} and user ID {ID} do not exist.	Check the request and enter the correct domain ID and user ID.
400	ModelArts. 3869	Failed to delete the task type because {reason}.	Failed to delete the task type. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
400	ModelArts. 3870	Failed to subscribe to the API because {reason}.	Failed to subscribe to the API. Fault cause: {fault cause}.	Contact service O&M personnel.
400	ModelArts. 3871	Forbidden to subscribe to postpaid QPS for the task type.	You are not allowed to subscribe to postpaid QPS for the task type.	Check the request parameter or contact service O&M personnel.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3872	Forbidden to change the charging mode for the task type from prepaid to postpaid QPS.	You are not allowed to change the billing mode of the task type from prepaid mode to postpaid QPS mode.	Check the request parameter or contact service O&M personnel.
400	ModelArts. 3873	No corresponding subservice is found in cluster {name}.	The cluster {0} does not have the corresponding sub-service.	Check the request parameter or contact service O&M personnel.
400	ModelArts. 3880	Failed to create the AS policy because {reason}.	Failed to create the AS policy. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
400	ModelArts. 3890	The total number of AS policies exceeds the maximum number {number} allowed.	The number of AS policies exceeds the upper limit {0}.	Delete unnecessary AS policies.
400	ModelArts. 3892	Calling failed due to invalid CBS request.	Failed to call the API due to the invalid CBS request.	Try again or contact service O&M personnel.
400	ModelArts. 3894	The specification configuration information of runtime environment {name} does not exist.	The specification configurations of the running environment {0} does not exist.	Set the flavor configurations for the running environment and try again.



Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3895	The specification configuration information of runtime environment {name} already exists.	The specification configurations of the running environment {0} already exist.	Do not repeat the operation.
400	ModelArts. 3896	Resource specification code {0} for user {1} already exists.	The records of the resource specification code {0} in project {1} already exist.	Do not repeat the operation.
400	ModelArts. 3897	Failed to {create/obtain/remove} the AS policy due to error code {code}.	Failed to request {create/obtain/delete} the AS. Error code: {0}.	Try again or contact service O&M personnel.
400	ModelArts. 3950	Failed to obtain the AI service list.	Failed to obtain the AI service list.	Contact service O&M personnel.
400	ModelArts. 3951	Failed to parse file {name}.	Failed to parse the file {name}.	Ensure that the file name is correct.
400	ModelArts. 3952	Insufficient resources. Please try later.	Insufficient resources.	Try again later or contact service O&M personnel.
400	ModelArts. 3953	Failed to delete online service {id} because it has been associated with AI service {name}. Please disassociate it and try again.	Failed to delete real-time service {ID} because it has been associated with AI service {name}. Cancel the association first.	Cancel the association between the real-time service and all AI services and try again.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 3954	AI resource specification {id} does not exist.	The cloud resource specification {ID} does not exist.	Ensure that the cloud resource specification ID is correct.
400	ModelArts. 3955	Field [resource_id_components] of AI resource specification {id} cannot be empty.	The ID components in the cloud resource specification {ID} cannot be left blank.	Set the resource_id_components parameter and try again.
400	ModelArts. 4105	Incorrect JSON format of the input data.	The JSON format of the request body is incorrect.	Use a request body in correct JSON format.
400	ModelArts. 4106	Invalid authorization request. Your account is restricted.	Your account has been suspended.	Ensure your account balance is sufficient.
400	ModelArts. 4201	Invalid request URL because no service ID or request URI included.	The request URL does not contain a service ID.	Use a correct request URL.
400	ModelArts. 4202	Invalid request URL because the URL is not in the format of http(s):// domain/v1/ infers/ serviceId/ requestURI.	The request URL format is incorrect.	Use a correct request URL.
400	ModelArts. 4203	Invalid request because requested service %s is unavailable.	The requested service has not been started.	Ensure the service is started.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 4902	Access prohibited because the app-auth API was not associated with APIG app %s.	The target app is not authorized.	Ensure AppCode is allowed to access the target service.
400	ModelArts. 4903	Access prohibited because the app-auth API was not associated with a signature key.	The app authentication API is not associated with a signature key.	Internal error. Contact technical support.
400	ModelArts. 4904	Access prohibited because the app-auth API was not associated with signature key %s.	The app authentication API is not associated with the signature key.	Internal error. Contact technical support.
400	ModelArts. 4905	Failed to check the authorization request header.	Checking the authorization request header failed.	Use the correct appcode prediction address or contact technical support.
400	ModelArts. 7002	You are not authorized to operate dataset {id}.	You do not have the operation permission on dataset {ID}.	Check the permission or contact the service O&M personnel.
401	ModelArts. 0201	Token doesn't exist.	The token is empty.	Add a correct token in the request header.
401	ModelArts. 0202	Invalid token header because the token has expired.	The token has expired.	Use a valid token.
401	ModelArts. 0203	Invalid token.	The token cannot be parsed.	Use a valid token.

Status Code	Error Codes	Error Message	Description	Solution
401	ModelArts.0204	Failed to parse the token.	Parsing the token failed.	Use a valid token.
401	ModelArts.0205	No authorization request header.	The authorization request header is missing.	Use the correct appcode prediction address or contact technical support.
401	ModelArts.0206	Incorrect authorization request header format.	The authorization request header is in an incorrect format.	Use the correct appcode prediction address or contact technical support.
401	ModelArts.0207	Token must contain project info of current region.	The token must contain project information.	Use a token that contains project information.
401	ModelArts.0208	Failed to check the authorization request header.	Checking the authorization request header failed.	Use the correct appcode prediction address or contact technical support.
401	ModelArts.0209	No key appld in header.	The appld request header is missing.	Use the correct APIG prediction address.
401	ModelArts.0210	No key apild in header.	The apild request header is missing.	Use the correct APIG prediction address.
401	ModelArts.0212	Invalid token header because the token does not contain a project.	The token does not contain any project information.	Use a project-level token.
401	ModelArts.3801	User credential (AK and SK) does not exist.	The user certificate does not exist.	Add the AK/SK again.

Status Code	Error Codes	Error Message	Description	Solution
401	ModelArts. 4203	Invalid request because %s.	You do not have the access permission.	Ensure you have the access permission.
403	ModelArts. 0210	The project id in the request URL does not match the token.	The project ID and token in the request URL do not match.	Use a correct project ID to generate a token.
403	ModelArts. 3555	Forbidden to access ECS.	You do not have the permission to access the ECS.	Enable the ECS service and try again.
403	ModelArts. 3936	The app-auth API {id} does not belong to service {id}.	The API {ID} that supports application authentication does not belong to the service {ID}.	Check the request parameter or contact the service O&M personnel.
404	ModelArts. 3502	Service {name} does not exist.	The service {name} does not exist.	Check whether the service name is correct.
404	ModelArts. 3507	Model {name} does not exist.	The model {ID} does not exist.	Check whether the model ID is correct.
404	ModelArts. 3923	Application {id} does not exist.	The application {ID} does not exist.	Check whether the application ID is correct.
404	ModelArts. 3935	The app-auth API {id} does not exist.	The API {ID} that supports application authentication does not exist.	Check whether the API ID is correct.
404	ModelArts. 4901	The app-auth API does not exist.	The app authentication API does not exist.	Ensure the app prediction address is correct.

Status Code	Error Codes	Error Message	Description	Solution
408	ModelArts. 4205	Connection timed out.	Accessing the backend server timed out.	Try again later.
409	ModelArts. 3503	Service {name} already exists.	The service {name} already exists.	Change the service name and try again.
409	ModelArts. 3929	Failed to create the application because {reason}.	Failed to create the application. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
413	ModelArts. 4104	Invalid request body because the size exceeds the maximum size allowed.	The size of the request body is invalid.	Use a request body smaller than 12 MB.
429	ModelArts. 4206	Excessive number of requests to %s.	The maximum number of requests has been reached.	The traffic limit is reached. Try again later.
500	ModelArts. 3501	Failed to deploy the service.	Failed to deploy the service.	Contact service O&M personnel.
500	ModelArts. 3504	Failed to delete the service.	Failed to delete the service.	Contact service O&M personnel.
500	ModelArts. 3505	Failed to update the service.	Failed to query the service.	Contact service O&M personnel.
500	ModelArts. 3506	Model {id} does not exist.	Failed to update the service.	Contact service O&M personnel.
500	ModelArts. 3508	Failed to query the service monitoring information.	Failed to obtain the service monitoring information.	Contact service O&M personnel.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3509	Failed to query edge nodes.	Failed to query the node.	Contact service O&M personnel.
500	ModelArts. 3511	Failed to query edge tags.	Failed to query the edge label.	Contact service O&M personnel.
500	ModelArts. 3537	Failed to handle the CBC request.	Failed to process the CBC request.	Contact service O&M personnel.
500	ModelArts. 3539	Failed to initialize service URL {url}.	Failed to initialize service URL {url}.	Check whether the service URL is correct.
500	ModelArts. 3543	Invalid CBC request.	The CBC request is invalid.	Try again or contact the service O&M personnel.
500	ModelArts. 3546	Failed to create the cluster.	Failed to create the dedicated resource pool.	Contact service O&M personnel.
500	ModelArts. 3579	Failed to query the model information.	Failed to query the model information.	Contact service O&M personnel.
500	ModelArts. 3581	Failed to create edge certificates.	Failed to create the edge certificate.	Contact service O&M personnel.
500	ModelArts. 3802	Failed to create API group {name} because {reason}.	Failed to create API group {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3803	Failed to register API {name} because {reason}.	Failed to register API {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3805	Failed to create AI service {name} because {reason}.	Failed to create AI service {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3806	Failed to update AI service {name} because {reason}.	Failed to update AI service {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3807	Failed to delete AI service {name} because {reason}.	Failed to delete AI service {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3808	Failed to create AI subservice {name} because {reason}.	Failed to create sub-service {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3809	Failed to update AI subservice {name} because {reason}.	Failed to update sub-service {name}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3810	Failed to create the agency because {reason}.	Failed to create the agency. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3819	Failed to delete the agency definition.	Failed to delete the agency definition.	Contact service O&M personnel.
500	ModelArts. 3858	Failed to bind task type to API {id} because {reason}.	Failed to bind the task type to API {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.



Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3859	Failed to unbind task type from API {id} because {reason}.	Failed to unbind the task type from API {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3860	Failed to create the task type because {reason}.	Failed to create the task type. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3861	Failed to update the task type because {reason}.	Failed to update the task. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3891	Failed to operate the serverless cluster because {reason}.	Failed to operate the serverless cluster. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3893	Failed to forward the CBC request to the cloud service.	Failed to forward the CBC request to the cloud service.	Contact service O&M personnel.
500	ModelArts. 3921	Failed to create the app-auth API because {reason}.	Failed to register the API that supports application authentication. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3924	Failed to create the application code for application {id} because {reason}.	Failed to create the AppCode of application {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3925	Failed to delete app-auth api {id} because {reason}.	Failed to delete API {ID} that supports application authentication. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3926	Failed to reset the secret of application {id} because {reason}.	Failed to reset the private key of application {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3927	Failed to reset the application code of application {id} because {reason}.	Failed to reset the AppCode of application {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3928	Failed to obtain the app-auth API information because {reason}.	Failed to obtain information of the API that supports application authentication. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3932	Failed to obtain the application information because {reason}.	Failed to obtain the application information. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3933	Failed to delete application {id} because {reason}.	Failed to delete application {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 3934	Failed to delete the application code of application {id} because {reason}.	Failed to delete the AppCode of application {ID}. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3937	Failed to authorize the app-auth API to the application because {reason}.	Failed to authorize the API to the application. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 3938	Failed to unbind the app-auth API from the application because {reason}.	Failed to cancel the authorization from the API to the application. Fault cause: {fault cause}.	Locate the fault based on the failure cause.
500	ModelArts. 4302	Gateway forwarding error because %s.	Accessing the service is rejected.	Ensure the service to be accessed is running properly.
500	ModelArts. 4503	Failed to obtain the backend service because %s.	The service does not exist.	Ensure the service to be accessed is available.
500	ModelArts. 4505	Internal backend service error because reading timed out.	Internal server error.	Ensure the service to be accessed is running properly.
500	ModelArts. 4801	Failed to obtain the consul %s.	Obtaining service instances for Consul failed.	Internal error. Contact technical support.

Status Code	Error Codes	Error Message	Description	Solution
500	ModelArts. 7001	Unknown workspace system error. Try again later or submit a service ticket for professional technical support.	An internal error occurred in the workspace. Try again later or submit a service to get professional technical support.	Contact service O&M personnel.
503	ModelArts. 4302	Gateway forwarding error because %s.	The backend service is unavailable.	Internal error. Contact technical support.
503	ModelArts. 4700	Unavailable gateway.	The gateway is unavailable.	The platform is being upgraded. Try again later.
504	ModelArts. 4503	Failed to obtain the backend service because %s.	The response from the backend service timed out.	Ensure the service to be accessed is running properly.
400	ModelArts. 7002	Not gray user, please contact the administrator	Workspace authentication error.	Contact the administrator to check whether the user has permissions on the workspace.
400	ModelArts. 7003	no permission to get iam user list, please check permission	IAM permissions are incorrect.	Add the IAM permissions based on the error message.

Status Code	Error Codes	Error Message	Description	Solution
400	ModelArts. 7004	the status of workspace: {workspaceID} is abnormal, can not execute [action: {action}]	You are not allowed to create resources when a workspace is in the normal state, for example, a deleted or failed workspace.	Create resources in a normal workspace.
400	ModelArts. 7005	workspace: {workspace} not existed	The workspace does not exist.	Ensure that the transferred workspace ID exists.
400	ModelArts. 7006	workspace number over limit, limit: {limit}	The number of workspaces exceeds the upper limit.	Delete unnecessary workspaces.
500	ModelArts. 7001	Workspace internal error	An unknown error occurs in the workspace.	System error. Contact technical support.
500	ModelArts. 7008	workspace in read-only status, please wait a few minutes	The workspace is abnormal. Only the read-only operation is supported.	System error. Contact technical support.
500	ModelArts. 7009	call {apiType} api failed	The workspace is abnormal.	System error. Contact technical support.
500	ModelArts. 7100	get enterprise project id failed	EPS request error.	System error. Contact technical support.
500	ModelArts. 7101	Call pdp auth api failed.	PDP request error.	System error. Contact technical support.

## 9.3 Obtaining a Project ID and Name

### Scenarios

A project ID or name is required for some requests when an API is called. Therefore, obtain the project ID and name before calling the API. Use either of the following methods:

- [Obtaining a Project ID and Name from the Console](#)
- [Obtaining a Project ID by Calling an API](#)

### Obtaining a Project ID and Name from the Console

To do so, perform the following operations:

1. Log in to the console.
2. In the upper right corner, click your account avatar icon and choose **My Settings** from the drop-down list.
3. On the **My Settings** page, go to the **Project List** tab page, which is displayed by default. View the project ID and name in the project list.

### Obtaining a Project ID by Calling an API

The API for obtaining a project ID is **GET <https://{iam-endpoint}/v3/projects>**. To obtain *{iam-endpoint}*, see [Request URI 1.3 Endpoint](#).

The following is an example response. For example, if ModelArts is deployed in the **xxx** region, the value of **name** in the response body is **xxx**. The value of **id** in **projects** is the project ID.

```
{
  "projects": [{
    "domain_id": "65382450e8f64ac0870cd180d14e684b",
    "is_domain": false,
    "parent_id": "65382450e8f64ac0870cd180d14e684b",
    "name": "xxx",
    "description": "",
    "links": {
      "next": null,
      "previous": null,
      "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
    },
    "id": "a4a5d4098fb4474fa22cd05f897d6b99",
    "enabled": true
  }],
  "links": {
    "next": null,
    "previous": null,
    "self": "https://www.example.com/v3/projects"
  }
}
```

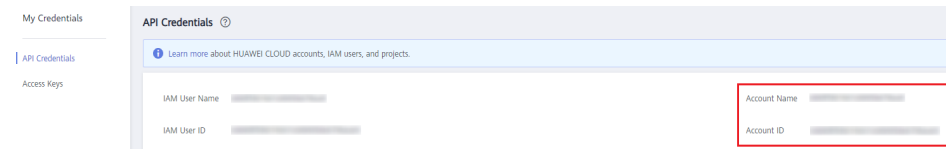
## 9.4 Obtaining an Account Name and ID

When you call APIs, certain requests require the account name and ID. To obtain an account name and ID, do as follows:

1. Sign up and log in to the console.
2. Hover the cursor on the username and choose **My Credentials** from the drop-down list.

On the **API Credentials** page, view the account name and ID.

**Figure 9-1** Viewing the account name and ID



## 9.5 Obtaining a Username and ID

When you call APIs, certain requests require the username and ID. To obtain a username and ID, do as follows:

1. Register with and log in to the management console.
2. In the upper right corner, click your account avatar icon and choose **My Settings** from the drop-down list.

On the **My Settings** page, view the username and ID.