

MapReduce Service

API Reference

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1 Before You Start

Welcome to *MapReduce Service (MRS) API Reference*. MRS provides enterprise-level big data clusters on the cloud. You can control your clusters and easily run big data components such as Hadoop, Spark, HBase, Kafka, and Storm in the clusters.

This document describes how to use application programming interfaces (APIs) to perform operations on MRS, such as creating or deleting clusters, adjusting nodes, as well as creating and executing jobs. For details about all supported operations, see [API Overview](#).

If you plan to access MRS through an API, ensure that you are familiar with MRS concepts. For details, see [Service Overview](#).

MRS 3.x does not support V1.1 APIs. You need to use V2 APIs. If you still need to use V1.1 APIs, obtain them from [Out-of-Date APIs](#).

Endpoints

An endpoint is the **request address** for calling an API. Endpoints vary depending on services and regions. For the endpoints of all services, see [Regions and Endpoints](#).

Concepts

- Account
An account is created upon successful registration with the cloud platform HUAWEI CLOUD. 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. The account is a payment entity. For security purposes, do not directly use the account to perform routine management but create IAM users and grant them permissions for routine management.
- User
An IAM user is created using an account to use cloud services. Each IAM user has its own identity credentials (password and access keys).
The account name, username, and password will be required for API authentication.

- **Region**
Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified as common regions and dedicated regions. A common region provides common cloud services that should be made available to all tenants. A dedicated region provides services of a specific type or only for specific tenants.
- **AZ**
An availability zone (AZ) comprises one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Compute, network, storage, and other resources in an AZ are logically divided into multiple clusters. AZs within a region are connected using high-speed optical fibers to support cross-AZ high-availability systems.
- **Project**
Projects group and isolate resources (including compute, storage, and network resources) across physical regions. A default project is provided for each HUAWEI CLOUDcloud service region, and subprojects can be created under each default project. Users can be granted permissions to access all resources in a specific project. If you need more refined access control, you can create subprojects under a default project and purchase resources in subprojects. Then you can assign required permissions for users to access only resources in specific subprojects.

Figure 1-1 Project isolating model



- **Enterprise Project**
Enterprise projects group and logically isolate resources. An enterprise project can contain resources from different regions, and resources can be transferred between enterprise projects.
For details about how to obtain enterprise project IDs and features, see the [Enterprise Management Service User Guide](#).

2 API Overview

MRS provides APIs that meet RESTful API design standards, as listed in [Table 2-1](#) and [Table 2-2](#).

Some APIs are gradually discarded during MRS version evolution. For details, see [Table 2-3](#).

Table 2-1 V2 APIs

API	Function	API URI
Cluster management APIs	Creating a Cluster	POST /v2/{project_id}/clusters
	Changing a Cluster Name	PUT /v2/{project_id}/clusters/{cluster_id}/cluster-name
	Creating a Cluster and Submitting a Job	POST /v2/{project_id}/run-job-flow
	Scaling Out a Cluster	POST /v2/{project_id}/clusters/{cluster_id}/expand
	Scaling In a Cluster	POST /v2/{project_id}/clusters/{cluster_id}/shrink
	Adding Components to a Cluster	POST /v2/{project_id}/clusters/{cluster_id}/components
	Querying the Cluster Node List	GET /v2/{project_id}/clusters/{cluster_id}/nodes
Job object APIs	Adding and Executing a Job	POST /v2/{project_id}/clusters/{cluster_id}/job-executions
	Querying Information About a Job	GET /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}
	Querying a List of Jobs	GET /v2/{project_id}/clusters/{cluster_id}/job-executions

API	Function	API URI
	Terminating a Job	POST /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/kill
	Obtaining SQL Results	GET /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/sql-result
	Deleting Jobs in Batches	POST /v2/{project_id}/clusters/{cluster_id}/job-executions/batch-delete
Auto scaling APIs	Viewing Auto Scaling Policies	GET /v2/{project_id}/autoscaling-policy/{cluster_id}
	Updating an Auto Scaling Policy	PUT /v2/{project_id}/autoscaling-policy/{cluster_id}
	Deleting an Auto Scaling Policy	DELETE /v2/{project_id}/autoscaling-policy/{cluster_id}
	Creating an Auto Scaling policy	POST /v2/{project_id}/autoscaling-policy/{cluster_id}
Cluster HDFS file APIs (V2)	Obtaining the List of Files from a Specified Directory	GET /v2/{project_id}/clusters/{cluster_id}/files?path={directory}&offset={offset}&limit={limit}&sort_key={sort_key}&order={order}
SQL APIs	Submitting a SQL Statement	POST /v2/{project_id}/clusters/{cluster_id}/sql-execution
	Querying SQL Results	GET /v2/{project_id}/clusters/{cluster_id}/sql-execution/{sql_id}
	Canceling a SQL Execution Task	POST /v2/{project_id}/clusters/{cluster_id}/sql-execution/{sql_id}/cancel
Agency management APIs (V2)	Querying the Mapping Between a User (Group) and an IAM Agency	GET /v2/{project_id}/clusters/{cluster_id}/agency-mapping
	Updating the Mapping Between a User (Group) and an IAM Agency	PUT /v2/{project_id}/clusters/{cluster_id}/agency-mapping
Data connection management APIs	Creating a Data Connection	POST /v2/{project_id}/data-connectors
	Querying the Data Connection List	GET /v2/{project_id}/data-connectors

API	Function	API URI
	Updating a Data Connection	PUT /v2/{project_id}/data-connectors/{connector_id}
	Deleting a Data Connection	DELETE /v2/{project_id}/data-connectors/{connector_id}
Version metadata query APIs	Obtaining MRS Version List	GET /v2/{project_id}/metadata/versions
	Querying Available Specifications of an MRS Cluster Version	GET /v2/{project_id}/metadata/version/{version_name}/available-flavor
IAM synchronization APIs	Obtaining Synchronized IAM Users and User Groups	GET /v2/{project_id}/clusters/{cluster_id}/iam-sync-user
	Synchronizing an IAM User and User Group	POST /v2/{project_id}/clusters/{cluster_id}/iam-sync-user
	Cancelling Synchronization of Specified Users and User Groups	DELETE /v2/{project_id}/clusters/{cluster_id}/iam-sync-user
Tag Management APIs	Enabling or Disabling the Default Tag of a Cluster	POST /v2/{project_id}/clusters/{cluster_id}/tags/switch
	Querying the Status of The Default Cluster Tag	GET /v2/{project_id}/clusters/{cluster_id}/tags/status
	Querying Tag Quotas	GET /v2/{project_id}/clusters/{cluster_id}/tags/quota

Table 2-2 V1.1 APIs

API	Function	API URI
Cluster management APIs	Creating a Cluster and Executing a Job	POST /v1.1/{project_id}/run-job-flow
	Resizing a Cluster	PUT /v1.1/{project_id}/cluster_infos/{cluster_id}
	Querying a Cluster List	GET /v1.1/{project_id}/cluster_infos

API	Function	API URI
	Querying Cluster Details	GET /v1.1/{project_id}/cluster_infos/{cluster_id}
	Querying a Host List	GET /v1.1/{project_id}/clusters/{cluster_id}/hosts
	Terminating a Cluster	DELETE /v1.1/{project_id}/clusters/{cluster_id}
Auto scaling APIs	Configuring an Auto Scaling Rule	POST /v1.1/{project_id}/autoscaling-policy/{cluster_id}
Tag management APIs	Adding Tags to a Specified Cluster	POST /v1.1/{project_id}/clusters/{cluster_id}/tags
	Deleting Tags from a Specified Cluster	DELETE /v1.1/{project_id}/clusters/{cluster_id}/tags/{key}
	Querying Tags of a Specified Cluster	GET /v1.1/{project_id}/clusters/{cluster_id}/tags
	Adding Tags to a Cluster in Batches	POST /v1.1/{project_id}/clusters/{cluster_id}/tags/action
	Querying All Tags	GET /v1.1/{project_id}/clusters/tags
	Querying a List of Clusters with Specified Tags	POST /v1.1/{project_id}/clusters/resource_instances/action
AZ APIs	Querying AZ Information	GET /v1.1/{region_id}/available-zones
Version metadata	Querying the Metadata of a Cluster Version	GET /v1.1/{project_id}/metadata/versions/{version_name}

Table 2-3 Historical APIs

API	Function	API URI
V1.1 Job Management API	Adding and Executing a Job	POST /v1.1/{project_id}/jobs/submit-job
	Querying the exe Object List	GET /v1.1/{project_id}/job-exes
	Querying exe Object Details	GET /v1.1/{project_id}/job-exes/{job_exe_id}
	Deleting a Job Execution Object	DELETE /v1.1/{project_id}/job-executions/{job_execution_id}

3

Selecting an API Type

Currently, MRS provides two types (V1.1 and V2) of APIs for cloud services with customized specifications. Only part of V2 APIs is available and mainly used for submitting jobs and SQL statements. If the API functions are the same, you are advised to use the V2 APIs first.

- All MRS versions support the V1.1 APIs.
- For MRS 1.X clusters, MRS 1.8.7 or later supports the V2 APIs.
- For MRS 2.X clusters, MRS 2.0.3 or later supports the V2 APIs.

Based on the V1.1 APIs, the V2 APIs have the following enhancements:

- Jobs can be submitted in a security cluster.
- The HiveSQL, Spark Python, and Flink jobs are supported.
- The SparkSQL and SparkScript results can be queried.

For details about the APIs and their functions, see [API Overview](#).

API Throttling

MRS has an upper limit on the number of calls that can be made to server APIs. This prevents service interruptions caused by repeated API calls in a short period of time.

NOTICE

If the error message "APIGW.0308" is returned when an MRS API is called, API throttling is triggered. In this case, adjust the API calling interval to control the request sending speed or send API requests later.

Table 3-1 MRS API throttling

Version	API Category	API Name	Single-Tenant API Throttling
V2	Cluster Management	Creating a Cluster	60 requests/minute
		Changing a Cluster Name	60 requests/minute
		Creating a Cluster and Submitting a Job	60 requests/minute
		Scaling Out a Cluster	60 requests/minute
		Scaling In a Cluster	60 requests/minute
		Adding Components to a Cluster	60 requests/minute
		Querying Cluster Nodes	200 requests/minute
	Job Management	Adding and Executing a Job	60 requests/minute
		Querying Jobs	1000 requests/minute
		Querying a Job	1000 requests/minute
		Terminating a Job	60 requests/minute
		Obtaining SQL Statement Execution Results	1000 requests/minute
		Deleting Jobs	60 requests/minute
	Auto Scaling	Viewing an Auto Scaling Policy	1000 requests/minute
		Updating an Auto Scaling Policy	60 requests/minute
		Deleting an Auto Scaling Policy	60 requests/minute
		Creating an Auto Scaling Policy	60 requests/minute
	Cluster HDFS File	Obtaining Files from a Specified Directory	1000 requests/minute
	SQL	Submitting an SQL Statement	60 requests/minute
		Querying SQL Statement Execution Results	1000 requests/minute
		Canceling an SQL Execution Job	60 requests/minute
	Agency Management	Querying the Mapping Between a User (Group) and an IAM Agency	1000 requests/minute
		Updating the Mapping Between a User (Group) and an IAM Agency	60 requests/minute

Version	API Category	API Name	Single-Tenant API Throttling
	Data Connection Management	Creating a Data Connection	60 requests/minute
		Querying Data Connections	1000 requests/minute
		Updating a Data Connection	60 requests/minute
		Deleting a Data Connection	60 requests/minute
	Version Metadata Query	Obtaining MRS Versions	1000 requests/minute
		Querying Available Specifications of an MRS Cluster Version	1000 requests/minute
	IAM Synchronization Management	Obtaining Synchronized IAM Users and User Groups	1000 requests/minute
		Synchronizing IAM Users and User Groups	60 requests/minute
		Cancelling Synchronization of Specified Users and User Groups	60 requests/minute
	Tag Management	Enabling/Disabling Default Cluster Tags	60 requests/minute
		Querying the Status of the Default Cluster Tag	1000 requests/minute
		Querying the Tag Quotas	1000 requests/minute
V1.1	Cluster Management	Creating a Cluster and Executing a Job	60 requests/minute
		Resizing a Cluster	60 requests/minute
		Listing All Clusters	1000 requests/minute
		Querying Cluster Details	1000 requests/minute
		Listing All Hosts	1000 requests/minute
		Deleting a Cluster	60 requests/minute
	Auto Scaling	Configuring an Auto Scaling Rule	60 requests/minute
	Tag Management	Adding Tags to a Specified Cluster	60 requests/minute
		Querying Tags of a Specified Cluster	1000 requests/minute
		Deleting Tags of a Specified Cluster	60 requests/minute

Version	API Category	API Name	Single-Tenant API Throttling
		Adding Tags to a Cluster	60 requests/minute
		Deleting Tags of a Cluster	60 requests/minute
		Querying All Tags	1000 requests/minute
		Querying the Clusters with Specified Tags	1000 requests/minute
	AZ	Querying AZ Information	1000 requests/minute
	Version Metadata Query	Querying Metadata of a Specific Cluster Version	1000 requests/minute

4 Calling APIs

4.1 Making an API Request

This section describes the structure of a REST API request, and describes how to call an API using the API for [creating an IAM user](#) as an example. This API obtains a user token, which can be used for authenticating the calling of other APIs.

Request URI

A request URI is in the following format:

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

Although a request URI is included in the request header, most programming languages or frameworks require the request URI to be passed separately.

- **URI-scheme:** Protocol used to transmit requests. All APIs use **HTTPS**.
- **Endpoint:** Domain name or IP address of the server bearing the REST service. It can be obtained from [Endpoints](#).
- **resource-path:** API access path. Obtain the value from the URI of an API. For example, the **resource-path** of the API used by the administrator to create an IAM user is **/v3.0/OS-USER/users**.
- **query-string:** Query parameter, which is optional for APIs. Ensure that a question mark (?) is included before each query parameter that is in the format of "*Parameter name=Parameter value*". For example, **?limit=10** indicates that a maximum of 10 data records are allowed.

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:

- **GET**: requests a server to return specified resources.
- **PUT**: requests a server to update specified resources.
- **POST**: requests a server to add a resource or perform special operations.
- **DELETE**: requests a server to delete specified resources, for example, to delete an object.
- **HEAD**: requests a server resource header.
- **PATCH**: requests a server to update the partial content of a specified resource. If the resource does not exist, a new resource will be created.

Check the URI of the API for [creating an IAM user](#). The request method is **POST**, and the request is as follows:

```
POST https://iam.myhuaweicloud.eu/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.

Common request header fields are as follows:

- **Content-Type**: specifies the request body type or format. This field is mandatory and its default value is **application/json**. Other values of this field are provided for specific APIs, if any.
- **Authorization**: specifies signature authentication information. This field is optional. When AK/SK authentication is enabled, this field is automatically specified when SDK is used to sign the request. For more information, see "AK/SK-based Authentication" in [Authentication](#).
- **X-Sdk-Date**: specifies the time when a request is sent. This field is optional. When AK/SK authentication is enabled, this field is automatically specified when SDK is used to sign the request. For more information, see "AK/SK-based Authentication" in [Authentication](#).
- **X-Auth-Token**: specifies a user token, which is optional. This field is mandatory when token authentication is used. It is the response to the API used for [obtaining a user token through password authentication](#). This API is the only one that does not require authentication.
- **X-Project-ID**: specifies subproject ID. This field is optional and can be used in multi-project scenarios. The **X-Project-ID** field is mandatory in the request header for accessing resources in a sub-project through AK/SK-based authentication.
- **X-Domain-ID**: specifies account ID, which is optional. When you call APIs of global services using AK/SK-based authentication, **X-Domain-ID** needs to be configured in the request header.

Request Body

A request body is generally sent in a structured format. It corresponds to **Content-Type** in the request header and transfers data except for the request header. An example request body is **Content-Type: application/json; charset=utf-8**.

Request bodies vary with APIs. Some APIs do not require a request body, such as the APIs requested using GET and DELETE methods.

You can obtain the request parameters and descriptions from the API request. For details, see [creating an IAM user](#). The following provides an example request with a body included. Replace the bold fields with the actual values.

- **accountid** indicates the ID of the account to which the IAM user belongs.
- **username** indicates the IAM username to be created.
- **email** indicates the email address of the IAM user.
- ********* indicates the login password of the IAM user.

```
Content-Type: application/json
X-Sdk-Date: 20240416T095341Z
Authorization: SDK-HMAC-SHA256 Access=*****, SignedHeaders=content-type;host;x-sdk-date,
Signature=*****

{
  "user": {
    "domain_id": "accountid",
    "name": "username",
    "password": "*****",
    "email": "email",
    "description": "IAM User Description"
  }
}
```

If all data required for the API request is available, you can send the request to call the API through curl, Postman, or coding.

4.2 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-based Authentication

NOTE

- AK/SK-based authentication supports API requests with a body not larger than 12 MB. For API requests with a larger body, token-based authentication is recommended.
- Both AK/SK in a permanent access key or in a temporary access are supported. The X-**Security-Token** field must be configured when the AK/SK in the temporary access key is used, and the field value is the **security_token** of the temporary access key.

In AK/SK-based authentication, AK/SK is used to sign requests and the signature is then added to the requests for authentication.

- 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.

In AK/SK-based authentication, you can use an AK/SK to sign requests based on the signature algorithm or use the signing SDK to sign requests. For details about how to sign requests and use the signing SDK, see [AK/SK Signature Guide](#).

NOTICE

The signing SDK is only used for signing requests and is different from the SDKs provided by services.

Token-based Authentication

NOTE

- The validity period of a token is 24 hours. When using a token for authentication, cache it to prevent frequently API calling.
- Ensure that the token is valid when you use it. Using a token that will soon expire may cause API calling failures.

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.

The token can be obtained by calling the API for [obtaining a user token through password authentication](#). A project-level token is required for calling this service API, that is, when calling the API for [obtaining a user token through password authentication](#), set the value of **auth.scope** in the request body to **project**.

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username",
          "password": "*****#",
          "domain": {
            "name": "domainname"
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "xxxxxxx"
      }
    }
  }
}
```

After a token is obtained, the **X-Auth-Token** header field must be added to requests to specify the token when calling other APIs. If the token is **ABCDEFGF....**, add **X-Auth-Token: ABCDEFG....** to a request.

4.3 Response

Status Code

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

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

For example, if status code **201** is returned for the API used to [create an IAM user](#), the request is successful.

Response Header

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

Check the response header of the API for [creating an IAM user](#). The **x-subject-token** field is the user token. This token can then be used to authenticate the calling of other APIs.

Figure 4-1 Response header

```
"X-Frame-Options": "SAMEORIGIN",
"X-IAM-ETag-id": "2562365939-d8f6f12921974cb097338ac11fceac8a",
"Transfer-Encoding": "chunked",
"Strict-Transport-Security": "max-age=31536000; includeSubdomains;",
"Server": "api-gateway",
"X-Request-Id": "af2953f2bcc67a42325a69a19e6c32a2",
"X-Content-Type-Options": "nosniff",
"Connection": "keep-alive",
"X-Download-Options": "noopen",
"X-XSS-Protection": "1; mode=block;",
"X-IAM-Trace-Id": "token_ _null_af2953f2bcc67a42325a69a19e6c32a2",
"Date": "Tue, 21 May 2024 09:03:40 GMT",
"Content-Type": "application/json; charset=utf8"
```

Response Body

This part is optional. The body of a response is often returned in structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following example shows a part of the response body of the API for [creating an IAM user](#). As the space is limited, only part of the content is displayed here.

```
{
  "user": {
    "id": "c131886aec...",
    "name": "IAMUser",
    "description": "IAM User Description",
    "areacode": "",
    "phone": "",
    "email": "****@***.com",
    "status": null,
    "enabled": true,
```

```
{
  "pwd_status": false,
  "access_mode": "default",
  "is_domain_owner": false,
  "xuser_id": "",
  "xuser_type": "",
  "password_expires_at": null,
  "create_time": "2024-05-21T09:03:41.000000",
  "domain_id": "d78cbac1.....",
  "xdomain_id": "30086000.....",
  "xdomain_type": "",
  "default_project_id": null
}
```

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": "Request body is invalid.",
  "error_code": "IAM.0011"
}
```

In the response body, **error_code** is an error code, and **error_msg** provides information about the error.

5 Application Cases

5.1 Creating an MRS Cluster

Scenario

This section describes how to create an MRS analysis cluster using APIs. For details on how to call APIs, see [Making an API Request](#).

Constraints

- A VPC and subnet have been created using the VPC service in the region where the cluster is to be created. For details about how to create a VPC, see [Querying VPCs](#) and [Creating a VPC](#). For details about how to create a subnet, see [Querying Subnets](#) and [Creating a Subnet](#).
- You have obtained the region and AZ information of the cluster to be created. For details, see [Endpoints](#).
- You have obtained the project ID of the region where the cluster is to be created. For details, see [Obtaining a Project ID](#).
- You have determined the version of the cluster to be created and the components supported by the version.
- In this example, an analysis cluster is created based on the pay-per-use billing mode.

Procedure

- API
URI format: POST /v2/{project_id}/clusters
For details, see [Creating a Cluster](#).
- Example request
POST: `https://{endpoint}/v2/{project_id}/clusters`
 - For details about **{endpoint}**, see [Endpoints](#).
 - For details about **{project_id}**, see [Obtaining a Project ID](#).
 - Obtain the value of **node_size** from the cluster creation page on the MRS console.

Request body:

```
{
  "cluster_version": "MRS 3.2.0-LTS.1",
  "cluster_name": "mrs_demo",
  "cluster_type": "ANALYSIS",
  "charge_info": {
    "charge_mode": "postPaid"
  },
  "region": "",
  "availability_zone": "",
  "vpc_name": "vpc-37cd",
  "subnet_name": "subnet-ed99",
  "components": "Hadoop,Spark2x,HBase,Hive,Hue,Flink,Oozie,Ranger,Tez",
  "safe_mode": "KERBEROS",
  "manager_admin_password": "xxx",
  "login_mode": "PASSWORD",
  "node_root_password": "xxx",
  "log_collection": 1,
  "mrs_ecs_default_agency": "MRS_ECS_DEFAULT_AGENCY",
  "tags": [
    {
      "key": "tag1",
      "value": "111"
    },
    {
      "key": "tag2",
      "value": "222"
    }
  ],
  "node_groups": [
    {
      "group_name": "master_node_default_group",
      "node_num": 2,
      "node_size": "rc3.4xlarge.4.linux.bigdata",
      "root_volume": {
        "type": "SAS",
        "size": 480
      },
      "data_volume": {
        "type": "SAS",
        "size": 600
      },
      "data_volume_count": 1
    },
    {
      "group_name": "core_node_analysis_group",
      "node_num": 3,
      "node_size": "rc3.4xlarge.4.linux.bigdata",
      "root_volume": {
        "type": "SAS",
        "size": 480
      },
      "data_volume": {
        "type": "SAS",
        "size": 600
      },
      "data_volume_count": 1
    },
    {
      "group_name": "task_node_analysis_group",
      "node_num": 3,
      "node_size": "rc3.4xlarge.4.linux.bigdata",
      "root_volume": {
        "type": "SAS",
        "size": 480
      },
      "data_volume": {
        "type": "SAS",
        "size": 600
      }
    }
  ]
}
```

```
},
"data_volume_count": 1,
"auto_scaling_policy": {
  "auto_scaling_enable": true,
  "min_capacity": 0,
  "max_capacity": 1,
  "resources_plans": [],
  "exec_scripts": [],
  "rules": [
    {
      "name": "default-expand-1",
      "description": "",
      "adjustment_type": "scale_out",
      "cool_down_minutes": 5,
      "scaling_adjustment": "1",
      "trigger": {
        "metric_id": 2003,
        "metric_name": "StormSlotAvailablePercentage",
        "metric_value": 100,
        "comparison_operator_id": 2003,
        "comparison_operator": "LTOE",
        "evaluation_periods": "1"
      }
    }
  ]
}
```

For details about the parameters, see [Creating a Cluster](#).

- Example response

```
{
  "cluster_id": "da1592c2-bb7e-468d-9ac9-83246e95447a"
}
```

5.2 Scaling Out a Cluster

Scenario

After a cluster is created, add Core or Task nodes to the cluster. After an MRS cluster is created, the number of Master nodes cannot be adjusted. That is, Master nodes cannot be scaled in or out. For details on how to call APIs, see [Making an API Request](#).

Constraints

- A cluster has been created and is in the **Running** state.
- You have obtained the project ID of the region where the cluster is to be created. For details, see [Obtaining a Project ID](#).
- You have obtained the cluster ID, that is, the value of **cluster_id** in the command output returned after the cluster is successfully created. For details about how to obtain the cluster ID, see [Obtaining a Cluster ID](#).
- This section uses the Core node as an example.

Procedure

- API
URI format: PUT /v1.1/{project_id}/cluster_infos/{cluster_id}

For details, see [Resizing a Cluster](#).

- Example request

PUT: `https://{endpoint}/v1.1/{project_id}/cluster_infos/{cluster_id}`

- For details about `{endpoint}`, see [Endpoints](#).
- For details about `{project_id}`, see [Obtaining a Project ID](#).
- `{cluster_id}` indicates the value of `cluster_id` in the command output returned after the cluster is successfully created. You can also obtain the value of `cluster_id` by referring to [Obtaining a Cluster ID](#).

Request body:

```
{
  "service_id": "",
  "plan_id": "",
  "parameters": {
    "order_id": "",
    "scale_type": "scale_out",
    "node_id": "node_orderadd",
    "node_group": "core_node_default_group",
    "instances": "1",
    "skip_bootstrap_scripts": false,
    "scale_without_start": false
  },
  "previous_values": {
    "plan_id": ""
  }
}
```

For details about the parameters, see [Resizing a Cluster](#).

- Example response

```
{
  "result": "succeeded"
}
```

5.3 Scaling in a Cluster

Scenario

This section describes how to scale in a Core or Task node in the cluster after it is created. After an MRS cluster is created, the number of Master nodes cannot be adjusted. That is, Master nodes cannot be scaled in or out. For details on how to call APIs, see [Making an API Request](#).

Constraints

- A cluster has been created and is in the **Running** state.
- You have obtained the project ID of the region where the cluster is to be created. For details, see [Obtaining a Project ID](#).
- You have obtained the cluster ID, that is, the value of `cluster_id` in the command output returned after the cluster is successfully created. For details about how to obtain the cluster ID, see [Obtaining a Cluster ID](#).
- The Core node is used as an example.

Procedure

- API

URI format: PUT /v1.1/{project_id}/cluster_infos/{cluster_id}

For details, see [Resizing a Cluster](#).

- Example request

PUT: `https://{endpoint}/v1.1/{project_id}/cluster_infos/{cluster_id}`

- For details about **{endpoint}**, see [Endpoints](#).
- For details about **{project_id}**, see [Obtaining a Project ID](#).
- **{cluster_id}** indicates the value of **cluster_id** in the command output returned after the cluster is successfully created. You can also obtain the value of **cluster_id** by referring to [Obtaining a Cluster ID](#).

Request body:

```
{
  "service_id": "",
  "plan_id": "",
  "parameters": {
    "order_id": "",
    "scale_type": "scale_in",
    "node_id": "node_orderadd",
    "node_group": "core_node_default_group",
    "instances": "1"
  },
  "previous_values": {
    "plan_id": ""
  }
}
```

For details about the parameters, see [Resizing a Cluster](#).

- Example response

```
{
  "result": "succeeded"
}
```

5.4 Creating a Job

Scenario

This API is used to add and submit a job in an MRS cluster. For details on how to call APIs, see [Making an API Request](#).

Constraints

- A cluster has been created and is in the **Running** state.
- You have obtained the project ID of the region where the cluster is to be created. For details, see [Obtaining a Project ID](#).
- You have obtained the cluster ID, that is, the value of **cluster_id** in the command output returned after the cluster is successfully created. For details about how to obtain the cluster ID, see [Obtaining a Cluster ID](#).
- IAM users have been synchronized. On the Overview tab page of the cluster details page, click **Click to synchronize** on the right of **IAM User Sync** to synchronize IAM users.
- The job-related programs and input files have been stored in OBS.
- In this example, a MapReduce job is added.

Procedure

- API
URI format: POST /v2/{project_id}/clusters/{cluster_id}/job-executions
For details, see [Adding and Executing a Job](#).
- Example request
POST: https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions
 - For details about {endpoint}, see [Endpoints](#).
 - For details about {project_id}, see [Obtaining a Project ID](#).
 - {cluster_id} indicates the value of **cluster_id** in the command output returned after the cluster is successfully created. You can also obtain the value of **cluster_id** by referring to [Obtaining a Cluster ID](#).

Request body:

```
{
  "job_name": "MapReduceTest",
  "job_type": "MapReduce",
  "arguments": [
    "obs://obs-test/program/hadoop-mapreduce-examples-x.x.x.jar",
    "wordcount",
    "obs://obs-test/input/",
    "obs://obs-test/job/mapreduce/output"
  ],
  "properties": {
    "fs.obs.endpoint": "obs endpoint",
    "fs.obs.access.key": "xxx",
    "fs.obs.secret.key": "yyy"
  }
}
```

For details about the parameters, see [Adding and Executing a Job](#).

- Example response

```
{
  "job_submit_result": {
    "job_id": "44b37a20-ffe8-42b1-b42b-78a5978d7e40",
    "state": "COMPLETE"
  }
}
```

5.5 Terminating a Job

Scenario

This API is used to manually terminate the job if a job is not completed after being submitted. For details on how to call APIs, see [Making an API Request](#).

Constraints

- A cluster has been created and is in the **Running** state.
- You have obtained the project ID of the region where the cluster is to be created. For details, see [Obtaining a Project ID](#).
- You have obtained the cluster ID, that is, the value of **cluster_id** in the command output returned after the cluster is successfully created. For details about how to obtain the cluster ID, see [Obtaining a Cluster ID](#).

- You have obtained the job ID, that is, the value of **job_id** in the returned result after the job is successfully submitted. For details about how to obtain the job ID, see [Obtaining a Job ID](#).
- IAM users have been synchronized. On the Overview tab page of the cluster details page, click **Click to synchronize** on the right of **IAM User Sync** to synchronize IAM users.
- The job-related programs and input files have been stored in OBS.
- In this example, a MapReduce job is added.

Procedure

- API
URI format: POST /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/kill
For details, see [Terminating a Job](#).
- Example request
POST: https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/kill
 - For details about **{endpoint}**, see [Endpoints](#).
 - For details about **{project_id}**, see [Obtaining a Project ID](#).
 - **{cluster_id}** indicates the value of **cluster_id** in the command output returned after the cluster is successfully created. You can also obtain the value of **cluster_id** by referring to [Obtaining a Cluster ID](#).
 - **{job_execution_id}** indicates the job ID returned after the job is successfully submitted. You can also obtain the job ID by referring to [Obtaining a Job ID](#).Request body: None
- Example response
None

5.6 Terminating a Cluster

Scenario

This API is used to delete a cluster after data processing and analysis is completed or the cluster is abnormal.

Clusters in any of the following states cannot be terminated:

- **Scaling-out:** The cluster is being scaled out.
- **Scaling-in:** The cluster is being scaled in.
- **Starting:** The cluster is being started.
- **Terminating:** The cluster is being deleted.
- **Terminated:** The cluster has been terminated.
- **Failed:** The cluster is failed.

For details on how to call APIs, see [Making an API Request](#).

Constraints

- You have obtained the project ID of the region where the cluster is to be created. For details, see [Obtaining a Project ID](#).
- You have obtained the cluster ID, that is, the value of **cluster_id** in the command output returned after the cluster is successfully created. For details about how to obtain the cluster ID, see [Obtaining a Cluster ID](#).

Procedure

- API
URI format: DELETE /V1.1/{project_id}/clusters/{cluster_id}
For details, see [Terminating a Cluster](#).
- Example request
DELETE: https://{endpoint}/v1.1/{project_id}/clusters/{cluster_id}
 - For details about **{endpoint}**, see [Endpoints](#).
 - For details about **{project_id}**, see [Obtaining a Project ID](#).
 - **{cluster_id}** indicates the value of **cluster_id** in the command output returned after the cluster is successfully created. You can also obtain the value of **cluster_id** by referring to [Obtaining a Cluster ID](#).

Request body: None

- Example response

```
{
  "result": "succeeded"
}
```

6 API V2

6.1 Cluster Management APIs

6.1.1 Creating a Cluster

Function

This API is used to create an MRS cluster.

Before using the API, you need to obtain the resources listed in [Table 6-1](#).

Table 6-1 Obtaining resources

Resource	How to Obtain
VPC	See operation instructions in Querying VPCs and Creating a VPC in the <i>VPC API Reference</i> .
Subnet	See operation instructions in Querying Subnets and Creating a Subnet in the <i>VPC API Reference</i> .
Key Pair	See operation instructions in Querying SSH Key Pairs and Creating and Importing an SSH Key Pair in the <i>ECS API Reference</i> .
Zone	See Endpoints for details about regions and AZs.
Version	Currently, MRS 1.9.2, 3.1.0, 3.1.5, 3.1.2-LTS.3, and 3.2.0-LTS.1 are supported.

Resource	How to Obtain
Component	• MRS 3.2.0-LTS.1 supports the following components: – An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Loader, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, and Guardian. – A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger. – A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Loader, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, Kafka, Flume, and Guardian. – A custom cluster contains the following components: CDL, Hadoop, Spark2x, HBase, Hive, Hue, IoTDB, Loader, Kafka, Flume, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, and ClickHouse, and Guardian. • MRS 3.1.5 supports the following components: – An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Sqoop, and Guardian – A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger. – A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Sqoop, Guardian, Kafka, and Flume. – A custom cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Kafka, Flume, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, ClickHouse, Kudu, Sqoop, and Guardian. • MRS 3.1.0 supports the following components: – An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, and Kudu. – A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger. – A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Kafka, and Flume. – A custom cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Kafka, Flume, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, ClickHouse, and Kudu. • MRS 1.9.2 supports the following components:

Resource	How to Obtain
	- An analysis cluster contains the following components: Presto, Hadoop, Spark, HBase, OpenTSDB, Hive, Hue, Loader, Tez, Flink, Alluxio, and Ranger. - A streaming cluster contains the following components: Kafka, KafkaManager, Storm, and Flume.

Constraints

None

Debugging

You can debug this API through automatic authentication in API Explorer. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

POST /v2/{project_id}/clusters

Table 6-2 URI parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. For details about how to obtain the project ID, see Obtaining a Project ID . Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value None

Request Parameters

Table 6-3 Request body parameters

Parameter	Mandatory	Type	Description
cluster_version	Yes	String	Explanation Cluster version. Constraints None Value range • MRS 1.9.2 • MRS 3.1.0 • MRS 3.1.5 • MRS 3.2.0-LTS.1 • MRS 3.3.0-LTS.1 Default value N/A
cluster_name	Yes	String	Explanation Cluster name Constraints N/A Value range • The cluster name must globally unique. • The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Parameter	Mandatory	Type	Description
cluster_type	Yes	String	Explanation Cluster type. Constraints N/A Value range • ANALYSIS: analysis cluster • STREAMING: streaming cluster • MIXED: hybrid cluster • CUSTOM: custom cluster, which is supported only by MRS 3.x. Default value N/A
charge_info	No	object	Explanation The billing type. For details, see Table 6-5 . Constraints N/A Value range N/A Default value N/A
region	Yes	String	Explanation Information about the region where the cluster is located. For details, see Endpoints . Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
is_dec_project	No	Boolean	Explanation Whether the cluster is specific for the DeC. Constraints N/A Value range • true: The resource is a DeC resource. • false: The resource is not a DeC resource. Default value false
vpc_name	Yes	String	Explanation Name of the VPC where the subnet locates. Perform the following operations to obtain the VPC name from the VPC management console: 1. Log in to the management console. 2. Choose Virtual Private Cloud > My VPCs. On the Virtual Private Cloud page, obtain the VPC name from the list. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
subnet_id	No	String	Explanation Subnet ID, which can be obtained by performing the following operations on the VPC management console: 1. Log in to the VPC management console. 2. Choose Virtual Private Cloud > My VPCs. 3. Locate the row that contains the target VPC and click the number in the Subnets column to view the subnet information. 4. Click the subnet name to obtain the network ID. Constraints At least one of subnet_id and subnet_name must be configured. If the two parameters are configured but do not match the same subnet, the cluster fails to create. subnet_id is recommended. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
subnet_name	Yes	String	Subnet name. Perform the following operations to obtain the subnet name from the VPC management console: 1. Log in to the management console. 2. Choose Virtual Private Cloud > My VPCs. 3. Locate the row that contains the target VPC and click the number in the Subnets column to obtain the subnet name. Constraints At least one of subnet_id and subnet_name must be configured. If the two parameters are configured but do not match the same subnet, the cluster fails to create. If only subnet_name is configured and subnets with the same name exist in the VPC, the first subnet name in the VPC is used when a cluster is created. subnet_id is recommended. Value range N/A Default value N/A
components	Yes	String	Explanation List of component names, which are separated by commas (.). For details about the component names, see the component list of each version in Table 6-1. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
external_data_sources	No	Array of ClusterDataConnect or Map objects	Explanation When deploying components such as Hive and Ranger, you can associate data connections and store metadata in associated databases. For details about the parameters, see Table 6-4 . Constraints N/A Value range N/A Default value N/A
availability_zone	Yes	String	Explanation AZ name. Multi-AZ clusters are not supported. See Endpoints for details about AZs. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
security_groups_id	No	String	Explanation Security group ID of the cluster. - If this parameter is left blank, MRS automatically creates a security group, whose name starts with mrs_{cluster_name}. - If this parameter is specified, a fixed security group is used to create a cluster. The passed ID must be the security group ID in the current tenant. - Multiple security group IDs are supported and separated by commas (,). Constraints N/A Value range N/A Default value N/A
auto_create_default_security_group	No	Boolean	Explanation Whether to create the default security group for the MRS cluster. Constraints If this parameter is set to true, the default security group will be created for the cluster regardless of whether security_groups_id is specified. Value range true: The default security group is created for the MRS cluster. false: The default security group is not created. Default value false

Parameter	Mandatory	Type	Description
safe_mode	Yes	String	Explanation Run mode of an MRS cluster. Constraints N/A Value range • SIMPLE: normal cluster. In a normal cluster, Kerberos authentication is disabled, and users can use all functions provided by the cluster. • KERBEROS: security cluster. In a security cluster, Kerberos authentication is enabled, and common users cannot use the file management and job management functions of an MRS cluster or view cluster resource usage and the job records of Hadoop and Spark. To use more functions, the users must obtain the relevant permissions from the Manager administrator. Default value N/A
manager_admin_password	Yes	String	Explanation Password of the MRS Manager administrator. Constraints N/A Value range • Must contain 8 to 26 characters. • Must contain at least four of the following: uppercase letters, lowercase letters, digits, and special characters (!@\$%^&_+=+[]{};./?), but must not contain spaces. • Cannot be the username or the username spelled backwards. Default value N/A

Parameter	Mandatory	Type	Description
login_mode	Yes	String	Explanation Node login mode. Constraints N/A Value range • PASSWORD: password-based login. If this value is selected, node_root_password cannot be left blank. • KEYPAIR: specifies the key pair used for login. If this value is selected, node_keypair_name cannot be left blank. Default value N/A
node_root_password	No	String	Explanation Password of user root for logging in to a cluster node. Constraints N/A Value range A password must meet the following requirements: • Must be 8 to 26 characters long. • Must contain at least four of the following: uppercase letters, lowercase letters, digits, and special characters (!@\$%^&*_+[]{};:/?), but must not contain spaces. • Cannot be the username or the username spelled backwards. Default value N/A

Parameter	Mandatory	Type	Description
node_keypair_name	No	String	Explanation Name of a key pair You can use a key pair to log in to the Master node in the cluster. Constraints N/A Value range N/A Default value N/A
enterprise_project_id	No	String	Explanation Enterprise project ID. When you create a cluster, associate the enterprise project ID with the cluster. The default value is 0, indicating the default enterprise project. To obtain the enterprise project ID, see the id value in the enterprise_project field data structure table in section Querying the Enterprise Project List of the <i>Enterprise Management API Reference</i>. Constraints N/A Value range N/A Default value The default value is 0, indicating the default enterprise project.

Parameter	Mandatory	Type	Description
eip_address	No	String	Explanation An EIP bound to an MRS cluster can be used to access MRS Manager. The EIP must have been created and must be in the same region as the cluster. Constraints N/A Value range N/A Default value N/A
eip_id	No	String	Explanation ID of the bound EIP. This parameter is mandatory when eip_address is configured. To obtain the EIP ID, log in to the VPC console, choose Network > Elastic IP and Bandwidth > Elastic IP , click the EIP to be bound, and obtain the ID in the Basic Information area. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
mrs_ecs_default_agency	No	String	Explanation Name of the agency bound to a cluster node by default. The value is fixed to MRS_ECS_DEFAULT_AGENCY. An agency allows ECS or BMS to manage MRS resources. You can configure an agency of the ECS type to automatically obtain the AK/SK to access OBS. The MRS_ECS_DEFAULT_AGENCY agency has the OBS OperateAccess permission of OBS and the CES FullAccess (for users who have enabled fine-grained policies), CES Administrator, and KMS Administrator permissions in the region where the cluster is located. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
template_id	No	String	Explanation Template used for node deployment when the cluster type is CUSTOM. • mgmt_control_combined_v2: template for jointly deploying the management and control nodes. The management and control roles are co-deployed on the Master node, and data instances are deployed in the same node group. This deployment mode applies to scenarios where the number of control nodes is less than 100, reducing costs. • mgmt_control_separated_v2: The management and control roles are deployed on different master nodes, and data instances are deployed in the same node group. This deployment mode is applicable to a cluster with 100 to 500 nodes and delivers better performance in high-concurrency load scenarios. • mgmt_control_data_separated_v2: The management role and control role are deployed on different Master nodes, and data instances are deployed in different node groups. This deployment mode is applicable to a cluster with more than 500 nodes. Components can be deployed separately, which can be used for a larger cluster scale. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
tags	No	Array of tag objects	Explanation Cluster tag For more parameter description, see Table 6-6 . Constraints A cluster allows a maximum of 10 tags. A tag name (key) must be unique in a cluster. Value range N/A Default value N/A
log_collection	No	Integer	Explanation Whether to collect logs when cluster creation fails. Constraints N/A Value range • 0: Do not create an OBS bucket only for log collection when a cluster fails to be created. • 1: Create an OBS bucket only for collect logs when a cluster fails to be created. Default value 1
node_groups	Yes	Array of NodeGroupV2 objects	Explanation Information about the node groups in the cluster. For details about the parameters, see Table 6-7 . Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
bootstrap_scripts	No	Array of Bootstrap Script objects	Explanation Bootstrap action script information. For more parameter description, see Table 6-9. MRS 3.x does not support this parameter. Constraints N/A Value range N/A Default value N/A
add_jobs	No	Array of add_jobs objects	Explanation You can submit a job when creating a cluster. Currently, only versions earlier than MRS 1.8.7 support this function. Currently, only one job can be submitted. You are advised to use the steps parameter in the Creating a Cluster and Submitting a Job API. For details about this parameter, see Table 6-10. Constraints There must be no more than 1 record. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
log_uri	No	String	Explanation The OBS path to which cluster logs are dumped. After the log dump function is enabled, the read and write permissions on the OBS path are required to upload logs. Configure the default agency MRS_ECS_DEFAULT_AGENCY or customize an agency with the read and write permissions on the OBS path. This parameter is available only for cluster versions that support dumping cluster logs to OBS. Constraints N/A Value range N/A Default value N/A
component_configs	No	Array of ComponentConfig objects	Explanation The custom configuration of cluster components. This parameter applies only to cluster versions that support the feature of creating a cluster by customizing component configurations. For details about this parameter, see ComponentConfig. Constraints The number of records cannot exceed 50. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
smn_notify	No	SmnNotify object	Explanation SMN alarm notifications. For details about this parameter, see Table 6-18 . Constraints N/A Value range N/A Default value N/A

Table 6-4 ClusterDataConnectorMap

Parameter	Mandatory	Type	Description
map_id	No	Integer	Explanation Data connection association ID Constraints N/A Value range N/A Default value N/A
connector_id	No	String	Explanation Data connection ID Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
component_name	No	String	Explanation Component name Constraints N/A Value range N/A Default value N/A
role_type	No	String	Explanation Component role type. Constraints N/A Value range • hive_metastore: Hive Metastore role • hive_data: Hive role • hbase_data: HBase role • ranger_data: Ranger role Default value N/A
source_type	No	String	Explanation Data connection type. Constraints N/A Value range • LOCAL_DB: local metadata • RDS_POSTGRES: RDS PostgreSQL database • RDS_MYSQL: RDS MySQL database • gaussdb-mysql: GaussDB(for MySQL) Default value N/A

Parameter	Mandatory	Type	Description
cluster_id	No	String	Explanation ID of the associated cluster Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A
status	No	Integer	Explanation Data connection status. Constraints N/A Value range • 0: normal • 1: in use Default value N/A

Table 6-5 ChargeInfo

Parameter	Mandatory	Type	Description
charge_mode	Yes	String	Explanation Billing mode. Constraints N/A Value range • prePaid: indicates the yearly/monthly billing mode. (This mode is now supported for the API for creating a cluster, but is not supported for the API for creating a cluster and submitting a job.) • postPaid: indicates the pay-per-use billing mode. Default value N/A
period_type	No	String	Explanation Period type. Constraints N/A Value range • month: The cluster is billed by month. • year: The cluster is billed by year. • day: The cluster is billed on a pay-per-use basis. Default value N/A

Parameter	Mandatory	Type	Description
period_num	No	Integer	Explanation Number of periods. Constraints This parameter is valid and mandatory only when charge_mode is set to prePaid. Value range • If period_type is set to month, the value ranges from 1 to 9. • If period_type is set to year, the value ranges from 1 to 3. Default value N/A
is_auto_pay	No	Boolean	Explanation Whether the order will be automatically paid. This parameter is available for yearly/monthly mode. By default, the automatic payment is disabled. Constraints N/A Value range • true: The system automatically selects available discounts and coupons, and then pays for the order with the account balances. If the automatic payment fails, an order in Pending payment state is generated waiting for manual payment. • false: The user needs to pay for the bill after using available discounts and coupons. Default value N/A

Table 6-6 Tag parameters

Parameter	Mandatory	Type	Description
key	Yes	String	Explanation Tag key. Constraints N/A Value range - A tag key can contain letters, digits, spaces, and special characters _:=+@, but cannot start or end with a space or start with _sys_. - The tag key of a resource must be unique. - It can contain a maximum of 128 Unicode characters and cannot be an empty string. Default value N/A
value	Yes	String	Explanation Tag value. Constraints N/A Value range - The value can contain letters, digits, spaces, and special characters _:=+@, but cannot start or end with a space or start with _sys_. - The value can contain a maximum of 255 Unicode characters and can be an empty string. Default value N/A

Table 6-7 NodeGroup parameters

Parameter	Mandatory	Type	Description
group_name	Yes	String	Explanation Node group name. Constraints N/A Value range The value can contain a maximum of 64 characters, including uppercase and lowercase letters, digits and underscores (_). The rules for configuring node groups are as follows: • master_node_default_group: master node group, which must be included in all cluster types. • core_node_analysis_group: analysis core node group, which must be included in both analysis and hybrid clusters. • core_node_streaming_group: streaming core node group, which must be included in both streaming and hybrid clusters. • task_node_analysis_group: analysis task node group, which can be selected for analysis clusters and hybrid clusters as needed. • task_node_streaming_group: streaming task node group, which can be selected for streaming clusters and hybrid clusters as needed. • node_group{x}: node group of a custom cluster. A maximum of nine such node groups can be added for a custom cluster. Default value N/A

Parameter	Mandatory	Type	Description
node_num	Yes	Integer	Explanation Number of nodes. Constraints The total number of Core and Task nodes cannot exceed 500. Value range 0-500 Default value N/A
node_size	Yes	String	Explanation Specifications of the node, for example, . {ECS_FLAVOR_NAME} can be c3.4xlarge.2 or other flavors that are displayed on the MRS purchase page. Obtain the instance specifications of the corresponding version in the corresponding region from the cluster creation page of the MRS management console. Constraints N/A Value range N/A Default value N/A
root_volume	No	Volume object	Explanation System disk information of the node. This parameter is optional for some VMs or the system disk of the BMS. This parameter is mandatory in other cases. For details about the parameter description, see Table 6-8. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
data_volume	No	Volume object	Explanation Data disk information Constraints This parameter is mandatory when data_volume_count is not 0 . For details about this parameter, see Table 6-8 . Value range N/A Default value N/A
data_volume_count	No	Integer	Explanation Number of data disks of a node. Constraints N/A Value range 0-20 Default value N/A
charge_info	No	ChargeInfo object	Explanation The billing type of a node group. The billing types of master and core node groups are the same as those of the cluster. The billing type of the task node group can be different. For details about the parameters, see Table 6-5 . Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
auto_scaling_policy	No	auto_scaling_policy object	Explanation Autoscaling rule corresponding to the node group. For details about the parameters, see Table 6-11 . Constraints N/A Value range N/A Default value N/A
assigned_roles	No	Array of strings	Explanation This parameter is mandatory when the cluster type is CUSTOM. You can specify the roles deployed in a node group. This parameter is a character string array. Each character string represents a role expression. Role expression definition: • If the role is deployed on all nodes in the node group, set this parameter to <i><role name></i>, for example, DataNode. • If the role is deployed on a specified subscript node in the node group: <i><role name>:<index1>,<index2>...,<indexN></i>, for example, NameNode:1,2. The subscript starts from 1. For details about available roles, see Roles and components supported by MRS . Constraints N/A Value range N/A Default value N/A

Table 6-8 Volume

Parameter	Mandato ry	Type	Description
type	Yes	String	Explanation Disk type. Constraints N/A Value range • SATA: common I/O disk • SAS: high I/O disk • SSD: ultra-high I/O disk • GPSSD: general-purpose SSD disk Default value N/A
size	Yes	Integer	Explanation Data disk size in GB. Constraints N/A Value range 10-32768 Default value N/A

Table 6-9 BootstrapScript

Parameter	Mandato ry	Type	Description
name	Yes	String	Explanation Name of a bootstrap action script. Constraints N/A Value range The names of bootstrap action scripts in the same cluster must be unique. The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and must not start with a space. The value can contain 1 to 64 characters. Default value N/A

Parameter	Mandatory	Type	Description
uri	Yes	String	Explanation Path of a bootstrap action script. Set this parameter to an OBS bucket path or a local VM path. • OBS bucket path: Enter a script path manually. For example, enter the path of the public sample script provided by MRS. Example: s3a://bootstrap/presto/presto-install.sh. If dualroles is installed, the parameter of the presto-install.sh script is dualroles. If worker is installed, the parameter of the presto-install.sh script is worker. Based on the Presto usage habit, you are advised to install dualroles on the active master nodes and worker on the Core nodes. • Local VM path: Enter a script path. The script path must start with a slash (/) and end with .sh. Constraints N/A Value range N/A Default value N/A
parameters	No	String	Explanation Bootstrap action script parameters Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
nodes	Yes	Array of strings	Explanation Name of the node group where the bootstrap action script is executed Constraints N/A Value range N/A Default value N/A
active_master	No	Boolean	Explanation Whether the bootstrap action script runs only on active Master nodes. Constraints N/A Value range • true: The bootstrap action script runs only on active Master nodes. • false: The bootstrap action script can run on all Master nodes. Default value N/A

Parameter	Mandatory	Type	Description
before_component_start	No	Boolean	Explanation Time when the bootstrap action script is executed. Currently, the following two options are available: Before component start and After component start Constraints N/A Value range • true: The bootstrap action script is executed before the component starts. • false: The bootstrap action script is executed after the component starts. Default value false
fail_action	Yes	String	Explanation Whether to continue executing subsequent scripts and creating a cluster after the bootstrap action script fails to be executed. You are advised to set this parameter to continue in the commissioning phase so that the cluster can continue to be installed and started no matter whether the bootstrap action is successful. Constraints N/A Value range • continue: Continue to execute subsequent scripts. • errorout: Stop the action. Default value N/A

Parameter	Mandatory	Type	Description
start_time	No	Long	Explanation Execution time of one boot operation script. Constraints N/A Value range N/A Default value N/A
state	No	String	Explanation The running status of one bootstrap action script. Constraints N/A Value range • PENDING • IN_PROGRESS • SUCCESS • FAILURE Default value N/A

Parameter	Mandatory	Type	Description
action_stages	No	Array of strings	Explanation Select the time when the bootstrap action script is executed. Constraints Enumerated values: • BEFORE_COMPONENT_FIRST_START: before initial component starts • AFTER_COMPONENT_FIRST_START: after initial component starts • BEFORE_SCALE_IN: before scale-in • AFTER_SCALE_IN: after scale-in • BEFORE_SCALE_OUT: before scale-out • AFTER_SCALE_OUT: after scale-out Value range N/A Default value N/A

Table 6-10 add_jobs parameters

Parameter	Mandatory	Type	Description
job_type	Yes	Integer	Explanation Job type code Constraints N/A Value range • MapReduce • Spark • Hive Script • HiveSQL (not supported) • DistCp: imports and exports data (not supported). • Spark Script • Spark SQL: submits SQL statements (not supported). Default value N/A
job_name	Yes	String	Explanation Job name Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Identical job names are allowed but not recommended. Default value N/A

Parameter	Mandatory	Type	Description
jar_path	No	String	Explanation Path of the .jar file or .sql file to be executed. Constraints N/A Value range - Contains a maximum of 1023 characters, excluding special characters such as ; &><'\$. The parameter value cannot be empty or full of spaces. - Files can be stored in HDFS or OBS. The path varies depending on the file system. - OBS: The path must start with s3a://. Files or programs encrypted by KMS are not supported. - HDFS: The path starts with a slash (/). - Spark Script must end with .sql while MapReduce and Spark Jar must end with .jar. sql and jar are case-insensitive. Default value N/A
arguments	No	String	Explanation Key parameter for program execution. The parameter is specified by the function of the user's program. MRS is only responsible for loading the parameter. Constraints N/A Value range The parameter can contain 0 to 150,000 characters, but special characters (; &><'\$) are not allowed. Default value N/A

Parameter	Mandatory	Type	Description
input	No	String	Explanation Address for inputting data. Files can be stored in HDFS or OBS. The path varies depending on the file system. • OBS: The path must start with s3a://. Files or programs encrypted by KMS are not supported. • HDFS: The path starts with a slash (/). Constraints N/A Value range The parameter contains a maximum of 1023 characters, excluding special characters such as ; &>'<\$, and can be left blank. Default value N/A
output	No	String	Explanation Address for outputting data. Files can be stored in HDFS or OBS. The path varies depending on the file system. • OBS: The path must start with s3a://. • HDFS: The path starts with a slash (/). If the specified path does not exist, the system will automatically create it. Constraints N/A Value range The parameter contains a maximum of 1023 characters, excluding special characters such as ; &>'<\$, and can be left blank. Default value N/A

Parameter	Mandatory	Type	Description
job_log	No	String	Explanation Path for storing job logs that record job running status. Files can be stored in HDFS or OBS. The path varies depending on the file system. • OBS: The path must start with s3a://. • HDFS: The path starts with a slash (/). Constraints N/A Value range The parameter contains a maximum of 1023 characters, excluding special characters such as ; &>'<\$, and can be left blank. Default value N/A
shutdown_cluster	No	Boolean	Explanation Whether to delete the cluster after the job execution is complete. Constraints N/A Value range • true: Delete the cluster. • false: Do not delete the cluster. Default value N/A
file_action	No	String	Explanation The action to be performed on a file. Constraints N/A Value range • import: Import data. • export: Export data. Default value N/A

Parameter	Mandatory	Type	Description
submit_job_once_cluster_run	Yes	Boolean	Explanation Whether to submit a job when creating a cluster. Set this parameter to true in this example. Constraints N/A Value range • true: Submit a job during cluster creation. • false: Submit a job after the cluster is created. Default value N/A
hql	No	String	Explanation HiveQL statement Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
hive_script_path	No	String	Explanation SQL program path. This parameter is needed by Spark Script and Hive Script jobs only. Constraints N/A Value range - Contains a maximum of 1023 characters, excluding special characters such as ; &><'\$. The address cannot be empty or full of spaces. - Files can be stored in HDFS or OBS. The path varies depending on the file system. - OBS: The path must start with s3a://. Files or programs encrypted by KMS are not supported. - HDFS: The path starts with a slash (/). - Ends with .sql. sql is case-insensitive. Default value N/A

Table 6-11 auto_scaling_policy parameters

Parameter	Mandatory	Type	Description
auto_scaling_enable	Yes	Boolean	Explanation Whether to enable the auto scaling rule. Constraints N/A Value range • true: Enable the auto scaling rule. • false: Disable the autoscaling rule. Default value N/A
min_capacity	Yes	Integer	Explanation Minimum number of nodes left in the node group. Constraints N/A Value range 0-500 Default value N/A
max_capacity	Yes	Integer	Explanation Maximum number of nodes in the node group. Constraints N/A Value range 0-500 Default value N/A

Parameter	Mandatory	Type	Description
resources_plans	No	Array of resources_plan objects	Explanation Resource plan list. For details, see Table 6-12 . If this parameter is left blank, the resource plan is disabled. Constraints When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured. Value range N/A Default value N/A
exec_scripts	No	Array of scale_script objects	Explanation List of custom scaling automation scripts. For details, see Table 6-13 . If this parameter is left blank, a hook script is disabled. This parameter is not available in the V2 API for creating and updating autoscaling policies. Constraints The number of records cannot exceed 10. Value range N/A Default value N/A
rules	No	Array of rules objects	Explanation List of auto scaling rules. For details, see Table 6-14 . Constraints When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured. The number of records cannot exceed 10. Value range N/A Default value N/A

Table 6-12 ResourcesPlan

Parameter	Mandatory	Type	Description
period_type	Yes	String	Explanation Cycle type of a resource plan. This parameter can be set to daily only. Constraints N/A Value range N/A Default value N/A
start_time	Yes	String	Explanation The start time of a resource plan. The value is in the format of hour:minute , indicating that the time ranges from 00:00 to 23:59. Constraints N/A Value range N/A Default value N/A
end_time	Yes	String	Explanation End time of a resource plan. The format is the same as that of start_time . Constraints The value cannot be earlier than the start_time , and the interval between start_time and start_time cannot be less than 30 minutes. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
min_capacity	Yes	Integer	Explanation Minimum number of the preserved nodes in a node group in a resource plan. Constraints N/A Value range 0-500 Default value N/A
max_capacity	Yes	Integer	Explanation Maximum number of the preserved nodes in a node group in a resource plan. Constraints N/A Value range 0-500 Default value N/A
effective_days	No	Array of strings	Explanation The effective date of a resource plan. If this parameter is left blank, it indicates that the resource plan takes effect every day. The options are as follows: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, and SUNDAY Constraints N/A Value range N/A Default value N/A

Table 6-13 scale_script parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Names of custom scaling automation scripts. Constraints N/A Value range The names in the same cluster must be unique. The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and must not start with a space. The value can contain 1 to 64 characters. Default value N/A
uri	Yes	String	Explanation Path of a custom automation script. Set this parameter to an OBS bucket path or a local VM path. • OBS bucket path: Enter a script path manually. For example, s3a://XXX/scale.sh. • Local VM path: Enter a script path. The script path must start with a slash (/) and end with .sh. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
parameters	No	String	Explanation Parameters of a custom automation script. • Multiple parameters are separated by space. • The following predefined system parameters can be transferred: – <i>\${mrs_scale_node_num}</i>: Number of the nodes to be added or removed – <i>\${mrs_scale_type}</i>: Scaling type. The value can be scale_out or scale_in. – <i>\$</i> <i>{mrs_scale_node_hostnames}</i>: Host names of the nodes to be added or removed – <i>\${mrs_scale_node_ips}</i>: IP addresses of the nodes to be added or removed – <i>\${mrs_scale_rule_name}</i>: Name of the rule that triggers auto scaling • Other user-defined parameters are used in the same way as those of common shell scripts. Parameters are separated by space. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
nodes	Yes	List<String>	Explanation Type of a node where the custom automation script is executed. The node type can be Master, Core, or Task. Constraints N/A Value range N/A Default value N/A
active_master	No	Boolean	Explanation Whether the custom automation script runs only on the active master node. Constraints N/A Value range • true: The custom automation script runs only on the active Master nodes. • false: The custom automation script can run on all Master nodes. Default value false
action_stage	Yes	String	Explanation Time when a script is executed. Constraints N/A Value range • before_scale_out: before scale-out • before_scale_in: before scale-in • after_scale_out: after scale-out • after_scale_in: after scale-in Default value N/A

Parameter	Mandatory	Type	Description
fail_action	Yes	String	Explanation Whether to continue to execute subsequent scripts and create a cluster after the custom automation script fails to be executed. You are advised to set this parameter to continue in the commissioning phase so the cluster can continue to be installed and started no matter whether the custom automation script is executed successfully. Constraints The scale-in operation cannot be undone. fail_action must be set to continue for the scripts that are executed after scale-in. Value range • continue: Continue to execute subsequent scripts. • errorout: Stop the action. Default value N/A

Table 6-14 rules parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of an auto scaling rule. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Rule names must be unique in a node group. Default value N/A

Parameter	Mandatory	Type	Description
description	No	String	Explanation Description about an auto scaling rule. Constraints N/A Value range The value can contain 0 to 1024 characters. Default value N/A
adjustment_type	Yes	String	Explanation Adjustment type of an auto scaling rule. Constraints N/A Value range • scale_out: cluster scale-out • scale_in: cluster scale-in Default value N/A
cool_down_minutes	Yes	Integer	Explanation Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute. Constraints N/A Value range The value ranges from 0 to 10080. 10080 indicates the number of minutes in a week. Default value N/A

Parameter	Mandatory	Type	Description
scaling_adjustment	Yes	Integer	Explanation Number of nodes that can be adjusted once. Constraints N/A Value range 1-100 Default value N/A
trigger	Yes	Trigger object	Explanation Condition for triggering a rule. For details, see Table 6-15 . Constraints N/A Value range N/A Default value N/A

Table 6-15 trigger parameters

Parameter	Mandatory	Type	Description
metric_name	Yes	String	Explanation Metric name. This triggering condition makes a judgment according to the value of the metric. Constraints N/A Value range The value can contain 0 to 64 characters. Default value N/A

Parameter	Mandatory	Type	Description
metric_value	Yes	String	Explanation Metric threshold to trigger a rule. The value must be an integer or a number with two decimal places. Constraints N/A Value range Only integers or numbers with two decimal places are allowed. Default value N/A
comparison_operator	No	String	Explanation Metric judgment logic operator. Constraints N/A Value range • LT: less than • GT: greater than • LTOE: less than or equal to • GTOE: greater than or equal to Default value N/A
evaluation_periods	Yes	Integer	Explanation Number of consecutive five-minute periods, during which a metric threshold is reached Constraints N/A Value range 1-288 Default value N/A

Table 6-16 ComponentConfig

Parameter	Mandatory	Type	Description
component_name	Yes	String	Explanation Component name Constraints N/A Value range N/A Default value N/A
configs	No	Array of Config objects	Explanation The component configuration item list. For details about this parameter, see Table 6-17 . Constraints The number of records cannot exceed 100. Value range N/A Default value N/A

Table 6-17 Config

Parameter	Mandatory	Type	Description
key	Yes	String	Explanation The configuration name. Only the configuration names displayed on the MRS component configuration page are supported. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
value	Yes	String	Explanation Configuration value Constraints N/A Value range N/A Default value N/A
config_file_name	Yes	String	Explanation Configuration file name. Only the file names displayed on the MRS component configuration page are supported. Constraints N/A Value range N/A Default value N/A

Table 6-18 SmnNotify

Parameter	Mandatory	Type	Description
topic_urn	No	String	Explanation SMN topic URN. Constraints Mandatory if alarm subscription needs to be enabled. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
subscription_name	No	String	Explanation Subscription rule name Constraints N/A Value range N/A Default value default_alert_rule

Response Parameters

Status code: 200

Table 6-19 Response parameters

Parameter	Type	Description
cluster_id	String	Explanation Cluster ID, which is returned by the system after the cluster is created. Constraints N/A Value range N/A Default value N/A

Example Request

- Create an MRS 3.2.0-LTS.1 cluster for analysis. There are a Master node group with two nodes, a Core node group with three nodes, and a Task node group with three nodes. Autoscaling is enabled from 12:00 to 13:00 every Monday.
POST /v2/{project_id}/clusters

```
{
  "cluster_version": "MRS 3.2.0-LTS.1",
  "cluster_name": "mrs_DyJA_dm",
  "cluster_type": "ANALYSIS",
  "charge_info": {
    "charge_mode": "postPaid"
  },
  "region": "",
  "availability_zone": "",
  "vpc_name": "vpc-37cd",
  "subnet_id": "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
  "subnet_name": "subnet",
  "components": "Hadoop,Spark2x,HBase,Hive,Hue,Flink,Oozie,Ranger,Tez",
}
```

```
"safe_mode" : "KERBEROS",
"manager_admin_password" : "your password",
"login_mode" : "PASSWORD",
"node_root_password" : "your password",
"log_collection" : 1,
"mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
"tags" : [ {
  "key" : "tag1",
  "value" : "111"
}, {
  "key" : "tag2",
  "value" : "222"
} ],
"node_groups" : [ {
  "group_name" : "master_node_default_group",
  "node_num" : 2,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1
}, {
  "group_name" : "core_node_analysis_group",
  "node_num" : 3,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1
}, {
  "group_name" : "task_node_analysis_group",
  "node_num" : 3,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "auto_scaling_policy" : {
    "auto_scaling_enable" : true,
    "min_capacity" : 0,
    "max_capacity" : 1,
    "resources_plans" : [ {
      "period_type" : "daily",
      "start_time" : "12:00",
      "end_time" : "13:00",
      "min_capacity" : 2,
      "max_capacity" : 3,
      "effective_days" : [ "MONDAY" ]
    } ],
    "exec_scripts" : [ {
      "name" : "test",
      "uri" : "s3a://obs-mrstest/bootstrap/basic_success.sh",
      "parameters" : "",
      "nodes" : [ "master_node_default_group", "core_node_analysis_group",
```

```
"task_node_analysis_group" ],
  "active_master" : false,
  "action_stage" : "before_scale_out",
  "fail_action" : "continue"
} ],
"rules" : [ {
  "name" : "default-expand-1",
  "description" : "",
  "adjustment_type" : "scale_out",
  "cool_down_minutes" : 5,
  "scaling_adjustment" : "1",
  "trigger" : {
    "metric_name" : "YARNAppRunning",
    "metric_value" : 100,
    "comparison_operator" : "GTOE",
    "evaluation_periods" : "1"
  }
} ]
}
} ]
}
```

- Create an MRS 3.2.0-LTS.1 cluster for stream analysis. There are a Master node group with two nodes, a Core node group with three nodes, and a Task node group with no node. Autoscaling is enabled from 12:00 to 13:00 every Monday.

POST /v2/{project_id}/clusters

```
{
  "cluster_version" : "MRS 3.2.0-LTS.1",
  "cluster_name" : "mrs_Dokle_dm",
  "cluster_type" : "STREAMING",
  "charge_info" : {
    "charge_mode" : "postPaid"
  },
  "region" : "",
  "availability_zone" : "",
  "vpc_name" : "vpc-37cd",
  "subnet_id" : "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
  "subnet_name" : "subnet",
  "components" : "Storm,Kafka,Flume,Ranger",
  "safe_mode" : "KERBEROS",
  "manager_admin_password" : "your password",
  "login_mode" : "PASSWORD",
  "node_root_password" : "your password",
  "log_collection" : 1,
  "mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
  "tags" : [ {
    "key" : "tag1",
    "value" : "111"
  }, {
    "key" : "tag2",
    "value" : "222"
  } ],
  "node_groups" : [ {
    "group_name" : "master_node_default_group",
    "node_num" : 2,
    "node_size" : "rc3.4xlarge.4.linux.bigdata",
    "root_volume" : {
      "type" : "SAS",
      "size" : 480
    },
    "data_volume" : {
      "type" : "SAS",
      "size" : 600
    },
    "data_volume_count" : 1
  }, {
    "group_name" : "core_node_streaming_group",
```

```
"node_num" : 3,
"node_size" : "rc3.4xlarge.4.linux.bigdata",
"root_volume" : {
  "type" : "SAS",
  "size" : 480
},
"data_volume" : {
  "type" : "SAS",
  "size" : 600
},
"data_volume_count" : 1
}, {
  "group_name" : "task_node_streaming_group",
  "node_num" : 0,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "auto_scaling_policy" : {
    "auto_scaling_enable" : true,
    "min_capacity" : 0,
    "max_capacity" : 1,
    "resources_plans" : [ {
      "period_type" : "daily",
      "start_time" : "12:00",
      "end_time" : "13:00",
      "min_capacity" : 2,
      "max_capacity" : 3,
      "effective_days" : [ "MONDAY" ]
    } ],
    "rules" : [ {
      "name" : "default-expand-1",
      "description" : "",
      "adjustment_type" : "scale_out",
      "cool_down_minutes" : 5,
      "scaling_adjustment" : "1",
      "trigger" : {
        "metric_name" : "StormSlotAvailablePercentage",
        "metric_value" : 100,
        "comparison_operator" : "LTOE",
        "evaluation_periods" : "1"
      }
    } ]
  }
} ]
}
```

- Create an MRS 3.2.0-LTS.1 cluster for hybrid analysis. There are a Master node group with two nodes, two Core node groups with three nodes in each, and two Task node groups with three nodes in one group and one node in the other group.

POST /v2/{project_id}/clusters

```
{
  "cluster_version" : "MRS 3.2.0-LTS.1",
  "cluster_name" : "mrs_onmm_dm",
  "cluster_type" : "MIXED",
  "charge_info" : {
    "charge_mode" : "postPaid"
  },
  "region" : "",
  "availability_zone" : "",
  "vpc_name" : "vpc-37cd",
```

```
"subnet_id" : "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
"subnet_name" : "subnet",
"components" : "Hadoop,Spark2x,HBase,Hive,Hue,Loader,Kafka,Storm,Flume,Flink,Oozie,Ranger,Tez",
"safe_mode" : "KERBEROS",
"manager_admin_password" : "your password",
"login_mode" : "PASSWORD",
"node_root_password" : "your password",
"log_collection" : 1,
"mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
"tags" : [ {
  "key" : "tag1",
  "value" : "111"
}, {
  "key" : "tag2",
  "value" : "222"
} ],
"node_groups" : [ {
  "group_name" : "master_node_default_group",
  "node_num" : 2,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1
}, {
  "group_name" : "core_node_streaming_group",
  "node_num" : 3,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1
}, {
  "group_name" : "core_node_analysis_group",
  "node_num" : 3,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1
}, {
  "group_name" : "task_node_analysis_group",
  "node_num" : 1,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1
}, {

```

```
"group_name" : "task_node_streaming_group",
"node_num" : 0,
"node_size" : "Sit3.4xlarge.4.linux.bigdata",
"root_volume" : {
  "type" : "SAS",
  "size" : 480
},
"data_volume" : {
  "type" : "SAS",
  "size" : 600
},
"data_volume_count" : 1
}]
}
```

- Create a cluster where custom management nodes and control nodes are the same nodes. The cluster version is MRS 3.2.0-LTS.1. There is a Master node group with three nodes, two Core node groups with three nodes in one group and one node in the other group.

POST /v2/{project_id}/clusters

```
{
  "cluster_version" : "MRS 3.2.0-LTS.1",
  "cluster_name" : "mrs_heshe_dm",
  "cluster_type" : "CUSTOM",
  "charge_info" : {
    "charge_mode" : "postPaid"
  },
  "region" : "",
  "availability_zone" : "",
  "vpc_name" : "vpc-37cd",
  "subnet_id" : "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
  "subnet_name" : "subnet",
  "components" :
"Hadoop,Spark2x,HBase,Hive,Hue,Kafka,Flume,Flink,Oozie,HetuEngine,Ranger,Tez,ZooKeeper,ClickHouse",
  "safe_mode" : "KERBEROS",
  "manager_admin_password" : "your password",
  "login_mode" : "PASSWORD",
  "node_root_password" : "your password",
  "mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
  "template_id" : "mgmt_control_combined_v2",
  "log_collection" : 1,
  "tags" : [ {
    "key" : "tag1",
    "value" : "111"
  }, {
    "key" : "tag2",
    "value" : "222"
  } ],
  "node_groups" : [ {
    "group_name" : "master_node_default_group",
    "node_num" : 3,
    "node_size" : "Sit3.4xlarge.4.linux.bigdata",
    "root_volume" : {
      "type" : "SAS",
      "size" : 480
    },
    "data_volume" : {
      "type" : "SAS",
      "size" : 600
    },
    "data_volume_count" : 1,
    "assigned_roles" : [ "OMSServer:1,2", "SlapdServer:1,2", "KerberosServer:1,2", "KerberosAdmin:1,2",
"quorumpeer:1,2,3", "NameNode:2,3", "Zkfc:2,3", "JournalNode:1,2,3", "ResourceManager:2,3",
"JobHistoryServer:2,3", "DBServer:1,3", "Hue:1,3", "LoaderServer:1,3", "MetaStore:1,2,3",
"WebHCat:1,2,3", "HiveServer:1,2,3", "HMaster:2,3", "MonitorServer:1,2", "Nimbus:1,2", "UI:1,2",
"JDBCServer2x:1,2,3", "JobHistory2x:2,3", "SparkResource2x:1,2,3", "oozie:2,3", "LoadBalancer:2,3",
"TezUI:1,3", "TimelineServer:3", "RangerAdmin:1,2", "UserSync:2", "TagSync:2", "KerberosClient",
```

```
"SlapdClient", "meta", "HSConsole:2,3", "FlinkResource:1,2,3", "DataNode:1,2,3",
"NodeManager:1,2,3", "IndexServer2x:1,2", "ThriftServer:1,2,3", "RegionServer:1,2,3",
"ThriftServer1:1,2,3", "RESTServer:1,2,3", "Broker:1,2,3", "Supervisor:1,2,3", "Logviewer:1,2,3",
"Flume:1,2,3", "HSBroker:1,2,3" ]
}, {
  "group_name" : "node_group_1",
  "node_num" : 3,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "DataNode", "NodeManager", "RegionServer", "Flume:1", "Broker",
"Supervisor", "Logviewer", "HBaseIndexer", "KerberosClient", "SlapdClient", "meta", "HSBroker:1,2",
"ThriftServer", "ThriftServer1", "RESTServer", "FlinkResource" ]
}, {
  "group_name" : "node_group_2",
  "node_num" : 1,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "NodeManager", "KerberosClient", "SlapdClient", "meta", "FlinkResource" ]
}
}]
}
```

- Create a cluster where custom management nodes and control nodes are independent nodes. The cluster version is MRS 3.2.0-LTS.1. There a Master node group with five nodes and a Core node group with three nodes.

POST /v2/{project_id}/clusters

```
{
  "cluster_version" : "MRS 3.2.0-LTS.1",
  "cluster_name" : "mrs_jdRU_dm01",
  "cluster_type" : "CUSTOM",
  "charge_info" : {
    "charge_mode" : "postPaid"
  },
  "region" : "",
  "availability_zone" : "",
  "vpc_name" : "vpc-37cd",
  "subnet_id" : "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
  "subnet_name" : "subnet",
  "components" :
"Hadoop,Spark2x,HBase,Hive,Hue,Kafka,Flume,Flink,Oozie,HetuEngine,Ranger,Tez,Ranger,Tez,ZooKeeper,ClickHouse",
  "safe_mode" : "KERBEROS",
  "manager_admin_password" : "your password",
  "login_mode" : "PASSWORD",
  "node_root_password" : "your password",
  "mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
  "log_collection" : 1,
  "template_id" : "mgmt_control_separated_v2",
  "tags" : [ {
    "key" : "aaa",
    "value" : "111"
  }, {
    "key" : "bbb",
```

```
"value" : "222"
}],
"node_groups" : [ {
  "group_name" : "master_node_default_group",
  "node_num" : 5,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "OMSServer:1,2", "SlapdServer:3,4", "KerberosServer:3,4", "KerberosAdmin:3,4",
"quorumpeer:3,4,5", "NameNode:4,5", "Zkfc:4,5", "JournalNode:1,2,3,4,5", "ResourceManager:4,5",
"JobHistoryServer:4,5", "DBServer:3,5", "Hue:1,2", "LoaderServer:1,2", "MetaStore:1,2,3,4,5",
"WebHCat:1,2,3,4,5", "HiveServer:1,2,3,4,5", "HMaster:4,5", "MonitorServer:1,2", "Nimbus:1,2",
"UI:1,2", "JDBCServer2x:1,2,3,4,5", "JobHistory2x:4,5", "SparkResource2x:1,2,3,4,5", "oozie:1,2",
"LoadBalancer:1,2", "TezUI:1,2", "TimelineServer:5", "RangerAdmin:1,2", "KerberosClient",
"SlapdClient", "meta", "HSConsole:1,2", "FlinkResource:1,2,3,4,5", "DataNode:1,2,3,4,5",
"NodeManager:1,2,3,4,5", "IndexServer2x:1,2", "ThriftServer:1,2,3,4,5", "RegionServer:1,2,3,4,5",
"ThriftServer1:1,2,3,4,5", "RESTServer:1,2,3,4,5", "Broker:1,2,3,4,5", "Supervisor:1,2,3,4,5",
"Logviewer:1,2,3,4,5", "Flume:1,2,3,4,5", "HBaseIndexer:1,2,3,4,5", "TagSync:1", "UserSync:1" ]
}, {
  "group_name" : "node_group_1",
  "node_num" : 3,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "DataNode", "NodeManager", "RegionServer", "Flume:1", "Broker",
"Supervisor", "Logviewer", "HBaseIndexer", "KerberosClient", "SlapdClient", "meta", "HSBroker:1,2",
"ThriftServer", "ThriftServer1", "RESTServer", "FlinkResource" ]
} ]
}
```

- Create a cluster where data nodes are deployed independently from other nodes. The cluster version is MRS 3.2.0-LTS.1. There are a Master node group with nine nodes, four Core node groups with three nodes in each group.

POST /v2/{project_id}/clusters

```
{
  "cluster_version" : "MRS 3.2.0-LTS.1",
  "cluster_name" : "mrs_jdRU_dm02",
  "cluster_type" : "CUSTOM",
  "charge_info" : {
    "charge_mode" : "postPaid"
  },
  "region" : "",
  "availability_zone" : "",
  "vpc_name" : "vpc-37cd",
  "subnet_id" : "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
  "subnet_name" : "subnet",
  "components" :
"Hadoop,Spark2x,HBase,Hive,Hue,Kafka,Flume,Flink,Oozie,Ranger,Tez,Ranger,Tez,ZooKeeper,ClickHouse",
  "safe_mode" : "KERBEROS",
  "manager_admin_password" : "your password",
  "login_mode" : "PASSWORD",
  "node_root_password" : "your password",
  "mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
}
```

```
"template_id" : "mgmt_control_data_separated_v2",
"log_collection" : 1,
"tags" : [ {
  "key" : "aaa",
  "value" : "111"
}, {
  "key" : "bbb",
  "value" : "222"
} ],
"node_groups" : [ {
  "group_name" : "master_node_default_group",
  "node_num" : 9,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "OMSServer:1,2", "SlapdServer:5,6", "KerberosServer:5,6", "KerberosAdmin:5,6",
"quorumpeer:5,6,7,8,9", "NameNode:3,4", "Zkfc:3,4", "JournalNode:5,6,7", "ResourceManager:8,9",
"JobHistoryServer:8", "DBServer:8,9", "Hue:8,9", "FlinkResource:3,4", "LoaderServer:3,5",
"MetaStore:8,9", "WebHCat:5", "HiveServer:8,9", "HMaster:8,9", "FTP-Server:3,4", "MonitorServer:3,4",
"Nimbus:8,9", "UI:8,9", "JDBCServer2x:8,9", "JobHistory2x:8,9", "SparkResource2x:5,6,7", "oozie:4,5",
"EsMaster:7,8,9", "LoadBalancer:8,9", "TezUI:5,6", "TimelineServer:5", "RangerAdmin:4,5",
"UserSync:5", "TagSync:5", "KerberosClient", "SlapdClient", "meta", "HSBroker:5", "HSConsole:3,4",
"FlinkResource:3,4" ]
}, {
  "group_name" : "node_group_1",
  "node_num" : 3,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "DataNode", "NodeManager", "RegionServer", "Flume:1", "GraphServer",
"KerberosClient", "SlapdClient", "meta", "HSBroker:1,2" ]
}, {
  "group_name" : "node_group_2",
  "node_num" : 3,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "HBaseIndexer", "SolrServer[3]", "EsNode[2]", "KerberosClient", "SlapdClient",
"meta", "SolrServerAdmin:1,2" ]
}, {
  "group_name" : "node_group_3",
  "node_num" : 3,
  "node_size" : "rc3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
```

```
{
  "type": "SAS",
  "size": 600
},
"data_volume_count": 1,
"assigned_roles": [ "Redis[2]", "KerberosClient", "SlapdClient", "meta" ]
}, {
  "group_name": "node_group_4",
  "node_num": 3,
  "node_size": "rc3.4xlarge.4.linux.bigdata",
  "root_volume": {
    "type": "SAS",
    "size": 480
  },
  "data_volume": {
    "type": "SAS",
    "size": 600
  },
  "data_volume_count": 1,
  "assigned_roles": [ "Broker", "Supervisor", "Logviewer", "KerberosClient", "SlapdClient", "meta" ]
}]
}
```

Example Response

- Example of a successful response

```
{
  "cluster_id": "da1592c2-bb7e-468d-9ac9-83246e95447a"
}
```

- Example of a failed response

```
{
  "error_code": "MRS.0002",
  "error_msg": "The parameter is invalid."
}
```

Status Codes

See [Status Codes](#).

Error Codes

See [Error Codes](#).

6.1.2 Changing a Cluster Name

Function

This API is used to change a cluster name.

Constraints

None

Debugging

You can debug this API through automatic authentication in API Explorer. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

PUT /v2/{project_id}/clusters/{cluster_id}/cluster-name

Table 6-20 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. For details about how to obtain the project ID, see Obtaining a Project ID . Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A
cluster_id	Yes	String	Explanation The cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID . Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Request Parameters

Table 6-21 Request body parameter

Parameter	Mandatory	Type	Description
cluster_name	Yes	String	Explanation New cluster name. Constraints N/A Value range N/A Default value N/A

Response Parameters

Status code: 200

Table 6-22 Response body parameter

Parameter	Type	Description
result	String	Explanation Result of the request for updating a mapping. Constraints N/A Value range • succeeded: The operation is successful. • failed: The operation failed. Default value N/A

Status code: 400

Table 6-23 Response body parameters

Parameter	Type	Description
error_code	String	Explanation Error code. Constraints N/A Value range N/A Default value N/A
error_msg	String	Explanation Error message. Constraints N/A Value range N/A Default value N/A

Example Request

Change the MRS cluster name to **mrs_jdRU_dm01**.

```
{
  "cluster_name" : "mrs_jdRU_dm01"
}
```

Example Response

Status code: 200

The cluster name is changed.

```
{
  "result" : "succeeded"
}
```

Status Codes

See [Status Codes](#).

Error Codes

See [Error Codes](#).

6.1.3 Creating a Cluster and Submitting a Job

Function

This API is used to create an MRS cluster, submit a job, and terminate the cluster after the job is complete. This API is supported in MRS 1.8.9 or later. Before using this API, you need to obtain the following resource information:

- Create or query a VPC and subnet.
- Create or query a key pair using an ECS.
- Obtain the region information by referring to [Endpoints](#).
- Obtain the MRS version and the components supported by the MRS version by referring to [Obtaining the MRS Cluster Information](#).

Constraints

None

Debugging

You can debug this API through automatic authentication in API Explorer. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

POST /v2/{project_id}/run-job-flow

Table 6-24 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. For details about how to obtain the project ID, see Obtaining a Project ID . Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A

Request Parameters

Table 6-25 Request body parameters

Parameter	Mandatory	Type	Description
is_dec_project	No	Boolean	Explanation Whether the resource is a DeC resource. Constraints N/A Value range • true: The resource is a DeC resource. • false: The resource is not a DeC resource. Default value false
cluster_version	Yes	String	Explanation Cluster version, for example, MRS 3.1.0. Constraints N/A Value range N/A Default value N/A
cluster_name	Yes	String	Explanation Cluster name. Constraints N/A Value range The cluster name must globally unique. A cluster name can contain only 1 to 64 characters. Only letters, numbers, hyphens (-), and underscores (_) are allowed. Default value N/A

Parameter	Mandatory	Type	Description
cluster_type	Yes	String	Explanation The cluster type. Constraints N/A Value range • ANALYSIS: analysis cluster • STREAMING: streaming cluster • MIXED: hybrid cluster • CUSTOM: custom cluster, which is supported only by MRS 3.x. Default value N/A
charge_info	No	ChargeInfo object	Explanation The billing type. For details, see Table 6-30. Constraints N/A Value range N/A Default value N/A
region	Yes	String	Explanation Information about the region where the cluster is located. For details, see Endpoints. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
vpc_name	Yes	String	Explanation The name of the VPC where the subnet is located. Obtain the VPC name by performing the following operations on the VPC management console: 1. Log in to the VPC management console. 2. Choose Virtual Private Cloud > My VPCs. On the Virtual Private Cloud page, obtain the VPC name from the list. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
subnet_id	No	String	Explanation The subnet ID. Obtain the subnet ID by performing the following operations on the VPC management console: 1. Log in to the VPC management console. 2. Choose Virtual Private Cloud > My VPCs. 3. Locate the row containing the target VPC and click the number in the Subnets column to view the subnet information. 4. Click the subnet name to obtain the network ID. Constraints At least one of subnet_id and subnet_name must be configured. If the two parameters are configured but do not match the same subnet, the cluster fails to create. subnet_id is recommended. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
subnet_name	Yes	String	Explanation The subnet name. Obtain the subnet name by performing the following operations on the VPC management console: 1. Log in to the management console. 2. Choose Virtual Private Cloud > My VPCs. 3. Locate the row that contains the target VPC and click the number in the Subnets column to obtain the subnet name. Constraints At least one of subnet_id and subnet_name must be configured. If the two parameters are configured but do not match the same subnet, the cluster fails to create. If only subnet_name is configured and subnets with the same name exist in the VPC, the first subnet name in the VPC is used when a cluster is created. subnet_id is recommended. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
components	Yes	String	Explanation List of component names, which are separated by commas (.). For details about the components that are supported, see "Components Supported by MRS" in Obtaining the MRS Cluster Information . Constraints N/A Value range N/A Default value N/A
external_data_sources	No	Array of ClusterDataConnectorMap objects	Explanation When deploying components such as Hive and Ranger, you can associate data connections and store metadata in associated databases. For details about the parameters, see Table 6-26 . Constraints N/A Value range N/A Default value N/A
availability_zone	Yes	String	Explanation The AZ name. Multi-AZ clusters are not supported. For details about AZs, see Endpoints . Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
security_group_id	No	String	Explanation The ID of the security group configured for the cluster. • If this parameter is left blank, MRS automatically creates a security group whose name starts with mrs_{cluster_name}. • If this parameter is configured, a fixed security group is used to create a cluster. The transferred ID must be the security group ID owned by the current tenant. The security group must include an inbound rule in which all protocols and all ports are allowed and the source is the IP address of the specified node on the management plane. • Multiple security group IDs are supported and separated by commas (,). Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
auto_create_default_security_group	No	Boolean	Explanation Whether to create the default security group for the MRS cluster. Constraints If this parameter is set to true, the default security group will be created for the cluster regardless of whether security_groups_id is specified. Value range • true: The default security group is created for the MRS cluster. • false: The default security group is not created. Default value false

Parameter	Mandatory	Type	Description
safe_mode	Yes	String	Explanation The running mode of an MRS cluster. Constraints N/A Value range • SIMPLE: normal cluster. In a normal cluster, Kerberos authentication is disabled, and users can use all functions provided by the cluster. • KERBEROS: security cluster. In a security cluster, Kerberos authentication is enabled, and common users cannot use the file management and job management functions of an MRS cluster or view cluster resource usage and the job records of Hadoop and Spark. To use more functions, the users must obtain the relevant permissions from the Manager administrator. Default value N/A

Parameter	Mandatory	Type	Description
manager_admin_password	Yes	String	Explanation Password of the MRS Manager administrator. Constraints N/A Value range - The value must contain 8 to 26 characters. - The value must contain at least four of the following: uppercase letters, lowercase letters, numbers, and special characters (!@\$%^_-=+[]{};./?), but must not contain spaces. - The value cannot be the username or the username spelled backwards. Default value N/A
login_mode	Yes	String	Explanation Node login mode. Constraints N/A Value range PASSWORD: password-based login. If this value is selected, node_root_password cannot be left blank. KEYPAIR: key pair used for login. If this value is selected, node_keypair_name cannot be left blank. Default value N/A

Parameter	Mandatory	Type	Description
node_root_password	No	String	Explanation The password of user root for logging in to a cluster node. Constraints N/A Value range • Must be 8 to 26 characters long. • Must contain at least four of the following: uppercase letters, lowercase letters, numbers, and special characters (!@\$%^&*_+=[]{};./?), but must not contain spaces. • Cannot be the username or the username spelled backwards. Default value N/A
node_keypair_name	No	String	Explanation The name of a key pair. You can use a key pair to log in to a cluster node. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
enterprise_project_id	No	String	Explanation Enterprise project ID. When you create a cluster, associate the enterprise project ID with the cluster. The default value is 0, indicating the default enterprise project. To obtain the enterprise project ID, see the id value in the enterprise_project field data structure table in "Querying the Enterprise Project List" in <i>Enterprise Management API Reference</i>. Constraints N/A Value range N/A Default value The default value is 0, indicating the default enterprise project.
eip_address	No	String	Explanation EIP bound to an MRS cluster, which can be used to access MRS Manager. The EIP must have been created and must be in the same region as the cluster. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
eip_id	No	String	Explanation ID of the bound EIP. Constraints ID of the bound EIP. This parameter is mandatory when eip_address is configured. To obtain the EIP ID, log in to the VPC console, choose Network > Elastic IP and Bandwidth > Elastic IP , click the EIP to be bound, and obtain the ID in the Basic Information area. Value range N/A Default value N/A
mrs_ecs_default_agency	No	String	Explanation Name of the agency bound to a cluster node by default. The value is fixed to MRS_ECS_DEFAULT_AGENCY . An agency allows ECS or BMS to manage MRS resources. You can configure an agency of the ECS type to automatically obtain the AK/SK to access OBS. The MRS_ECS_DEFAULT_AGENCY agency has the OBS OperateAccess permission of OBS and the CES FullAccess (for users who have enabled fine-grained policies), CES Administrator , and KMS Administrator permissions in the region where the cluster is located. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
template_id	No	String	Explanation The template used for node deployment when the cluster type is CUSTOM. • mgmt_control_combined_v2: template for jointly deploying management and controller nodes. The management and controller roles are co-deployed on the master node, and data instances are deployed in the same node group. This deployment model applies to scenarios where there are fewer than 100 nodes, reducing costs. • mgmt_control_separated_v2: The management and control roles are deployed on different master nodes, and data instances are deployed in the same node group. This deployment model applies to a cluster with 100 to 500 nodes and delivers better performance in high-concurrency load scenarios. • mgmt_control_data_separated_v2: The management and control roles are deployed on different master nodes, and data instances are deployed in different node groups. This deployment model applies to a cluster with more than 500 nodes. Components can be deployed separately, which can be used for a larger cluster scale. Constraints N/A Value range N/A Default value

Parameter	Mandatory	Type	Description
			N/A
tags	No	Array of Tag objects	Explanation Cluster tag information. For details, see Table 6-27 . Constraints A cluster allows a maximum of 10 tags. A tag name (key) must be unique in a cluster. Value range N/A Default value N/A
log_collection	No	Integer	Explanation Whether to collect logs when cluster creation fails. Constraints N/A Value range • 0: Do not create an OBS bucket only for log collection when a cluster fails to be created. • 1: Create an OBS bucket only for collect logs when a cluster fails to be created. Default value 1
node_groups	Yes	Array of NodeGroupV2 objects	Explanation Information about the node groups that form the cluster. For details about the parameters, see Table 6-28 . Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
bootstrap_scripts	No	Array of BootstrapScript objects	Explanation The bootstrap action script. For details about the parameters, see Table 6-36 . Constraints N/A Value range N/A Default value N/A
log_uri	No	String	Explanation The OBS path to which cluster logs are dumped. After the log dump function is enabled, the read and write permissions on the OBS path are required to upload logs. Configure the default agency MRS_ECS_DEFAULT_AGENCY or customize an agency with the read and write permissions on the OBS path. This parameter is available only for cluster versions that support dumping cluster logs to OBS. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
component_configs	No	Array of ComponentConfig objects	Explanation The custom configuration of cluster components. This parameter applies only to cluster versions that support the feature of creating a cluster by customizing component configurations. For details about this parameter, see Table 6-37 . Constraints The number of records cannot exceed 50. Value range N/A Default value N/A
delete_when_no_steps	No	Boolean	Explanation Whether to automatically delete the cluster after the job is complete. Constraints N/A Value range • true: The cluster is deleted after the job is complete. • false: The cluster is not deleted after the job is complete. Default value false
steps	Yes	Array of StepConfig objects	Explanation The job list. For details about this parameter, see Table 6-39 . Constraints The number of records cannot exceed 255. Value range N/A Default value N/A

Table 6-26 ClusterDataConnectorMap

Parameter	Mandatory	Type	Description
map_id	No	Integer	Explanation Data connection association ID Constraints N/A Value range N/A Default value N/A
connector_id	No	String	Explanation Data connection ID Constraints N/A Value range N/A Default value N/A
component_name	No	String	Explanation Component name Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
role_type	No	String	Explanation Component role type. Constraints N/A Value range • hive_metastore: Hive Metastore role • hive_data: Hive role • hbase_data: HBase role • ranger_data: Ranger role Default value N/A
source_type	No	String	Explanation Data connection type Constraints N/A Value range • LOCAL_DB: local metadata • RDS_POSTGRES: RDS PostgreSQL database • RDS_MYSQL: RDS MySQL database • gaussdb-mysql: GaussDB(for MySQL) Default value N/A
cluster_id	No	String	Explanation ID of the associated cluster Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Parameter	Mandatory	Type	Description
status	No	Integer	Explanation Data connection status. Constraints N/A Value range • 0: normal • 1: in use Default value N/A

Table 6-27 Tag

Parameter	Mandatory	Type	Description
key	Yes	String	Explanation Tag key. Constraints N/A Value range • A tag key can contain letters, digits, spaces, and special characters <code>_:=+@</code>, but cannot start or end with a space or start with <code>_sys_</code>. • The tag key of a resource must be unique. • It can contain a maximum of 128 Unicode characters and cannot be an empty string. Default value N/A

Parameter	Mandatory	Type	Description
value	Yes	String	Explanation Tag value. Constraints N/A Value range • The value can contain letters, digits, spaces, and special characters <code>_:=+~@</code>, but cannot start or end with a space or start with <code>_sys_</code>. • The value can contain a maximum of 255 Unicode characters and can be an empty string. Default value N/A

Table 6-28 NodeGroupV2

Parameter	Mandatory	Type	Description
group_name	Yes	String	Explanation Node group name. Constraints N/A Value range The value can contain a maximum of 64 characters, including uppercase and lowercase letters, digits and underscores (_). The rules for configuring node groups are as follows: • master_node_default_group: master node group, which must be included in all cluster types. • core_node_analysis_group: analysis core node group, which must be included in both analysis and hybrid clusters. • core_node_streaming_group: streaming core node group, which must be included in both streaming and hybrid clusters. • task_node_analysis_group: analysis task node group, which can be selected for analysis clusters and hybrid clusters as needed. • task_node_streaming_group: streaming task node group, which can be selected for streaming clusters and hybrid clusters as needed. • node_group{x}: node group of a custom cluster. A maximum of nine such node groups can be added for a custom cluster. Default value N/A

Parameter	Mandatory	Type	Description
node_num	Yes	Integer	Explanation Number of nodes. Constraints The total number of Core and Task nodes cannot exceed 500. Value range 0-500 Default value N/A
node_size	Yes	String	Explanation The instance specifications of a node, for example, c3.4xlarge.2.linux.bigdata. For details about instance specifications, see ECS Specifications Used by MRS and BMS Specifications Used by MRS. You are advised to obtain the specifications supported by the corresponding version in the corresponding region from the cluster creation page on the MRS console. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
root_volume	No	Volume object	Explanation The system disk information of the node. This parameter is optional for some VMs or the system disk of the BMS and mandatory in other cases. For details about this parameter, see Table 6-29 . Constraints N/A Value range N/A Default value N/A
data_volume	No	Volume object	Explanation Data disk information. For details about the parameter, see Table 6-29 . Constraints This parameter is mandatory when data_volume_count is not 0. Value range N/A Default value N/A
data_volume_count	No	Integer	Explanation Number of data disks of a node. Constraints N/A Value range 0-20 Default value N/A

Parameter	Mandatory	Type	Description
charge_info	No	ChargeInfo object	Explanation The billing type of a node group. The billing types of master and core node groups are the same as those of the cluster. The billing type of the task node group can be different. For details about this parameter, see Table 6-30. Constraints N/A Value range N/A Default value N/A
auto_scaling_policy	No	AutoScalingPolicy object	Explanation The auto scaling rule information. For details about this parameter, see Table 6-31. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
assigned_roles	No	Array of strings	Explanation This parameter is mandatory when the cluster type is CUSTOM. You can specify the roles deployed in a node group. This parameter is a string array. Each string represents a role expression. Role expression definition: • If the role is deployed on all nodes in a node group, set this parameter to <i>{role name}</i>, for example, DataNode. • If the role is deployed on a specified subscript node in the node group: <i>{role name}:{index1},{index2}...,{indexN}</i>, for example, NameNode:1,2. The subscript starts from 1. • Some roles support multi-instance deployment (that is, multiple instances of the same role are deployed on a node): <i>{role name} [{instance count}]</i>, for example, EsNode[9]. For details about the available roles, see Roles and components supported by MRS. Constraints N/A Value range N/A Default value N/A

Table 6-29 Volume

Parameter	Mandatory	Type	Description
type	Yes	String	Explanation Disk type. Constraints N/A Value range • SATA: common I/O disk • SAS: high I/O disk • SSD: ultra-high I/O disk • GPSSD: general-purpose SSD disk Default value N/A
size	Yes	Integer	Explanation Data disk size in GB. Constraints N/A Value range 10-32768 Default value N/A

Table 6-30 ChargeInfo

Parameter	Mandatory	Type	Description
charge_mode	Yes	String	Explanation Billing mode. Constraints N/A Value range • prePaid: the yearly/monthly billing mode. This mode is now supported for the API used to create a cluster, but is not supported for the API used to create a cluster and submit a job. • postPaid: the pay-per-use billing mode. Default value N/A
period_type	No	String	Explanation Period type. Constraints N/A Value range • month: indicates that the service is charged by month. • year: indicates that the fee is charged by year. • day: The cluster is billed on a pay-per-use basis. Default value N/A

Parameter	Mandatory	Type	Description
period_num	No	Integer	Explanation Number of periods. Constraints This parameter is valid and mandatory only when charge_mode is set to prePaid. Value range • If period_type is set to month, the value ranges from 1 to 9. • If period_type is set to year, the value ranges from 1 to 3. Default value N/A
is_auto_pay	No	Boolean	Explanation Whether the order will be automatically paid. This parameter is available for yearly/monthly mode. By default, the automatic payment is disabled. Constraints N/A Value range • true: The system automatically selects available discounts and coupons, and then pays for the order with the account balances. If the automatic payment fails, an order in Pending payment state is generated waiting for manual payment. • false: The user needs to pay for the bill after using available discounts and coupons. Default value false

Table 6-31 AutoScalingPolicy

Parameter	Mandatory	Type	Description
auto_scaling_enable	Yes	Boolean	Whether to enable the auto scaling policy.
min_capacity	Yes	Integer	The minimum number of nodes reserved in the node group. Value range: [0, 500]
max_capacity	Yes	Integer	The maximum number of nodes in the node group. Value range: [0, 500]
resources_plans	No	Array of ResourcesPlan objects	The resource plan list. If this parameter is left blank, the resource plan is disabled. When auto_scaling_enable is set to true , either this parameter or rules must be configured. For details about this parameter, see Table 6-32 .
rules	No	Array of Rule objects	The list of auto scaling rules. When auto_scaling_enable is set to true , either this parameter or resources_plans must be configured. For details about this parameter, see Table 6-33 .
exec_scripts	No	Array of ScaleScript objects	The list of custom scaling automation scripts. If this parameter is left blank, the automation script is disabled. For details about this parameter, see Table 6-35 .

Table 6-32 ResourcesPlan

Parameter	Mandatory	Type	Description
period_type	Yes	String	Explanation Cycle type of a resource plan. This parameter can be set to daily only. Constraints N/A Value range N/A Default value N/A
start_time	Yes	String	Explanation Start time of a resource plan. The value is in the format of hour:minute , indicating that the time ranges from 00:00 to 23:59. Constraints N/A Value range N/A Default value N/A
end_time	Yes	String	Explanation End time of a resource plan. The format is the same as that of start_time . Constraints The value cannot be earlier than the start_time , and the interval between start_time and start_time cannot be less than 30 minutes. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
min_capacity	Yes	Integer	Explanation Minimum number of the preserved nodes in a node group in a resource plan. Constraints N/A Value range 0-500 Default value N/A
max_capacity	Yes	Integer	Explanation Maximum number of the preserved nodes in a node group in a resource plan. Constraints N/A Value range 0-500 Default value N/A
effective_days	No	Array of strings	Explanation The effective date of a resource plan. If this parameter is left blank, it indicates that the resource plan takes effect every day. The options are as follows: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, and SUNDAY Constraints N/A Value range N/A Default value N/A

Table 6-33 Rule

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of an auto scaling rule. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Rule names must be unique in a node group. Default value N/A
description	No	String	Explanation Description about an auto scaling rule. Constraints N/A Value range The value can contain 0 to 1024 characters. Default value N/A
adjustment_type	Yes	String	Explanation Adjustment type of an auto scaling rule. Constraints N/A Value range • scale_out: cluster scale-out • scale_in: cluster scale-in Default value N/A

Parameter	Mandatory	Type	Description
cool_down_minutes	Yes	Integer	Explanation The cluster cooling time after an auto scaling rule is triggered, in minutes, during which period no auto scaling operation is performed. Constraints N/A Value range The value ranges from 0 to 10080. 10080 indicates the number of minutes in a week. Default value N/A
scaling_adjustment	Yes	Integer	Explanation Number of nodes that can be adjusted once. Constraints N/A Value range 1-100 Default value N/A
trigger	Yes	Trigger object	Explanation Condition for triggering a rule. For details about this parameter, see Table 6-34 . Constraints N/A Value range N/A Default value N/A

Table 6-34 Trigger

Parameter	Mandatory	Type	Description
metric_name	Yes	String	Explanation Metric name. This triggering condition makes a judgment according to the value of the metric. Constraints N/A Value range The value can contains 0 to 64 characters. Default value N/A
metric_value	Yes	String	Explanation Metric threshold to trigger a rule. The value must be an integer or a number with two decimal places. Constraints N/A Value range Only integers or numbers with two decimal places are allowed. Default value N/A
comparison_operator	No	String	Explanation Metric judgment logic operator. Constraints N/A Value range • LT: less than • GT: greater than • LTOE: less than or equal to • GTOE: greater than or equal to Default value N/A

Parameter	Mandatory	Type	Description
evaluation_periods	Yes	Integer	Explanation Number of consecutive five-minute periods, during which a metric threshold is reached Constraints N/A Value range 1-288 Default value N/A

Table 6-35 ScaleScript

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Names of custom scaling automation scripts. Constraints N/A Value range The names in the same cluster must be unique. The value can contain only numbers, letters, spaces, hyphens (-), and underscores (_) and cannot start with a space. The value can contain 1 to 64 characters. Default value N/A

Parameter	Mandatory	Type	Description
uri	Yes	String	Explanation Path of a custom automation script. Set this parameter to an OBS bucket path or a local VM path. • OBS bucket path: Enter a script path, for example, obs://XXX/scale.sh. • Local VM path: Enter a script path. The script path must start with a slash (/) and end with .sh. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
parameters	No	String	Explanation Parameters of a custom automation script. Multiple parameters are separated by space. The following predefined system parameters can be transferred: • <i>\${mrs_scale_node_num}</i>: The number of nodes to be added or removed • <i>\${mrs_scale_type}</i>: The scaling type. The value can be scale_out or scale_in. • <i>\$ {mrs_scale_node_hostname s}</i>: Host names of the nodes to be added or removed • <i>\${mrs_scale_node_ips}</i>: IP addresses of the nodes to be added or removed • <i>\${mrs_scale_rule_name}</i>: Name of the rule that triggers auto scaling Other user-defined parameters are used in the same way as those of common shell scripts. Parameters are separated by space. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
nodes	Yes	Array of strings	Explanation Name of the node group where the custom automation script is executed. Constraints N/A Value range N/A Default value N/A
active_master	No	Boolean	Explanation Whether the custom automation script runs only on the active Master node. Constraints N/A Value range • true: The custom automation script runs only on the active Master nodes. • false: The custom automation script can run on all Master nodes. Default value false

Parameter	Mandatory	Type	Description
fail_action	Yes	String	Explanation Whether to continue executing subsequent scripts and creating a cluster after the custom automation script fails to be executed. You are advised to set this parameter to continue in the commissioning phase so the cluster can continue to be installed and started no matter whether the custom automation script is executed successfully. Constraints The scale-in operation cannot be undone. fail_action must be set to continue for the scripts that are executed after scale-in. Value range • continue: Continue to execute subsequent scripts. • errorout: Stop the action. Default value N/A
action_stage	Yes	String	Explanation Time when a script is executed. Constraints N/A Value range • before_scale_out: before scale-out • before_scale_in: before scale-in • after_scale_out: after scale-out • after_scale_in: after scale-in Default value N/A

Table 6-36 BootstrapScript

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of a bootstrap action script. Constraints N/A Value range The names of bootstrap action scripts in the same cluster must be unique. The value can contain only numbers, letters, spaces, hyphens (-), and underscores (_) and cannot start with a space. The value can contain 1 to 64 characters. Default value N/A

Parameter	Mandatory	Type	Description
uri	Yes	String	Explanation Path of a bootstrap action script. Set this parameter to an OBS bucket path or a local VM path. OBS bucket path: Enter a script path, for example, enter the path of the public sample script provided by MRS. Example: obs://bootstrap/presto/presto-install.sh . If dualroles is installed, the parameter of the presto-install.sh script is dualroles . If worker is installed, the parameter of the presto-install.sh script is worker . Based on the Presto usage habit, you are advised to install dualroles on the active master nodes and worker on the core nodes. Local VM path: Enter a script path. The script path must start with a slash (/) and end with .sh . Constraints N/A Value range N/A Default value N/A
parameters	No	String	Explanation Bootstrap action script parameters Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
nodes	Yes	Array of strings	Explanation Name of the node group where the bootstrap action script is executed Constraints N/A Value range N/A Default value N/A
active_master	No	Boolean	Explanation Whether the bootstrap action script runs only on active master nodes. Constraints N/A Value range • true: The bootstrap action script runs only on active Master nodes. • false: The bootstrap action script can run on all Master nodes. Default value N/A

Parameter	Mandatory	Type	Description
fail_action	Yes	String	Explanation Whether to continue executing subsequent scripts and creating a cluster after the bootstrap action script fails to execute. The default value is errorout , indicating that the action is stopped. Note: You are advised to set this parameter to continue in the commissioning phase so that the cluster can continue to be installed and started no matter whether the bootstrap action is successful. Constraints N/A Value range • continue: Continue to execute subsequent scripts. • errorout: Stop the action. Default value errorout
before_component_start	No	Boolean	Explanation Time when the bootstrap action script is executed. Currently, the following two options are available: Before component start and After component start . Constraints N/A Value range • true: The bootstrap action script is executed before the component starts. • false: The bootstrap action script is executed after the component starts. Default value false

Parameter	Mandatory	Type	Description
start_time	No	Long	Explanation Execution time of one boot operation script. Constraints N/A Value range N/A Default value N/A
state	No	String	Explanation Running state of an individual bootstrap action script. Constraints N/A Value range • PENDING: The script is suspended. • IN_PROGRESS: The script is being processed. • SUCCESS • FAILURE: The script fails to be executed. Default value N/A

Parameter	Mandatory	Type	Description
action_stages	No	Array of strings	Explanation Select the time when the bootstrap action script is executed. Constraints N/A Value range • BEFORE_COMPONENT_FIRST_START: before initial component starts • AFTER_COMPONENT_FIRST_START: after initial component starts • BEFORE_SCALE_IN: before scale-in • AFTER_SCALE_IN: after scale-in • BEFORE_SCALE_OUT: before scale-out • AFTER_SCALE_OUT: after scale-out Default value N/A

Table 6-37 ComponentConfig

Parameter	Mandatory	Type	Description
component_name	Yes	String	Explanation Component name Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
configs	No	Array of Config objects	Explanation Component configuration item list. For details about this parameter, see Table 6-38 . Constraints The number of records cannot exceed 100. Value range N/A Default value N/A

Table 6-38 Config

Parameter	Mandatory	Type	Description
key	Yes	String	Explanation Configuration name. Only the configuration names displayed on the MRS component configuration page are supported. Constraints N/A Value range N/A Default value N/A
value	Yes	String	Explanation Configuration value. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
config_file_name	Yes	String	Explanation Configuration file name. Only the file names displayed on the MRS component configuration page are supported. Constraints N/A Value range N/A Default value N/A

Table 6-39 StepConfig

Parameter	Mandatory	Type	Description
job_execution	Yes	JobExecution object	Explanation Job parameter. For details about this parameter, see Table 6-40 . Constraints N/A Value range N/A Default value N/A

Table 6-40 JobExecution

Parameter	Mandatory	Type	Description
job_type	Yes	String	Explanation Job type. Constraints N/A Value range • MapReduce • SparkSubmit • SparkPython: Example request of a SparkPython job (Jobs of this type will be converted to SparkSubmit jobs for submission. The job type is displayed as SparkSubmit on the MRS console. Select SparkSubmit when you call an API to query the job list.) • HiveScript • HiveSql • DistCp: imports and exports data. • SparkScript • SparkSql • Flink Default value N/A
job_name	Yes	String	Explanation Job name. Constraints N/A Value range A cluster name can contain only 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. Identical job names are allowed but not recommended. Default value N/A

Parameter	Mandatory	Type	Description
arguments	No	Array of strings	Explanation Key parameter for program execution. The parameter is specified by the function of the user's program. MRS is only responsible for loading the parameter. Constraints The value can contain a maximum of 150,000 characters. Special characters (; &>'<\$!"\) are not allowed. This parameter can be left blank. Note: • If you enter a parameter with sensitive information (such as the login password), the parameter may be exposed in the job details display and log printing. Exercise caution when performing this operation. • If you need to access files stored in OBS via the path starting with obs:// when submitting a HiveScript or HiveSQL job, search for the core.site.customized.configs parameter on the Hive service configuration page, add the endpoint configuration item (fs.obs.endpoint) of OBS, and set the value to the endpoint corresponding to OBS. For details, see Endpoints. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
properties	No	Map<String,String>	Explanation Program system parameter. Constraints The value can contain a maximum of 2,048 characters. Special characters (; &>'<\$!\) are not allowed. This parameter can be left blank. Value range N/A Default value N/A

Response Parameters

Status code: 200

Table 6-41 Response body parameter

Parameter	Type	Description
cluster_id	String	Explanation Cluster ID, which is returned by the system after the cluster is created. Value range N/A Value range N/A Default value N/A

Example Request

Create an MRS 3.2.0-LTS.1 cluster where the custom management nodes and control nodes are the same nodes and submit a HiveScript job.

```
POST /v2/{project_id}/run-job-flow
```

```
{
  "cluster_version": "MRS 3.2.0-LTS.1",
  "cluster_name": "mrs_heshe_dm",
  "cluster_type": "CUSTOM",
  "charge_info": {
    "charge_mode": "postPaid"
  },
  "region": ""
```

```
"availability_zone" : "",
"vpc_name" : "vpc-37cd",
"subnet_id" : "1f8c5ca6-1f66-4096-bb00-baf175954f6e",
"subnet_name" : "subnet",
"components" : "Hadoop,Spark2x,HBase,Hive,Hue,Loader,Kafka,Storm,Flume,Flink,Oozie,Ranger,Tez",
"safe_mode" : "KERBEROS",
"manager_admin_password" : "your password",
"login_mode" : "PASSWORD",
"node_root_password" : "your password",
"mrs_ecs_default_agency" : "MRS_ECS_DEFAULT_AGENCY",
"template_id" : "mgmt_control_combined_v2",
"log_collection" : 1,
"tags" : [ {
  "key" : "tag1",
  "value" : "111"
}, {
  "key" : "tag2",
  "value" : "222"
} ],
"node_groups" : [ {
  "group_name" : "master_node_default_group",
  "node_num" : 3,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "OMSServer:1,2", "SlapdServer:1,2", "KerberosServer:1,2", "KerberosAdmin:1,2",
"quorumpeer:1,2,3", "NameNode:2,3", "Zkfc:2,3", "JournalNode:1,2,3", "ResourceManager:2,3",
"JobHistoryServer:2,3", "DBServer:1,3", "Hue:1,3", "LoaderServer:1,3", "MetaStore:1,2,3", "WebHCat:1,2,3",
"HiveServer:1,2,3", "HMaster:2,3", "MonitorServer:1,2", "Nimbus:1,2", "UI:1,2", "JDBCServer2x:1,2,3",
"JobHistory2x:2,3", "SparkResource2x:1,2,3", "oozie:2,3", "LoadBalancer:2,3", "TezUI:1,3", "TimelineServer:3",
"RangerAdmin:1,2", "UserSync:2", "TagSync:2", "KerberosClient", "SlapdClient", "meta", "HSConsole:2,3",
"FlinkResource:1,2,3", "DataNode:1,2,3", "NodeManager:1,2,3", "IndexServer2x:1,2", "ThriftServer:1,2,3",
"RegionServer:1,2,3", "ThriftServer1:1,2,3", "RESTServer:1,2,3", "Broker:1,2,3", "Supervisor:1,2,3",
"Logviewer:1,2,3", "Flume:1,2,3", "HSBroker:1,2,3" ]
}, {
  "group_name" : "node_group_1",
  "node_num" : 3,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
  "data_volume_count" : 1,
  "assigned_roles" : [ "DataNode", "NodeManager", "RegionServer", "Flume:1", "Broker", "Supervisor",
"Logviewer", "HBaseIndexer", "KerberosClient", "SlapdClient", "meta", "HSBroker:1,2", "ThriftServer",
"ThriftServer1", "RESTServer", "FlinkResource" ]
}, {
  "group_name" : "node_group_2",
  "node_num" : 1,
  "node_size" : "Sit3.4xlarge.4.linux.bigdata",
  "root_volume" : {
    "type" : "SAS",
    "size" : 480
  },
  "data_volume" : {
    "type" : "SAS",
    "size" : 600
  },
}
```

```
{
  "data_volume_count" : 1,
  "assigned_roles" : [ "NodeManager", "KerberosClient", "SlapdClient", "meta", "FlinkResource" ]
}, {
  "log_uri" : "obs://bucketTest/logs",
  "delete_when_no_steps" : true,
  "steps" : [ {
    "job_execution" : {
      "job_name" : "import_file",
      "job_type" : "DistCp",
      "arguments" : [ "obs://test/test.sql", "/user/hive/input" ]
    }
  }, {
    "job_execution" : {
      "job_name" : "hive_test",
      "job_type" : "HiveScript",
      "arguments" : [ "obs://test/hive/sql/HiveScript.sql" ]
    }
  } ]
}
```

Example Response

Status code: 200

Example successful response

```
{
  "cluster_id" : "da1592c2-bb7e-468d-9ac9-83246e95447a"
}
```

Status Codes

For details, see [Status Codes](#).

Error Codes

See [Error Codes](#).

6.1.4 Scaling Out a Cluster

Function

This API is used to scale out an MRS cluster.

URI

POST /v2/{project_id}/clusters/{cluster_id}/expand

Table 6-42 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A
cluster_id	Yes	String	Explanation Cluster ID. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Request Parameters

Table 6-43 Request body parameters

Parameter	Mandatory	Type	Description
node_group_name	Yes	String	Explanation Node group name. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Parameter	Mandatory	Type	Description
count	Yes	Integer	Explanation Number of nodes to add Constraints N/A Value range N/A Default value N/A
skip_bootstrap_scripts	No	Boolean	Explanation Whether to skip the specified bootstrap action during cluster creation on the new node during scale-out. Constraints N/A Value range • true: The bootstrap action specified during cluster creation is skipped. • false: The bootstrap action specified during cluster creation is not skipped. Default value true
scale_without_start	No	Boolean	Explanation Whether the components remain stopped on the added nodes after cluster scale-out. Constraints N/A Value range • true: Do not start components after scale-out. • false: Start components after scale-out. Default value false

Response Parameters

Status code: 200

Table 6-44 Response body parameter

Parameter	Type	Description
result	String	Explanation Result of the request. Value succeeded indicates that the operation is successful, and value failed indicates that the operation fails. Value success is returned if the request for scaling out a non-yearly/monthly node group is successfully issued. Constraints N/A Value range • succeeded: The operation is successful. • failed: The operation failed. Default value N/A
order_id	String	Explanation Order ID. When you scale out a yearly/monthly node group, the order ID generated during the scale-out is returned. You need to pay for the order to trigger the scale-out. Constraints N/A Value range N/A Default value N/A

Example Request

- Add a node to the node group **node_group_1**. Skip the bootstrap action and start the components by default.
`/v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/expand`

```
{
  "node_group_name": "node_group_1",
  "count": "1"
}
```

- Add a node to the node group **node_group_1**. Do not skip the bootstrap action or start the components.

/v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/expand

```
{
  "node_group_name" : "node_group_1",
  "count" : "1",
  "skip_bootstrap_scripts" : false,
  "scale_without_start" : true
}
```

Example Response

Status code: 200

The response body varies depending on the billing mode of node groups. The order ID is returned for you to settle payment for scaling out a yearly/monthly node group.

- A pay-per-use node group is scaled out successfully.

```
{
  "result" : "succeeded"
}
```

- A yearly/monthly node group is scaled out successfully. The ID of the order you need to pay is CS231XXXXXXXXXXXX.

```
{
  "order_id" : "CS231XXXXXXXXXXXX"
}
```

Status Codes

For details, see [Status Codes](#).

Error Codes

For details, see [Error Codes](#).

6.1.5 Scaling In a Cluster

Function

This API is used to scale in an MRS cluster.

URI

POST /v2/{project_id}/clusters/{cluster_id}/shrink

Table 6-45 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A
cluster_id	Yes	String	Explanation Cluster ID. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Request Parameters

Table 6-46 Request body parameters

Parameter	Mandatory	Type	Description
node_group_name	Yes	String	Explanation Node group name. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Parameter	Mandatory	Type	Description
count	No	Integer	Explanation Number of nodes to be removed. If a specified node is to be removed, this parameter can be left blank. Constraints N/A Value range N/A Default value N/A
resource_ids	No	Array of strings	Explanation Resource IDs of nodes to be removed during node scale-in. If this parameter is left blank, nodes are automatically removed based on system rules. Only abnormal ECS nodes can be removed. The specified nodes are forcibly removed. You can obtain the value of resource_id by calling the host API. Constraints N/A Value range N/A Default value N/A

Response Parameters

Status code: 200

Table 6-47 Response body parameter

Parameter	Type	Description
result	String	Explanation Result of the request for updating a mapping. Constraints N/A Value range • succeeded: The operation is successful. • failed: The operation failed. Default value N/A

Example Request

- Remove a node from node group **node_group_1**.
`/v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/shrink`

```
{
  "node_group_name": "node_group_1",
  "count": 1
}
```
- Forcibly remove a node whose resource ID is **678050cd-ba1d-4550-942d-f2e396b1c6fb** from node group **node_group_1**.
`/v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/shrink`

```
{
  "node_group_name": "node_group_1",
  "resource_ids": [ "678050cd-ba1d-4550-942d-f2e396b1c6fb" ]
}
```

Example Response

Status code: 200

The scale-in is successful.

```
{
  "result": "succeeded"
}
```

Status Codes

For details, see [Status Codes](#).

Error Codes

For details, see [Error Codes](#).

6.1.6 Adding Components to a Cluster

Function

You can add components to custom clusters of MRS 3.1.2 or later (normal version) and MRS 3.1.2-LTS.2 or later (LTS version) only.

URI

POST /v2/{project_id}/clusters/{cluster_id}/components

Table 6-48 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. For details about how to obtain the project ID, see Obtaining a Project ID . Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A
cluster_id	Yes	String	Explanation Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID . Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Request Parameters

Table 6-49 Request body parameters

Parameter	Mandatory	Type	Description
components_install_mode	Yes	Array of ComponentInstallMode objects	Explanation Component installation details. For details about the parameters, see Table 6-50 . Constraints N/A Value range N/A Default value N/A

Table 6-50 ComponentInstallMode

Parameter	Mandatory	Type	Description
component	Yes	String	Explanation Component name Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A
node_groups	Yes	Array of AssignedNodeGroup objects	Explanation Role deployment information of the component. For details, see Table 6-51 . Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
component_user_password	No	String	Explanation User password of the component. The password is used for machine-machine account to connect to the ClickHouse component. The password: Constraints N/A Value range • Must contain 8 to 26 characters. • Cannot be the username or the username spelled backwards. • Must contain every type of the following: • Lowercase letters • Uppercase letters • Numbers • Special characters (!@\$%^_+=+[{ }]:.//?) Default value N/A

Parameter	Mandatory	Type	Description
component_default_password	No	String	Explanation Default user password of the component. The password is used for human-machine account to connect to the ClickHouse component. The password: Constraints N/A Value range • Must contain 8 to 26 characters. • Cannot be the username or the username spelled backwards. • Must contain every type of the following: • Lowercase letters • Uppercase letters • Numbers • Special characters (!@\$%^_+=+[]{};./?) Default value N/A

Table 6-51 AssignedNodeGroup

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Node group name. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Parameter	Mandatory	Type	Description
assigned_roles	Yes	Array of strings	Explanation Role deployment information. You can specify the roles deployed in a node group. This parameter is a string array. Each string represents a role expression. Role expression definition: • If the role is deployed on all nodes in a node group, set this parameter to <i>{role name}</i>, for example, DataNode. • If the role is deployed on a specified subscript node in the node group: <i>{role name}:{index1},{index2}..., {indexN}</i>, for example, NameNode:1,2. The subscript starts from 1. • For details about the available roles, see Roles and Components Supported by MRS. Constraints The number of records cannot exceed 1,000. Value range N/A Default value N/A

Response Parameters

Status code: 200

Table 6-52 Response body parameter

Parameter	Type	Description
result	String	Explanation Result of the request for updating a mapping. Constraints N/A Value range • succeeded: The operation is successful. • failed: The operation failed. Default value N/A

Example Request

- Add the ClickHouse component to a cluster in normal mode.
v2/f77c10d14a544393a24e5f0bf53202b6/clusters/ff879d3a-e5d5-4485-a9b6-c673b52673fa/components

```
{
  "components_install_mode" : [ {
    "component" : "ClickHouse",
    "node_groups" : [ {
      "name" : "master_node_default_group",
      "assigned_roles" : [ "ClickHouseServer:1,2" ]
    }, {
      "name" : "node_group_1",
      "assigned_roles" : [ "ClickHouseServer", "ClickHouseBalancer" ]
    } ],
    "component_user_password" : "*****",
    "component_default_password" : "*****"
  } ]
}
```

- Add the HBase component.
v2/f77c10d14a544393a24e5f0bf53202b6/clusters/ff879d3a-e5d5-4485-a9b6-c673b52673fa/components

```
{
  "components_install_mode" : [ {
    "component" : "HBase",
    "node_groups" : [ {
      "name" : "master_node_default_group",
      "assigned_roles" : [ "RegionServer", "HMaster" ]
    } ]
  } ]
}
```

Example Response

Status code: 200

Processing result of a request:

```
{
  "result" : "succeeded"
}
```

Status Codes

For details, see [Status Codes](#).

Error Codes

For details, see [Error Codes](#).

6.1.7 Querying the Cluster Node List

Function

This API is used to query the cluster node list.

URI

GET /v2/{project_id}/clusters/{cluster_id}/nodes

Table 6-53 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A
cluster_id	Yes	String	Explanation Cluster ID Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Table 6-54 Query parameters

Parameter	Mandatory	Type	Description
node_group	No	String	Explanation Name of the node groups to be queried. Constraints N/A Value range The value can contain 3 to 14 characters. Default value N/A
limit	No	Integer	Explanation Number of records displayed on each page in the returned result. Constraints N/A Value range ≥1 Default value 10
offset	No	Integer	Explanation Offset from which the job list starts to be queried. Constraints N/A Value range ≥1 Default value 1
node_name	No	String	Explanation Node name. Fuzzy search is supported. Constraints N/A Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
sort_key	No	String	Explanation Sorting key. You can set node names as the key. Constraints N/A Value range node_name : node name Default value N/A
sort_dir	No	String	Explanation Sorting order. desc indicates descending order, and asc indicates ascending order. Constraints N/A Value range desc : descending order asc : ascending order Default value N/A
query_node_detail	No	Boolean	Explanation Whether to query node details. If this parameter is set to true , the interface performance may be affected. Constraints N/A Value range true : Query node details. false : Do not query node details. Default value false

Parameter	Mandatory	Type	Description
query_ecs_detail	No	Boolean	Explanation Whether to query ECS details. ECS APIs may be called. Constraints N/A Value range true : Query ECS details. false : Do not query ECS details. Default value false
internal_ip	No	String	Explanation Internal IP address. Constraints N/A Value range The value can contain 7 to 15 characters. Default value N/A

Request Parameters

None

Response Parameters

Status code: 200

Table 6-55 Response body parameters

Parameter	Type	Description
nodes	Array of ClusterNode objects	Explanation Node list. For details, see Table 6-56 . Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
node_total	Integer	Explanation Number of nodes. Constraints N/A Value range N/A Default value N/A

Table 6-56 ClusterNode

Parameter	Type	Description
node_name	String	Explanation Node name, which is the same as that on Manager. Constraints N/A Value range N/A Default value N/A
resource_id	String	Explanation Resource ID. Unique identity of a node. For yearly/monthly nodes, the ID can be used to query bills. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
node_group_name	String	Explanation Node group name. Constraints N/A Value range N/A Default value N/A
node_type	String	Explanation Node type. Available values include Task , Core , and Master . Constraints N/A Value range N/A Default value N/A
billing_type	String	Explanation on-period : yearly/monthly; on-quantity : pay-per-use. Constraints N/A Value range N/A Default value N/A
deployment_type	String	Explanation Deployment type. The Server hosts are supported. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
server_info	ServerInfo object	Explanation If the deployment type is Server, this parameter cannot be empty. For details, see Table 6-57 . Constraints N/A Value range N/A Default value N/A
tags	Array of Tag objects	Explanation Node tag. For details, see Table 6-59 . Constraints N/A Value range N/A Default value N/A
node_detail	NodeDetail object	Explanation Node monitoring information. This parameter is returned only after IAM synchronization. For details, see Table 6-60 . Constraints N/A Value range N/A Default value N/A
node_status	String	Explanation Node status. Status of operations on the corresponding page. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
component_infos	Array of ComponentInfo objects	Explanation Component instance information array. For details, see Table 6-61 . Constraints N/A Value range N/A Default value N/A

Table 6-57 ServerInfo

Parameter	Type	Description
server_id	String	Explanation Server ID. Constraints N/A Value range N/A Default value N/A
server_name	String	Explanation Server name. Constraints N/A Value range N/A Default value N/A
server_type	String	Explanation Server type. Available options are ECS and BMS . Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
data_volumes	Array of VolumeInfo objects	Explanation Data disk. For details, see Table 6-58 . Constraints N/A Value range N/A Default value N/A
root_volume	VolumeInfo object	Explanation System disk. For details, see Table 6-58 . Constraints N/A Value range N/A Default value N/A
cpu_type	String	Explanation CPU type. Available options are x86 and Arm. Constraints N/A Value range N/A Default value N/A
cpu	String	Explanation Number of vCPUs. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
mem	String	Explanation Memory size. Constraints N/A Value range N/A Default value N/A
internal_ip	String	Explanation Internal IP address. Constraints N/A Value range N/A Default value N/A

Table 6-58 VolumeInfo

Parameter	Type	Description
type	String	Explanation Disk type. Constraints N/A Value range • SATA: common I/O disk • SAS: high I/O disk • SSD: ultra-high I/O disk • GPSSD: general-purpose SSD disk Default value N/A

Parameter	Type	Description
size	Integer	Explanation Disk size. Unit: GB. Constraints N/A Value range N/A Default value N/A
count	Integer	Explanation Disk quantity. Constraints N/A Value range N/A Default value N/A

Table 6-59 Tag

Parameter	Type	Description
key	String	Explanation Tag key Constraints N/A Value range N/A Default value N/A
value	String	Explanation Tag value. Constraints N/A Value range N/A Default value N/A

Table 6-60 NodeDetail

Parameter	Type	Description
running_status	String	Explanation Running status. Constraints N/A Value range N/A Default value N/A
cpu_usage	String	Explanation CPU utilization rate. Constraints N/A Value range N/A Default value N/A
memory_usage	String	Explanation Memory utilization rate. Constraints N/A Value range N/A Default value N/A
disk_usage	String	Explanation Disk usage. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
total_memory	String	Explanation Total memory. Unit: MB. Constraints N/A Value range N/A Default value N/A
available_memory	String	Explanation Available memory. Unit: MB. Constraints N/A Value range N/A Default value N/A
total_hard_disk_space	String	Explanation Total hard disk space. Unit: GB Constraints N/A Value range N/A Default value N/A
available_hard_disk_space	String	Explanation Available hard disk space. Unit: GB Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
network_read	String	Explanation Network read speed. Unit: Byte/s Constraints N/A Value range N/A Default value N/A
network_write	String	Explanation Network write speed. Unit: Byte/s Constraints N/A Value range N/A Default value N/A

Table 6-61 ComponentInfo

Parameter	Type	Description
id	String	Explanation Component ID Constraints N/A Value range N/A Default value N/A
name	String	Explanation Component name Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
instance_group_name	String	Explanation Name of the group to which the component belongs. Constraints N/A Value range N/A Default value N/A
running_statuses	String	Explanation Running status. Constraints N/A Value range N/A Default value N/A
ha_status	String	Explanation HA status. Constraints N/A Value range N/A Default value N/A
config_status	String	Explanation Configuration status. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
role_name	String	Explanation Role name. Constraints N/A Value range N/A Default value N/A
role_short_name	String	Explanation Abbreviation of a role name. Constraints N/A Value range N/A Default value N/A
role_type	String	Explanation Role type. Constraints N/A Value range N/A Default value N/A
service_name	String	Explanation Service name. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
pair_name	String	Explanation Pair name. Constraints N/A Value range N/A Default value N/A
relation_pairs	String	Explanation Associated pair Constraints N/A Value range N/A Default value N/A
support_decom	String	Explanation Whether Decom is supported. Constraints N/A Value range N/A Default value N/A
support_reinstall	String	Explanation Whether reinstallation is supported. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
support_collect_stack_info	String	Explanation Whether stack information can be collected. Constraints N/A Value range N/A Default value N/A

Example Request

Query all nodes in a specified node group of a cluster.

```
/v2/174ee662a7e24cc99bfc858c4558dbf6/clusters/f0a91b14-8884-4ba1-9e8d-0a21086c0ab4/nodes?node_group=master_node_default_group
```

Example Response

Status code: 200

List node information.

```
{
  "nodes": [ {
    "node_name": "node-master1QxCW",
    "resource_id": "fc1ed6bb-e3d8-4dc8-8162-ef673bff6b7b",
    "node_group_name": "master_node_default_group",
    "node_type": "Master",
    "billing_type": "on-quantity",
    "deployment_type": "SERVER",
    "server_info": {
      "server_id": "3687f50a-cd4e-4c67-8858-5d6555c8834c",
      "server_name": "f28fb043-ecbc-401e-936e-fb321ca8d40a_node-master1QxCW",
      "server_type": "ECS",
      "data_volumes": [ {
        "type": "SATA",
        "size": 200,
        "count": 1
      } ],
      "root_volume": {
        "type": "SATA",
        "size": 100,
        "count": 1
      },
      "cpu_type": "X86",
      "internal_ip": "192.168.10.142"
    },
    "tags": [ {
      "key": "1",
      "value": "2"
    } ],
    "node_status": "started"
  } ],
  "node_total": 1
}
```

Status Codes

Status Codes	Description
200	List of queried nodes.

Error Codes

For details, see [Error Codes](#).

6.2 Job Management APIs

6.2.1 Adding and Executing a Job

Function

This API is used to add and submit a job in an MRS cluster.

NOTE

- If you want to use the OBS encryption function, follow instructions in [Using OBS to Encrypt Data for Running Jobs](#) to configure related information and call an API to run a job.
- On the **Dashboard** tab page of the cluster details page, click **Click to synchronize** on the right side of **IAM User Sync** to synchronize IAM users. Then submit a job through this API.

Constraints

None

Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

POST /v2/{project_id}/clusters/{cluster_id}/job-executions

Table 6-62 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Explanation Project ID. For details about how to obtain the project ID, see Obtaining a Project ID . Constraints N/A Value range The value must consist of 1 to 64 characters. Only letters and digits are allowed. Default value N/A
cluster_id	Yes	String	Explanation Cluster ID. For details on how to obtain the cluster ID, see Obtaining a Cluster ID . Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Default value N/A

Request Parameters

Table 6-63 Request parameters

Parameter	Mandatory	Type	Description
job_type	Yes	String	Explanation The job type. Constraints N/A Value range • MapReduce • SparkSubmit • SparkPython: Example request of a SparkPython job (Jobs of this type will be converted to SparkSubmit jobs for submission. The job type is displayed as SparkSubmit on the MRS console. Select SparkSubmit when you call an API to query the job list.) • HiveScript • HiveSql • DistCp, importing and exporting data • SparkScript • SparkSql • Flink Default value N/A NOTE Spark, Hive, and Flink jobs can be added to only clusters that include Spark, Hive, and Flink components.

Parameter	Mandato ry	Type	Description
job_name	Yes	String	Explanation Job name. Constraints N/A Value range The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-). Identical job names are allowed but not recommended. Default value N/A

Parameter	Mandatory	Type	Description
arguments	No	Array of strings	Explanation Key parameter for program execution. The parameter is specified by the function of the user's program. MRS is only responsible for loading the parameter. Constraints The value can contain a maximum of 150,000 characters. Special characters (; &>'<\$!\\) are not allowed. This parameter can be left blank. NOTE • If you enter a parameter with sensitive information (such as the login password), the parameter may be exposed in the job details display and log printing. Exercise caution when performing this operation. • For MRS 3.x or later, a file path on OBS can start with obs://. To use this format to submit HiveScript or HiveSQL jobs, choose Components > Hive > Service Configuration on the cluster details page. Set Basic to All, and search for core.site.customized.configs. Add the endpoint configuration item fs.obs.endpoint of OBS and enter the endpoint corresponding to OBS in Value. For details, see Endpoints. Value range N/A Default value N/A

Parameter	Mandatory	Type	Description
properties	No	Map<String,String>	Explanation Program system parameter. Constraints The parameter contains a maximum of 2,048 characters, excluding special characters such as >< '&!\\, and can be left blank. Value range N/A Default value N/A

Response Parameters

Status code: 200

Table 6-64 Response body parameter

Parameter	Type	Description
job_submit_result	JobSubmitResult object	Explanation The job execution result. For details about the parameters, see Table 6-65 . Constraints N/A Value range N/A Default value N/A

Table 6-65 JobSubitResult parameters

Parameter	Type	Description
job_id	String	Explanation Job ID Constraints N/A Value range N/A Default value N/A
state	String	Explanation Job submission status. Constraints N/A Value range • COMPLETE: The job is submitted. • FAILED: Failed to submit the job. Default value N/A

Status code: 400

Table 6-66 Response body parameters

Parameter	Type	Description
error_code	String	Explanation Error code. Constraints N/A Value range N/A Default value N/A

Parameter	Type	Description
error_msg	String	Explanation Error message. Constraints N/A Value range N/A Default value N/A

Example Request

You must have prepared the OBS paths, sample files, endpoints, and AKs/SKs when submitting a request.

- Create a MapReduce job.

POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions

```
{
  "job_name": "MapReduceTest",
  "job_type": "MapReduce",
  "arguments": [
    "obs://obs-test/program/hadoop-mapreduce-examples-x.x.x.jar",
    "wordcount",
    "obs://obs-test/input/",
    "obs://obs-test/job/mapreduce/output"
  ],
  "properties": {
    "fs.obs.endpoint": "obs endpoint",
    "fs.obs.access.key": "xxx",
    "fs.obs.secret.key": "yyy"
  }
}
```

- Create a SparkSubmit job.

POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions

```
{
  "job_name": "SparkSubmitTest",
  "job_type": "SparkSubmit",
  "arguments": [
    "--master",
    "yarn",
    "--deploy-mode",
    "cluster",
    "--py-files",
    "obs://obs-test/a.py",
    "--conf",
    "spark.yarn.appMasterEnv.PYTHONPATH=/tmp:$PYTHONPATH",
    "--conf",
    "spark.yarn.appMasterEnv.aaa=aaaa",
    "--conf",
    "spark.executorEnv.aaa=executaaaa",
    "--properties-file",
    "obs://obs-test/test-spark.conf",
    "obs://obs-test/pi.py",
    "100000"
  ],
  "properties": {

```

```
    "fs.obs.access.key": "xxx",  
    "fs.obs.secret.key": "yyy"  
  }  
}
```

- **Create a HiveScript job.**

POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions

```
{  
  "job_name": "HiveScriptTest",  
  "job_type": "HiveScript",  
  "arguments": [  
    "obs://obs-test/sql/test_script.sql"  
  ],  
  "properties": {  
    "fs.obs.endpoint": "obs endpoint",  
    "fs.obs.access.key": "xxx",  
    "fs.obs.secret.key": "yyy"  
  }  
}
```

- **Create a HiveSql job.**

POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions

```
{  
  "job_name": "HiveSqlTest",  
  "job_type": "HiveSql",  
  "arguments": [ "DROP TABLE IF EXISTS src_wordcount;\ncreate external table src_wordcount(line  
string) row format delimited fields terminated by '\\n\\n' stored as textfile location '\nobs://donotdel-  
gxc/input/';\ninsert into src_wordcount values('v1\\n')" ],  
  "properties": {  
    "fs.obs.endpoint": "obs endpoint",  
    "fs.obs.access.key": "xxx",  
    "fs.obs.secret.key": "yyy"  
  }  
}
```

- **Create a DistCp job.**

POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions

```
{  
  "job_name": "DistCpTest",  
  "job_type": "DistCp",  
  "arguments": [  
    "obs://obs-test/DistcpJob/",  
    "/user/test/sparksql/"  
  ],  
  "properties": {  
    "fs.obs.endpoint": "obs endpoint",  
    "fs.obs.access.key": "xxx",  
    "fs.obs.secret.key": "yyy"  
  }  
}
```

- **Create a SparkScript job.**

POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions

```
{  
  "job_name": "SparkScriptTest",  
  "job_type": "SparkScript",  
  "arguments": [  
    "op-key1",  
    "op-value1",  
    "op-key2",  
    "op-value2",  
    "obs://obs-test/sql/test_script.sql"  
  ],  
  "properties": {  
    "fs.obs.access.key": "xxx",  
    "fs.obs.secret.key": "yyy"  
  }  
}
```

- ```
}
}
```
- **Create a SparkSql job.**  
POST https://{endpoint}/v2/{project\_id}/clusters/{cluster\_id}/job-executions  

```
{
 "job_name": "SparkSqlTest",
 "job_type": "SparkSql",
 "arguments": [
 "op-key1",
 "op-value1",
 "op-key2",
 "op-value2",
 "create table student_info3 (id string,name string,gender string,age int,addr string);"
],
 "properties": {
 "fs.obs.access.key": "xxx",
 "fs.obs.secret.key": "yyy"
 }
}
```
  - **Create a Flink job.**  
POST https://{endpoint}/v2/{project\_id}/clusters/{cluster\_id}/job-executions  

```
{
 "job_name": "FlinkTest",
 "job_type": "Flink",
 "arguments": [
 "run",
 "-d",
 "-ynm",
 "testExcutorejobhdfsbatch",
 "-m",
 "yarn-cluster",
 "hdfs://test/examples/batch/WordCount.jar"
],
 "properties": {
 "fs.obs.endpoint": "obs endpoint",
 "fs.obs.access.key": "xxx",
 "fs.obs.secret.key": "yyy"
 }
}
```
  - **Cerate a SparkPython job (Jobs of this type will be converted to SparkSubmit jobs for submission. The job type is displayed as SparkSubmit on the MRS console. Select SparkSubmit when you call an API to query the job list.)**  
POST https://{endpoint}/v2/{project\_id}/clusters/{cluster\_id}/job-executions  

```
{
 "job_name" : "SparkPythonTest",
 "job_type" : "SparkPython",
 "arguments" : ["--master", "yarn", "--deploy-mode", "cluster", "--py-files", "obs://obs-test/a.py", "--conf", "spark.yarn.appMasterEnv.PYTHONPATH=/tmp:$PYTHONPATH", "--conf", "spark.yarn.appMasterEnv.aaa=aaaa", "--conf", "spark.executorEnv.aaa=executora", "--properties-file", "obs://obs-test/test-spark.conf", "obs://obs-test/pi.py", "100000"],
 "properties" : {
 "fs.obs.access.key" : "xxx",
 "fs.obs.secret.key" : "yyy"
 }
}
```

## Example Response

**Status code: 200**

- Example of a successful response

```
{
 "job_submit_result": {
```

```
"job_id":"44b37a20-ffe8-42b1-b42b-78a5978d7e40",
"state":"COMPLETE"
}
```

**Status code: 400**

- Example of a failed response

```
{
 "error_msg": "Hive jobs cannot be submitted."
 "error_code": "0168"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.2.2 Querying Information About a Job

### Function

This API is used to query information about a specified job in an MRS cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
GET /v2/{project\_id}/clusters/{cluster\_id}/job-executions/{job\_execution\_id}
- Parameter description

**Table 6-67** URI parameters

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id       | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id       | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |
| job_execution_id | Yes       | String | <b>Explanation</b><br>The job ID. For details about how to obtain the job ID, see <a href="#">Obtaining a Job ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                            |

## Request Parameters

None

## Response Parameters

Status code: 202

**Table 6-68** Response parameter

| Parameter  | Type                | Description                                                                                                                                                                                   |
|------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_detail | JobQueryBean object | <b>Explanation</b><br>Job details. For details about the parameter, see <a href="#">Table 6-69</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-69** Job parameters

| Parameter | Type   | Description                                                                                                                                        |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| job_id    | String | <b>Explanation</b><br>The job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| user      | String | <b>Explanation</b><br>Name of the user who submits a job.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter  | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_name   | String | <p><b>Explanation</b><br/>Job name.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                           |
| job_result | String | <p><b>Explanation</b><br/>Final result of a job.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>FAILED</b>: indicates that the job fails to be executed.</li> <li>• <b>KILLED</b>: indicates that the job is manually terminated during execution.</li> <li>• <b>UNDEFINED</b>: indicates that the job is being executed.</li> <li>• <b>SUCCEEDED</b>: indicates that the job has been successfully executed.</li> </ul> <p><b>Default value</b><br/>N/A</p> |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_state    | String | <b>Explanation</b><br>Job execution status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>FAILED</b>: indicates that the job failed.</li><li>• <b>KILLED</b>: indicates that the job is terminated.</li><li>• <b>New</b>: indicates that the job is created.</li><li>• <b>NEW_SAVING</b>: indicates that the job has been created and is being saved.</li><li>• <b>SUBMITTED</b>: indicates that the job is submitted.</li><li>• <b>ACCEPTED</b>: indicates that the job is accepted.</li><li>• <b>RUNNING</b>: indicates that the job is running.</li><li>• <b>FINISHED</b>: indicates that the job is completed.</li></ul> <b>Default value</b><br>N/A |
| job_progress | Float  | <b>Explanation</b><br>Job execution progress.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type       | String | <b>Explanation</b><br>Job type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>MapReduce</b></li><li>• <b>SparkSubmit</b>: Select this value when you call an API to query SparkPython jobs.</li><li>• <b>HiveScript</b></li><li>• <b>HiveSql</b></li><li>• <b>DistCp</b>: imports and exports data.</li><li>• <b>SparkScript</b></li><li>• <b>SparkSql</b></li><li>• <b>Flink</b></li></ul> <b>Default value</b><br>N/A |
| started_time   | Long   | <b>Explanation</b><br>Time when a job starts to execute. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                    |
| submitted_time | Long   | <b>Explanation</b><br>Time when a job is submitted. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                         |

| Parameter     | Type   | Description                                                                                                                                                                              |
|---------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| finished_time | Long   | <b>Explanation</b><br>Time when a job was completed. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| elapsed_time  | Long   | <b>Explanation</b><br>Running duration of a job. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                             |
| arguments     | String | <b>Explanation</b><br>Running parameter.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                        |
| properties    | String | <b>Explanation</b><br>Configuration parameter, which is used to configure <b>-d</b> parameters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| launcher_id  | String | <b>Explanation</b><br>Real-life job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                    |
| app_id       | String | <b>Explanation</b><br>Actual job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                       |
| tracking_url | String | <b>Explanation</b><br>The URL for accessing logs. Currently, only SparkSubmit jobs support this parameter. This parameter accesses the Yarn Web UI via the EIP bound to the cluster. If the EIP is unbound from the cluster on the VPC console, the MRS service data is not updated in a timely manner and the access fails. In this case, you can bind the EIP to the cluster again to rectify the fault.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                  |
|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| queue     | String | <b>Explanation</b><br>The type of the resource queue used by a job.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Status code: 500

Table 6-70 Response body parameters

| Parameter  | Type   | Description                                                                                                                   |
|------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| error_msg  | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Query information about a job.

```
GET https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}
```

## Example Response

### Status code: 202

Job information successful queried.

```
{
 "job_detail" : {
 "job_id" : "431b135e-c090-489f-b1db-0abe3822b855",
 "user" : "xxxx",
 "job_name" : "pyspark1",
 "job_result" : "SUCCEEDED",
 "job_state" : "FINISHED",
 "job_progress" : 100,
 "job_type" : "SparkSubmit",
 "started_time" : 1564626578817,
 "submitted_time" : 1564626561541,
 "finished_time" : 1564626664930,
 "elapsed_time" : 86113,
 "queue" : "default",
 "arguments" : "[--class, org.apache.spark.examples.SparkPi, --driver-memory, 512MB, --num-executors, 1, --executor-cores, 1, --master, yarn-cluster, s3a://obs-test/jobs/spark/spark-examples_2.11-2.1.0.jar, 10000]",
 "launcher_id" : "application_1564622673393_0006",
 "app_id" : "application_1564622673393_0007",
 "properties" : "{}"
 }
}
```

### Status code: 400

Failed to query information about a job.

```
{
 "error_msg" : "Failed to query the job."
 "error_code" : "0162"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.2.3 Querying a List of Jobs

### Function

This API is used to query jobs submitted on the job management page in a specified MRS cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

- Format  
GET /v2/{project\_id}/clusters/{cluster\_id}/job-executions
- Parameter description

**Table 6-71** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

**Table 6-72** Query parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_name  | No        | String | <b>Explanation</b><br>Job name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 128 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A                                            |
| job_id    | No        | String | <b>Explanation</b><br>Job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, and hyphens (-).<br><b>Default value</b><br>N/A                                                                |
| user      | No        | String | <b>Explanation</b><br>Username.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 32 characters, including only letters, digits, hyphens (-), underscores (_), and periods (.), and cannot start with a digit.<br><b>Default value</b><br>N/A |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type  | No        | String | <b>Explanation</b><br>Job type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>MapReduce</b></li><li>• <b>SparkSubmit</b></li><li>• <b>SparkSubmit</b>: Select this value when you call an API to query SparkPython jobs.</li><li>• <b>HiveScript</b></li><li>• <b>HiveSql</b></li><li>• <b>DistCp</b>: imports and exports data.</li><li>• <b>SparkScript</b></li><li>• <b>SparkSql</b></li><li>• <b>Flink</b></li></ul> <b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_state  | No        | String | <b>Explanation</b><br>The job execution status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>FAILED</b>: indicates that the job fails to be executed.</li><li>• <b>KILLED</b>: indicates that the job is terminated.</li><li>• <b>New</b>: indicates that the job is created.</li><li>• <b>NEW_SAVING</b>: indicates that the job has been created and is being saved.</li><li>• <b>SUBMITTED</b>: indicates that the job is submitted.</li><li>• <b>ACCEPTED</b>: indicates that the job is accepted.</li><li>• <b>RUNNING</b>: indicates that the job is running.</li><li>• <b>FINISHED</b>: indicates that the job is completed.</li></ul> <b>Default value</b><br>N/A |
| job_result | No        | String | <b>Explanation</b><br>Job execution result.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>FAILED</b>: indicates that the job fails to be executed.</li><li>• <b>KILLED</b>: indicates that the job is manually terminated during execution.</li><li>• <b>UNDEFINED</b>: indicates that the job is being executed.</li><li>• <b>SUCCEEDED</b>: indicates that the job has been successfully executed.</li></ul> <b>Default value</b><br>N/A                                                                                                                                                                                                                                 |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| queue     | No        | String | <b>Explanation</b><br>Resource queue type of a job.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |
| limit     | No        | String | <b>Explanation</b><br>Number of records displayed on each page in the returned result.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>10                                                                       |
| offset    | No        | String | <b>Explanation</b><br>Offset from which the job list starts to be queried.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>1                                                                                    |

| Parameter            | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sort_by              | No        | String | <b>Explanation</b><br>Sorting method of the returned result.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>asc</b>: indicates that the returned results are sorted in ascending order.</li><li>• <b>desc</b>: indicates that the returned results are sorted in descending order.</li></ul> <b>Default value</b><br>desc |
| submitted_time_begin | No        | Long   | <b>Explanation</b><br>UTC timestamp after which a job is submitted, in milliseconds, for example, <b>1562032041362</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                        |
| submitted_time_end   | No        | Long   | <b>Explanation</b><br>UTC timestamp before which a job is submitted, in milliseconds, for example, <b>1562032041362</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                       |

## Request Parameters

None

Response Parameters

Status code: 202

Table 6-73 Response body parameters

| Parameter    | Type                          | Description                                                                                                                                                                                     |
|--------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| total_record | Integer                       | <b>Explanation</b><br>Total number of records.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                         |
| job_list     | Array of JobQueryBean objects | <b>Explanation</b><br>The job list. For details about the parameters, see <a href="#">Table 6-74</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 6-74 JobQueryBean

| Parameter | Type   | Description                                                                                                            |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------|
| job_id    | String | <b>Explanation</b><br>Job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter  | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| user       | String | <b>Explanation</b><br>Name of the user who submits the job.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                        |
| job_name   | String | <b>Explanation</b><br>Job name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                    |
| job_result | String | <b>Explanation</b><br>Final result of a job.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>● <b>FAILED</b>: indicates that the job fails to be executed.</li><li>● <b>KILLED</b>: indicates that the job is manually terminated during execution.</li><li>● <b>UNDEFINED</b>: indicates that the job is being executed.</li><li>● <b>SUCCEEDED</b>: indicates that the job has been successfully executed.</li></ul> <b>Default value</b><br>N/A |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_state    | String | <b>Explanation</b><br>Job execution status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>FAILED</b>: indicates that the job fails to be executed.</li><li>• <b>KILLED</b>: indicates that the job is terminated.</li><li>• <b>New</b>: indicates that the job is created.</li><li>• <b>NEW_SAVING</b>: indicates that the job has been created and is being saved.</li><li>• <b>SUBMITTED</b>: indicates that the job is submitted.</li><li>• <b>ACCEPTED</b>: indicates that the job is accepted.</li><li>• <b>RUNNING</b>: indicates that the job is running.</li><li>• <b>FINISHED</b>: indicates that the job is completed.</li></ul> <b>Default value</b><br>N/A |
| job_progress | Float  | <b>Explanation</b><br>Job execution progress.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type       | String | <b>Explanation</b><br>Job type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>MapReduce</b></li><li>• <b>SparkSubmit</b>: Select this value when you call an API to query SparkPython jobs.</li><li>• <b>HiveScript</b></li><li>• <b>HiveSql</b></li><li>• <b>DistCp</b>: imports and exports data.</li><li>• <b>SparkScript</b></li><li>• <b>SparkSql</b></li><li>• <b>Flink</b></li></ul> <b>Default value</b><br>N/A |
| started_time   | Long   | <b>Explanation</b><br>Time when a job starts to execute. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                    |
| submitted_time | Long   | <b>Explanation</b><br>Time when a job is submitted. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                         |

| Parameter     | Type   | Description                                                                                                                                                                              |
|---------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| finished_time | Long   | <b>Explanation</b><br>Time when a job was completed. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| elapsed_time  | Long   | <b>Explanation</b><br>Running duration of a job. Unit: milliseconds<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                             |
| arguments     | String | <b>Explanation</b><br>Running parameter.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                        |
| properties    | String | <b>Explanation</b><br>Configuration parameter, which is used to configure <b>-d</b> parameters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| launcher_id  | String | <b>Explanation</b><br>Actual job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                       |
| app_id       | String | <b>Explanation</b><br>Actual job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                       |
| tracking_url | String | <b>Explanation</b><br>The URL for accessing logs. Currently, only SparkSubmit jobs support this parameter. This parameter accesses the Yarn Web UI via the EIP bound to the cluster. If the EIP is unbound from the cluster on the VPC console, the MRS service data is not updated in a timely manner and the access fails. In this case, you can bind the EIP to the cluster again to rectify the fault.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                  |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------|
| queue     | String | <b>Explanation</b><br>Resource queue type of a job.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Status code: 500**

**Table 6-75** Response body parameters

| Parameter  | Type   | Description                                                                                                                   |
|------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| error_msg  | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Response

**Status code: 202**

Querying a list of jobs is successful.

```
{
 "total_record" : 2,
 "job_list" : [{
 "job_id" : "981374c1-85da-44ee-be32-edfb4fba776c",
```

```
"user" : "xxxx",
"job_name" : "SparkSubmitTset",
"job_result" : "UNDEFINED",
"job_state" : "ACCEPTED",
"job_progress" : 0,
"job_type" : "SparkSubmit",
"started_time" : 0,
"submitted_time" : 1564714763119,
"finished_time" : 0,
"elapsed_time" : 0,
"queue" : "default",
"arguments" : "[--class, --driver-memory, --executor-cores, --master, yarn-cluster, s3a://obs-test/hadoop-
mapreduce-examples-3.1.1.jar, dddd]",
"launcher_id" : "application_1564622673393_0613",
"properties" : { }
}, {
"job_id" : "c54c8aa0-c277-4f83-8acc-521d85cfa32b",
"user" : "xxxx",
"job_name" : "SparkSubmitTset2",
"job_result" : "UNDEFINED",
"job_state" : "ACCEPTED",
"job_progress" : 0,
"job_type" : "SparkSubmit",
"started_time" : 0,
"submitted_time" : 1564714020099,
"finished_time" : 0,
"elapsed_time" : 0,
"queue" : "default",
"arguments" : "[--conf, yujsjhe, --driver-memory, yueujddj, --master,\nyarn-cluster,\ns3a://obs-test/
hadoop-mapreduce-examples-3.1.1.jar]",
"launcher_id" : "application_1564622673393_0611",
"properties" : { }
}
}]
}
```

**Status code: 500**

Failed to query a list of jobs.

```
{
 "error_msg": "Failed to query the job list."
 "error_code" : "0166"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.2.4 Terminating a Job

### Function

This API is used to terminate a specified job in an MRS cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
POST /v2/{project\_id}/clusters/{cluster\_id}/job-executions/{job\_execution\_id}/kill
- Parameter description

Table 6-76 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                 |
|------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_execution_id | Yes       | String | <b>Explanation</b><br>Job ID. For details about how to obtain the job ID, see <a href="#">Obtaining a Job ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

None

## Example Request

Terminate a job.

```
POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/kill
```

## Example Response

**Status code: 400**

Failed to terminate a specified job in an MRS cluster.

```
{
 "error_msg": "Failed to terminate the job."
 "error_code": "0175"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.2.5 Obtaining SQL Results

### Function

This API is used to obtain results returned after the SQL statements for querying SparkSQL and SparkScript jobs in an MRS cluster are executed.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
GET /v2/{project\_id}/clusters/{cluster\_id}/job-executions/{job\_execution\_id}/sql-result
- Parameter description

**Table 6-77** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id       | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |
| job_execution_id | Yes       | String | <b>Explanation</b><br>Job ID. For details about how to obtain the job ID, see <a href="#">Obtaining a Job ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                |

## Request Parameters

None

## Response Parameters

Status code: 202

Table 6-78 Response parameter

| Parameter   | Type   | Description                                                                                                                                          |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| sql_results | Object | <b>Explanation</b><br>The query results of a SQL statement.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Status code: 400

Table 6-79 Response body parameters

| Parameter  | Type   | Description                                                                                                                   |
|------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| error_msg  | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Example request for obtaining the SQL result

```
GET https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/sql-result
```

## Example Response

### Status code: 202

The SQL statement execution result is obtained.

```
{
 "sql_results" : {
 "0" : [{
 "result" : "succeed"
 }],
 "1" : [{
 "database" : "default",
 "isTemporary" : "false",
 "tableName" : "src_wordcount"
 }],
 "2" : [{
 "result" : "succeed"
 }],
 "3" : [{
 "result" : "succeed"
 }],
 "4" : [{
 "name" : "a",
 "id" : 1
 }, {
 "name" : "b",
 "id" : 2
 }]
 }
}
```

### Status code: 400

Failed to obtain the SQL statement execution result.

```
{
 "error_msg" : "Failed to obtain SQL job results.",
 "error_code" : "0172"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.2.6 Deleting Jobs in Batches

### Function

This API is used to delete jobs in batches.

### Constraints

None

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

POST /v2/{project\_id}/clusters/{cluster\_id}/job-executions/batch-delete

**Table 6-80** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-81** Request parameter

| Parameter   | Mandatory | Type             | Description                                                                                                                                                                                                          |
|-------------|-----------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_id_list | No        | Array of strings | <b>Explanation</b><br>The job ID list. For details about how to obtain the job ID, see <a href="#">Obtaining a Job ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Response Parameters

None

## Example Request

Delete jobs in batches.

```
POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions/batch-delete
{
 "job_id_list": ["48c45725-b699-4aa9-9bfd-f7ff87eb6fe8", "af846665-dd32-4349-a8b5-561e109c383c"]
}
```

## Example Response

None

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 6.3 Auto Scaling APIs

## 6.3.1 Viewing Auto Scaling Policies

### Function

This API is used to view all auto scaling policies of a specified cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

GET /v2/{project\_id}/autoscaling-policy/{cluster\_id}

**Table 6-82** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

**Status code: 200**

**Table 6-83** Response body parameter

| Parameter       | Type                                 | Description                                                                                                                                                                                |
|-----------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [Array element] | Array of AutoScalingPolicyV2 objects | <b>Explanation</b><br>The auto scaling policy list. For details, see <a href="#">Table 6-84</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-84** AutoScalingPolicyV2

| Parameter           | Type                         | Description                                                                                                                                                                                                                                                                                                                |
|---------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_group_name     | String                       | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                            |
| resource_pool_name  | String                       | <b>Explanation</b><br>Pool name.<br><b>Constraints</b><br>If the cluster version does not support auto scaling for a specified resource pool, set this parameter to <b>default</b> .<br><b>Value range</b><br>The value can contain only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |
| auto_scaling_policy | AutoScalingPolicyInfo object | <b>Explanation</b><br>The auto scaling policy. For details, see <a href="#">Table 6-85</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                      |

**Table 6-85** AutoScalingPolicyInfo

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                        |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_enable | Boolean | <b>Explanation</b><br>Whether to enable the auto scaling policy.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: Enable the auto scaling rule.</li><li>• <b>false</b>: Disable the autoscaling rule.</li></ul> <b>Default value</b><br>N/A |
| min_capacity        | Integer | <b>Explanation</b><br>Minimum number of nodes left in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                   |
| max_capacity        | Integer | <b>Explanation</b><br>Maximum number of nodes in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                        |

| Parameter       | Type                           | Description                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resources_plans | Array of ResourcesPlan objects | <b>Explanation</b><br>Resource plan list. If this parameter is left blank, the resource plan is disabled.<br><b>Constraints</b><br>When <b>auto_scaling_enable</b> is set to <b>true</b> , either this parameter or <b>rules</b> must be configured. For details about this parameter, see <a href="#">Table 6-86</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| rules           | Array of Rule objects          | <b>Explanation</b><br>Auto scaling rules.<br><b>Constraints</b><br>When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured. The number of records cannot exceed 10. For details, see <a href="#">Table 6-87</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                               |
| tags            | Array of Tag objects           | <b>Explanation</b><br>Auto scaling tags. For details, see <a href="#">Table 6-89</a> .<br><b>Constraints</b><br>The number of records cannot exceed 100.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                |

**Table 6-86** ResourcesPlan

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                             |
|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| period_type | String | <b>Explanation</b><br>Cycle type of a resource plan. This parameter can be set to <b>daily</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                           |
| start_time  | String | <b>Explanation</b><br>Start time of a resource plan. The value is in the format of <b>hour:minute</b> , indicating that the time ranges from 00:00 to 23:59.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                   |
| end_time    | String | <b>Explanation</b><br>End time of a resource plan. The format is the same as that of <b>start_time</b> .<br><b>Constraints</b><br>The value cannot be earlier than the <b>start_time</b> , and the interval between <b>start_time</b> and <b>start_time</b> cannot be less than 30 minutes.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter      | Type             | Description                                                                                                                                                                                                                                                                                                                                             |
|----------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| min_capacity   | Integer          | <b>Explanation</b><br>Minimum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                              |
| max_capacity   | Integer          | <b>Explanation</b><br>Maximum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                              |
| effective_days | Array of strings | <b>Explanation</b><br>Effective date of a resource plan. If this parameter is left blank, it indicates that the resource plan takes effect every day. The options are as follows:<br><b>MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, and SUNDAY</b><br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-87** Rule

| Parameter       | Type   | Description                                                                                                                                                                                                                                                                                        |
|-----------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name            | String | <b>Explanation</b><br>Name of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br>Rule names must be unique in a node group.<br><b>Default value</b><br>N/A |
| description     | String | <b>Explanation</b><br>Description about an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 0 to 1024 characters.<br><b>Default value</b><br>N/A                                                                                                     |
| adjustment_type | String | <b>Explanation</b><br>Adjustment type of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>scale_out</b>: cluster scale-out</li><li>• <b>scale_in</b>: cluster scale-in</li></ul> <b>Default value</b><br>N/A                    |

| Parameter          | Type           | Description                                                                                                                                                                                                                                                                                                                         |
|--------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cool_down_minutes  | Integer        | <b>Explanation</b><br>Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value ranges from 0 to 10080. <b>10080</b> indicates the number of minutes in a week.<br><b>Default value</b><br>N/A |
| scaling_adjustment | Integer        | <b>Explanation</b><br>Number of nodes that can be adjusted once.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-100<br><b>Default value</b><br>N/A                                                                                                                                                                         |
| trigger            | Trigger object | <b>Explanation</b><br>The condition for triggering a rule. For details, see <a href="#">Table 6-88</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                   |

**Table 6-88** Trigger

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_name         | String | <b>Explanation</b><br>Metric name. This triggering condition makes a judgment according to the value of the metric.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                               |
| metric_value        | String | <b>Explanation</b><br>Metric threshold to trigger a rule. The value must be an integer or a number with two decimal places.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>Only integers or numbers with two decimal places are allowed.<br><b>Default value</b><br>N/A                                                             |
| comparison_operator | String | <b>Explanation</b><br>Metric judgment logic operator.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>LT</b>: less than</li><li>• <b>GT</b>: greater than</li><li>• <b>LTOE</b>: less than or equal to</li><li>• <b>GTOE</b>: greater than or equal to</li></ul> <b>Default value</b><br>N/A |

| Parameter          | Type    | Description                                                                                                                                                                                            |
|--------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| evaluation_periods | Integer | <b>Explanation</b><br>Number of consecutive five-minute periods, during which a metric threshold is reached<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-288<br><b>Default value</b><br>N/A |

**Table 6-89** Tag

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>A tag key can contain letters, digits, spaces, and special characters <code>_</code>, <code>:</code>, <code>=</code>, <code>+</code>, <code>-</code>, <code>@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li><li>The tag key of a resource must be unique.</li><li>It can contain a maximum of 128 Unicode characters and cannot be an empty string.</li></ul> <b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The value can contain letters, digits, spaces, and special characters _.:=-+@, but cannot start or end with a space or start with _sys_.</li><li>The value can contain a maximum of 255 Unicode characters and can be an empty string.</li></ul> <b>Default value</b><br>N/A |

**Status code: 400****Table 6-90** Response body parameters

| Parameter  | Type   | Description                                                                                                                   |
|------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| error_msg  | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

None

## Example Response

**Status code: 200**

Auto scaling policies are displayed.

```
{
 "auto_scaling_policies" : [{
 "node_group_name" : "task_node_analysis_group",
 "resource_pool_name" : "default",
 "auto_scaling_policy" : {
 "auto_scaling_enable" : true,
 "min_capacity" : 0,
 "max_capacity" : 1,
 "resources_plans" : [{
 "period_type" : "daily",
 "effective_days" : ["SUNDAY"],
 "start_time" : "12:00",
 "end_time" : "13:00",
 "min_capacity" : 2,
 "max_capacity" : 3
 }],
 "rules" : [{
 "name" : "default-expand-1",
 "description" : "",
 "adjustment_type" : "scale_out",
 "cool_down_minutes" : 5,
 "scaling_adjustment" : 1,
 "trigger" : {
 "metric_name" : "YARNAppRunning",
 "metric_value" : 100,
 "comparison_operator" : "GTOE",
 "evaluation_periods" : 1
 }
 }]
 }
 }]
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.3.2 Updating an Auto Scaling Policy

### Function

This API is used to update an auto scaling policy.

### Constraints

None

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

## URI

PUT /v2/{project\_id}/autoscaling-policy/{cluster\_id}

**Table 6-91** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-92** Request body parameters

| Parameter          | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_group_name    | Yes       | String | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>This parameter is mandatory. If <b>resource_pool_name</b> is set to <b>default</b> , the auto scaling policies are created by node group. If <b>resource_pool_name</b> is not set to <b>default</b> , policies of the resource pool corresponding to the node group are created.<br><b>Default value</b><br>N/A |
| resource_pool_name | Yes       | String | <b>Explanation</b><br>Pool name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>This parameter is mandatory. If the cluster version does not support auto scaling for a specified resource pool, set this parameter to <b>default</b> . If this parameter is not <b>default</b> , the auto scaling policy of the specified resource pool is deleted.<br><b>Default value</b><br>N/A                   |

| Parameter           | Mandatory | Type                         | Description                                                                                                                                                                                          |
|---------------------|-----------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_policy | No        | AutoScalingPolicyInfo object | <b>Explanation</b><br>Auto scaling rule. For details about the parameters, see <a href="#">Table 6-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-93** AutoScalingPolicyInfo

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                      |
|---------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_enable | Yes       | Boolean | <b>Explanation</b><br>Whether to enable the auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: Enable the auto scaling rule.</li><li>• <b>false</b>: Disable the autoscaling rule.</li></ul> <b>Default value</b><br>N/A |
| min_capacity        | Yes       | Integer | <b>Explanation</b><br>Minimum number of nodes left in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                 |

| Parameter       | Mandatory | Type                          | Description                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-----------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_capacity    | Yes       | Integer                       | <b>Explanation</b><br>Maximum number of nodes in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                   |
| resources_plans | No        | Array of ResourcePlan objects | <b>Explanation</b><br>Resource plan list. If this parameter is left blank, the resource plan is disabled.<br><b>Constraints</b><br>When <b>auto_scaling_enable</b> is set to <b>true</b> , either this parameter or <b>resources_plans</b> must be configured. For details about this parameter, see <a href="#">Table 6-94</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| rules           | No        | Array of Rule objects         | <b>Explanation</b><br>Auto scaling rules.<br><b>Constraints</b><br>When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured. The number of records cannot exceed 10. For details, see <a href="#">Table 6-95</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                         |

| Parameter | Mandatory | Type                 | Description                                                                                                                                                                                                         |
|-----------|-----------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags      | No        | Array of Tag objects | <b>Explanation</b><br>Auto scaling tags. For details, see <a href="#">Table 6-97</a> .<br><b>Constraints</b><br>The number of records cannot exceed 20.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-94** ResourcesPlan

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                           |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| period_type | Yes       | String | <b>Explanation</b><br>Cycle type of a resource plan. This parameter can be set to <b>daily</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                         |
| start_time  | Yes       | String | <b>Explanation</b><br>Start time of a resource plan. The value is in the format of <b>hour:minute</b> , indicating that the time ranges from 00:00 to 23:59.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                |
|--------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| end_time     | Yes       | String  | <b>Explanation</b><br>End time of a resource plan.<br>The format is the same as that of <b>start_time</b> .<br><b>Constraints</b><br>The value cannot be earlier than the <b>start_time</b> , and the interval between <b>start_time</b> and <b>start_time</b> cannot be less than 30 minutes.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| min_capacity | Yes       | Integer | <b>Explanation</b><br>Minimum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                                 |
| max_capacity | Yes       | Integer | <b>Explanation</b><br>Maximum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                                 |

| Parameter      | Mandatory | Type             | Description                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| effective_days | No        | Array of strings | <b>Explanation</b><br>The effective date of a resource plan. If this parameter is left blank, it indicates that the resource plan takes effect every day. The options are as follows:<br><b>MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, and SUNDAY</b><br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-95** Rule

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                        |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | Yes       | String | <b>Explanation</b><br>Name of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br>Rule names must be unique in a node group.<br><b>Default value</b><br>N/A |

| Parameter         | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description       | No        | String  | <b>Explanation</b><br>Description about an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 0 to 1024 characters.<br><b>Default value</b><br>N/A                                                                                                                                      |
| adjustment_type   | Yes       | String  | <b>Explanation</b><br>Adjustment type of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>• <b>scale_out</b>: cluster scale-out</li> <li>• <b>scale_in</b>: cluster scale-in</li> </ul> <b>Default value</b><br>N/A                                                  |
| cool_down_minutes | Yes       | Integer | <b>Explanation</b><br>Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value ranges from 0 to 10080. <b>10080</b> indicates the number of minutes in a week.<br><b>Default value</b><br>N/A |

| Parameter          | Mandatory | Type           | Description                                                                                                                                                                                       |
|--------------------|-----------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| scaling_adjustment | Yes       | Integer        | <b>Explanation</b><br>Number of nodes that can be adjusted once.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-100<br><b>Default value</b><br>N/A                                       |
| trigger            | Yes       | Trigger object | <b>Explanation</b><br>The condition for triggering a rule. For details, see <a href="#">Table 6-96</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-96** Trigger

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                  |
|-------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_name | Yes       | String | <b>Explanation</b><br>Metric name. This triggering condition makes a judgment according to the value of the metric.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                |
|---------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_value        | Yes       | String  | <b>Explanation</b><br>Metric threshold to trigger a rule. The value must be an integer or a number with two decimal places.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>Only integers or numbers with two decimal places are allowed.<br><b>Default value</b><br>N/A                                                             |
| comparison_operator | No        | String  | <b>Explanation</b><br>Metric judgment logic operator.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>LT</b>: less than</li><li>• <b>GT</b>: greater than</li><li>• <b>LTOE</b>: less than or equal to</li><li>• <b>GTOE</b>: greater than or equal to</li></ul> <b>Default value</b><br>N/A |
| evaluation_periods  | Yes       | Integer | <b>Explanation</b><br>Number of consecutive five-minute periods, during which a metric threshold is reached<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-288<br><b>Default value</b><br>N/A                                                                                                                                     |

Table 6-97 Tag

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>A tag key can contain letters, digits, spaces, and special characters <code>_:=+@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li><li>The tag key of a resource must be unique.</li><li>It can contain a maximum of 128 Unicode characters and cannot be an empty string.</li></ul> <b>Default value</b><br>N/A |
| value     | Yes       | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The value can contain letters, digits, spaces, and special characters <code>_:=+@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li><li>The value can contain a maximum of 255 Unicode characters and can be an empty string.</li></ul> <b>Default value</b><br>N/A                                             |

Response Parameters

None

## Example Request

Update an auto scaling policy, set the number of node groups in **node\_group\_1** to 0 to 5, and configure two scaling rules. If the value of **YARNAppRunning** is greater than or equal to 75 for one 5-minute period, add one Task node. If the value of **YARNAppRunning** is less than or equal to 25 for one 5-minute period, stop one Task node. The cooling duration is 20 minutes, and the **aaa=bbb** label is added to the involved nodes.

```
/v2/{project_id}/autoscaling-policy/{cluster_id}

{
 "node_group_name": "tst",
 "auto_scaling_policy": {
 "auto_scaling_enable": true,
 "min_capacity": 0,
 "max_capacity": 5,
 "rules": [{
 "name": "default-expand-1",
 "adjustment_type": "scale_out",
 "cool_down_minutes": 20,
 "scaling_adjustment": 1,
 "trigger": {
 "metric_name": "YARNAppRunning",
 "metric_value": 75,
 "comparison_operator": "GT",
 "evaluation_periods": 1
 }
 }, {
 "name": "default-shrink-1",
 "adjustment_type": "scale_in",
 "cool_down_minutes": 20,
 "scaling_adjustment": 1,
 "trigger": {
 "metric_name": "YARNAppRunning",
 "metric_value": 25,
 "comparison_operator": "LT",
 "evaluation_periods": 1
 }
 }
],
 "resources_plans": [{
 "period_type": "daily",
 "start_time": "06:00",
 "end_time": "20:00",
 "min_capacity": "0",
 "max_capacity": "2",
 "effective_days": null
 }],
 "tags": [{
 "key": "aaa",
 "value": "bbb"
 }]
},
"resource_pool_name": "default"
}
```

## Example Response

None

## Status Codes

For details, see [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.3.3 Deleting an Auto Scaling Policy

### Function

This API is used to delete an auto scaling policy.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

DELETE /v2/{project\_id}/autoscaling-policy/{cluster\_id}

**Table 6-98** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-99** Request body parameters

| Parameter       | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_group_name | Yes       | String | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>If <b>resource_pool_name</b> is set to <b>default</b> , the auto scaling policies are deleted by node group. If <b>resource_pool_name</b> is not set to <b>default</b> , policies of the resource pool corresponding to the node group are deleted.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter          | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resource_pool_name | Yes       | String | <b>Explanation</b><br>Pool name.<br><b>Constraints</b><br>If the cluster version does not support auto scaling for a specified resource pool, set this parameter to <b>default</b> . If this parameter is not <b>default</b> , the auto scaling policy of the specified resource pool is deleted.<br><b>Value range</b><br>The value can contain only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Response Parameters

None

## Example Request

- Delete the auto scaling policies of the **node\_group\_2** node group.  
/v2/174ee662a7e24cc99bfc858c4558dbf6/autoscaling-policy/daf42ff0-05bc-4a1e-afbf-42b3131a1295  

```
{
 "node_group_name": "node_group_2"
}
```
- Delete the resource pool policy **resource\_1** node group policies.  
/v2/174ee662a7e24cc99bfc858c4558dbf6/autoscaling-policy/daf42ff0-05bc-4a1e-afbf-42b3131a1295  

```
{
 "node_group_name": "node_group_2",
 "resource_pool_name": "resource_1"
}
```

## Example Response

None

## Status Codes

For details, see [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.3.4 Creating an Auto Scaling policy

### Function

This API is used to create an auto scaling policy.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

POST /v2/{project\_id}/autoscaling-policy/{cluster\_id}

**Table 6-100** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-101** Request body parameters

| Parameter       | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_group_name | Yes       | String | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>This parameter is mandatory. If <b>resource_pool_name</b> is set to <b>default</b> , the auto scaling policies are created by node group. If <b>resource_pool_name</b> is not set to <b>default</b> , policies of the resource pool corresponding to the node group are created.<br><b>Default value</b><br>N/A |

| Parameter           | Mandatory | Type                         | Description                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|-----------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resource_pool_name  | Yes       | String                       | <b>Explanation</b><br>Pool name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>This parameter is mandatory. If the cluster version does not support auto scaling for a specified resource pool, set this parameter to <b>default</b> . If this parameter is not <b>default</b> , the auto scaling policy of the specified resource pool is deleted.<br><b>Default value</b><br>N/A |
| auto_scaling_policy | No        | AutoScalingPolicyInfo object | <b>Explanation</b><br>Auto scaling rule. For details about the parameters, see <a href="#">Table 6-102</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                      |

**Table 6-102** AutoScalingPolicyInfo

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                      |
|---------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_enable | Yes       | Boolean | <b>Explanation</b><br>Whether to enable the auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: Enable the auto scaling rule.</li><li>• <b>false</b>: Disable the autoscaling rule.</li></ul> <b>Default value</b><br>N/A |
| min_capacity        | Yes       | Integer | <b>Explanation</b><br>Minimum number of nodes left in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                 |
| max_capacity        | Yes       | Integer | <b>Explanation</b><br>Maximum number of nodes in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                      |

| Parameter       | Mandatory | Type                           | Description                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|-----------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resources_plans | No        | Array of ResourcesPlan objects | <b>Explanation</b><br>Resource plans. For details, see <a href="#">Table 6-103</a> .<br>If this parameter is left blank, the resource plan is disabled.<br><b>Constraints</b><br>When <b>auto_scaling_enable</b> is set to <b>true</b> , either this parameter or <b>rules</b> must be configured. A maximum of five records are allowed.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| rules           | No        | Array of Rule objects          | <b>Explanation</b><br>Auto scaling rules. For details, see <a href="#">Table 6-104</a> .<br><b>Constraints</b><br>When <b>auto_scaling_enable</b> is set to <b>true</b> , either this parameter or <b>rules</b> must be configured. The number of records cannot exceed 10.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                               |
| tags            | No        | Array of Tag objects           | <b>Explanation</b><br>Tags of an auto scaling rule. For details about the parameters, see <a href="#">Table 6-106</a> .<br><b>Constraints</b><br>The number of records cannot exceed 100.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                 |

**Table 6-103** ResourcesPlan

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| period_type | Yes       | String | <b>Explanation</b><br>Cycle type of a resource plan.<br>This parameter can be set to <b>daily</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                           |
| start_time  | Yes       | String | <b>Explanation</b><br>Start time of a resource plan.<br>The value is in the format of <b>hour:minute</b> , indicating that the time ranges from 00:00 to 23:59.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                   |
| end_time    | Yes       | String | <b>Explanation</b><br>End time of a resource plan.<br>The format is the same as that of <b>start_time</b> .<br><b>Constraints</b><br>The value cannot be earlier than the <b>start_time</b> , and the interval between <b>start_time</b> and <b>start_time</b> cannot be less than 30 minutes.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter      | Mandatory | Type             | Description                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|-----------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| min_capacity   | Yes       | Integer          | <p><b>Explanation</b><br/>Minimum number of the preserved nodes in a node group in a resource plan.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>0-500</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                   |
| max_capacity   | Yes       | Integer          | <p><b>Explanation</b><br/>Maximum number of the preserved nodes in a node group in a resource plan.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>0-500</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                   |
| effective_days | No        | Array of strings | <p><b>Explanation</b><br/>The effective date of a resource plan. If this parameter is left blank, it indicates that the resource plan takes effect every day. The options are as follows:<br/><b>MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, and SUNDAY</b></p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |

**Table 6-104** Rule

| Parameter       | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                        |
|-----------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name            | Yes       | String | <b>Explanation</b><br>Name of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br>Rule names must be unique in a node group.<br><b>Default value</b><br>N/A |
| description     | No        | String | <b>Explanation</b><br>Description about an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 0 to 1024 characters.<br><b>Default value</b><br>N/A                                                                                                     |
| adjustment_type | Yes       | String | <b>Explanation</b><br>Adjustment type of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>scale_out</b>: cluster scale-out</li><li>• <b>scale_in</b>: cluster scale-in</li></ul> <b>Default value</b><br>N/A                    |

| Parameter          | Mandatory | Type           | Description                                                                                                                                                                                                                                                                                                                         |
|--------------------|-----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cool_down_minutes  | Yes       | Integer        | <b>Explanation</b><br>Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value ranges from 0 to 10080. <b>10080</b> indicates the number of minutes in a week.<br><b>Default value</b><br>N/A |
| scaling_adjustment | Yes       | Integer        | <b>Explanation</b><br>Number of nodes that can be adjusted once.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-100<br><b>Default value</b><br>N/A                                                                                                                                                                         |
| trigger            | Yes       | Trigger object | <b>Explanation</b><br>Condition for triggering a rule. For details, see <a href="#">Table 6-105</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                      |

**Table 6-105** Trigger

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                |
|---------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_name         | Yes       | String | <b>Explanation</b><br>Metric name. This triggering condition makes a judgment according to the value of the metric.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                               |
| metric_value        | Yes       | String | <b>Explanation</b><br>Metric threshold to trigger a rule. The value must be an integer or a number with two decimal places.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>Only integers or numbers with two decimal places are allowed.<br><b>Default value</b><br>N/A                                                             |
| comparison_operator | No        | String | <b>Explanation</b><br>Metric judgment logic operator.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>LT</b>: less than</li><li>• <b>GT</b>: greater than</li><li>• <b>LTOE</b>: less than or equal to</li><li>• <b>GTOE</b>: greater than or equal to</li></ul> <b>Default value</b><br>N/A |

| Parameter          | Mandatory | Type    | Description                                                                                                                                                                                             |
|--------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| evaluation_periods | Yes       | Integer | <b>Explanation</b><br>Number of consecutive five-minute periods, during which a metric threshold is reached.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-288<br><b>Default value</b><br>N/A |

**Table 6-106** Tag

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• A tag key can contain letters, digits, spaces, and special characters <code>_.:=-@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li><li>• The tag key of a resource must be unique.</li><li>• It can contain a maximum of 128 Unicode characters and cannot be an empty string.</li></ul> <b>Default value</b><br>N/A |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | Yes       | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The value can contain letters, digits, spaces, and special characters <code>._:=+~@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li><li>The value can contain a maximum of 255 Unicode characters and can be an empty string.</li></ul> <b>Default value</b><br>N/A |

## Response Parameters

None

## Example Request

Create an auto scaling policy, set the number of node groups in **node\_group\_1** to 0 to 5, and configure two scaling rules. If the value of **YARNAppRunning** is greater than or equal to 75 for one 5-minute period, add one Task node. If the value of **YARNAppRunning** is less than or equal to 25 for one 5-minute period, stop one Task node. The cooling duration is 20 minutes, and the **aaa=bbb** label is added to the involved nodes.

```
/v2/{project_id}/autoscaling-policy/{cluster_id}
```

```
{
 "node_group_name": "node_group_1",
 "auto_scaling_policy": {
 "auto_scaling_enable": true,
 "min_capacity": 0,
 "max_capacity": 5,
 "rules": [{
 "name": "default-expand-1",
 "adjustment_type": "scale_out",
 "cool_down_minutes": 20,
 "scaling_adjustment": 1,
 "trigger": {
 "metric_name": "YARNAppRunning",
 "metric_value": "75",
 "comparison_operator": "GT",
 "evaluation_periods": 1
 }
 }, {
 "name": "default-shrink-1",
```

```
{
 "adjustment_type" : "scale_in",
 "cool_down_minutes" : 20,
 "scaling_adjustment" : 1,
 "trigger" : {
 "metric_name" : "YARNAppRunning",
 "metric_value" : "25",
 "comparison_operator" : "LT",
 "evaluation_periods" : 1
 },
 "resources_plans" : [{
 "period_type" : "daily",
 "start_time" : "06:00",
 "end_time" : "20:00",
 "min_capacity" : "0",
 "max_capacity" : "2",
 "effective_days" : ["MONDAY"]
 }],
 "tags" : [{
 "key" : "aaa",
 "value" : "bbb"
 }],
 "resource_pool_name" : "default"
}
```

## Example Response

None

## Status Codes

For details, see [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 6.4 Cluster HDFS File API

## 6.4.1 Obtaining the List of Files from a Specified Directory

### Function

This API is used to obtain the list of files from a specified directory in an MRS cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

GET /v2/{project\_id}/clusters/{cluster\_id}/files

**Table 6-107** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Table 6-108 Query parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| path      | Yes       | String | <p><b>Explanation</b></p> <p>File category. For example, to access the <b>/tmp/test</b> directory, the value must be a directory. The URI is <b>/v2/{project_id}/clusters/{cluster_id}/files?path=%2Ftmp %2Ftest</b>.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>A single-level directory must comply with the following rules:</p> <ul style="list-style-type: none"><li>• The directory path cannot be left blank.</li><li>• The value cannot start or end with a period (.).</li><li>• The value cannot contain the following characters: <b>/:*?"&lt;&gt; \\;&amp;,'!{}[]\$%+</b></li><li>• The value cannot exceed 255 characters.</li></ul> <p><b>Default value</b></p> <p>N/A</p> |
| offset    | No        | String | <p><b>Explanation</b></p> <p>Pagination parameter. The file list is queried from the offset.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit     | No        | String | <b>Explanation</b><br>Maximum number of records displayed on a page.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>≤1000<br><b>Default value</b><br>100                                                                                                                                                                         |
| sort_key  | No        | String | <b>Explanation</b><br>Attribute used for sorting the list.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>path_suffix</b>: file or directory name</li><li>• <b>length</b>: file size</li><li>• <b>modification_time</b>: modification time</li></ul> <b>Default value</b><br>path_suffix |
| order     | No        | String | <b>Explanation</b><br>List sorting method.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>desc</b>: descending order</li><li>• <b>asc</b>: ascending order</li></ul> <b>Default value</b><br>desc                                                                                        |

## Request Parameters

None

## Response Parameters

**Table 6-109** Response parameters

| Parameter   | Type                          | Description                                                                                                                                                              |
|-------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| total_count | Integer                       | <b>Explanation</b><br>The total number of files, which is irrelevant to pagination.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                          |
| files       | Array of FileStatusV2 objects | <b>Explanation</b><br>File list. For details, see <a href="#">Table 6-110</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-110** FileStatus parameters

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                  |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| path_suffix | String | <b>Explanation</b><br>The file name extension in the current directory. For example, if you obtain the <code>/tmp/test</code> file in the <code>/tmp</code> directory, the value of <code>path_suffix</code> is <code>test</code> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter   | Type    | Description                                                                                                                            |
|-------------|---------|----------------------------------------------------------------------------------------------------------------------------------------|
| owner       | String  | <b>Explanation</b><br>File owner.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A             |
| group       | String  | <b>Explanation</b><br>File owner group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| permission  | String  | <b>Explanation</b><br>Permission information.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| replication | Integer | <b>Explanation</b><br>Number of replicas.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |

| Parameter    | Type    | Description                                                                                                                                                                                                              |
|--------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| block_size   | Integer | <b>Explanation</b><br>Block size.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                               |
| length       | Integer | <b>Explanation</b><br>File length.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                              |
| type         | String  | <b>Explanation</b><br>File type<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>FILE</b>: file</li><li>• <b>DIRECTORY</b>: directory</li></ul> <b>Default value</b><br>N/A |
| children_num | Integer | <b>Explanation</b><br>Number of files in the directory.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                         |

| Parameter         | Type | Description                                                                                                                           |
|-------------------|------|---------------------------------------------------------------------------------------------------------------------------------------|
| access_time       | Long | <b>Explanation</b><br>File access time.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| modification_time | Long | <b>Explanation</b><br>File modification time<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Obtain the list of files from a specified directory.

```
GET /v2/{project_id}/clusters/{cluster_id}/files?
path={directory}&offset={offset}&limit={limit}&sort_key={sort_key}&order={order}
```

Example Response

Status code: 200

Obtaining the file list of a specified directory is successful.

```
{
 "total_count": 2,
 "files": [
 {
 "access_time": 0,
 "block_size": 0,
 "children_num": 0,
 "group": "hadoop",
 "length": 0,
 "modification_time": 1587179516623,
 "owner": "hdfs",
 "path_suffix": "app-logs",
 "permission": "777",
 "replication": 0,
 "type": "DIRECTORY"
 },
 {
 "access_time": 1587267212761,
 "block_size": 134217728,
 "children_num": 0,
 "group": "hadoop",
```

```
 "length": 23666188,
 "modification_time": 1587222156003,
 "owner": "root",
 "path_suffix": "data-m-00000",
 "permission": "644",
 "replication": 3,
 "type": "FILE"
 }
]
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 6.5 SQL APIs

## 6.5.1 Submitting a SQL Statement

### Function

This API is used to submit and execute a SQL statement in an MRS cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
POST /v2/{project\_id}/clusters/{cluster\_id}/sql-execution
- Parameter description

Table 6-111 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-112** Request parameters

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sql_type    | Yes       | String | <b>Explanation</b><br>SQL type. Currently, only the SQL of the presto type is supported.<br><b>Constraints</b> <ul style="list-style-type: none"><li>The SQL of the presto type can be submitted and executed only in clusters containing the Presto component.</li><li>This parameter is available only for MRS 2.0.6.1, 2.1.0.7, 3.1.2, or later clusters.</li></ul> <b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| sql_content | Yes       | String | <b>Explanation</b><br>SQL statement to be executed. Currently, only a single SQL statement can be executed at a time, and the statement cannot contain a semicolon (;).<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                |
| database    | No        | String | <b>Explanation</b><br>Database where the SQL statement is executed on.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>default                                                                                                                                                                                                                                                             |

| Parameter    | Mandatory | Type   | Description                                                                                                                                                                                                                                                                          |
|--------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| archive_path | No        | String | <b>Explanation</b><br>Directory for storing the dumped SQL execution results. Only the <b>select</b> statement dumps query results. Currently, the query results can be dumped only to OBS.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Response Parameters

Status code: 200

Table 6-113 Response parameters

| Parameter | Type   | Description                                                                                                                                                                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | <b>Explanation</b><br>SQL execution ID. The ID is generated only when the <b>SELECT</b> , <b>SHOW</b> , or <b>DESC</b> statement is executed. For other operations, the ID is empty.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| message   | String | <b>Explanation</b><br>Error message<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                  |

| Parameter       | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| statement       | String | <p><b>Explanation</b><br/>Ongoing SQL statement</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                        |
| status          | String | <p><b>Explanation</b><br/>SQL execution status</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>QUEUED</b>: queuing</li> <li>• <b>WAITING_FOR_RESOURCES</b>: waiting for resources</li> <li>• <b>PLANNING</b>: being planning</li> <li>• <b>STARTING</b>: being started</li> <li>• <b>RUNNING</b>: running</li> <li>• <b>FINISHING</b>: to be completed</li> <li>• <b>FINISHED</b>: completed</li> <li>• <b>FAILED</b>: execution failed</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| result_location | String | <p><b>Explanation</b><br/>Path for archiving the final results of the SQL query statement Only the SELECT statement dumps the SQL execution results to <b>result_location</b>.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                         |

| Parameter | Type                 | Description                                                                                                                                                                                                                                                              |
|-----------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| content   | Array<Array<String>> | <b>Explanation</b><br>SQL execution result Only non-SELECT statements return results in <b>content</b> . If the SQL statement does not return results, <b>content</b> is empty.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Status code: 400**

**Table 6-114** Response body parameters

| Parameter  | Type   | Description                                                                                                                   |
|------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| error_msg  | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

Submit a Presto SQL statement.

```
POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/sql-execution
```

```
{
 "sql_type": "presto",
 "sql_content": "show tables",
 "database": "default",
 "archive_path": "obs://my-bucket/path"
}
```

## Example Response

### Status code: 200

The SQL statement is submitted successfully.

```
{
 "id": "20190909_011820_00151_xxxxx",
 "statement": "show tables",
 "status": "FINISHED",
 "result_location": "obs://my_bucket/uuid_date/xxxx.csv",
 "content": [["t1", null], [null, "t2"], [null, "t3"]]
}
```

### Status code: 400

Failed to submit the SQL statement.

```
{
 "error_code": "MRS.0011",
 "message": "Failed to submit SQL to the executor. The cluster ID is xxxx"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.5.2 Querying SQL Results

### Function

This API is used to query the execution result of a SQL statement in an MRS cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
GET /v2/{project\_id}/clusters/{cluster\_id}/sql-execution/{sql\_id}

- Parameter description

Table 6-115 URI parameters

| Parameter  | Mandato<br>ry | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|---------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes           | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                  |
| cluster_id | Yes           | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details on how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                     |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sql_id    | Yes       | String | <b>Explanation</b><br>The execution ID of a SQL statement, that is, <b>sql_id</b> in the return result in <a href="#">Submitting a SQL Statement</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

Status code: 200

Table 6-116 Response parameters

| Parameter | Type   | Description                                                                                                                                                                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | <b>Explanation</b><br>SQL execution ID. The ID is generated only when the <b>SELECT</b> , <b>SHOW</b> , or <b>DESC</b> statement is executed. For other operations, the ID is empty.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| message   | String | <b>Explanation</b><br>Error message<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                              |
| statement | String | <b>Explanation</b><br>Ongoing SQL statement<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                      |
| status    | String | <b>Explanation</b><br>SQL execution status<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>• <b>QUEUED</b>: queuing</li> <li>• <b>WAITING_FOR_RESOURCES</b>: waiting for resources</li> <li>• <b>PLANNING</b>: being planning</li> <li>• <b>STARTING</b>: being started</li> <li>• <b>RUNNING</b>: running</li> <li>• <b>FINISHING</b>: to be completed</li> <li>• <b>FINISHED</b>: completed</li> <li>• <b>FAILED</b>: execution failed</li> </ul> <b>Default value</b><br>N/A |

| Parameter       | Type                 | Description                                                                                                                                                                                                                                                              |
|-----------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| result_location | String               | <b>Explanation</b><br>Path for archiving the final results of the SQL query statement Only the SELECT statement dumps the SQL execution results to <b>result_location</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| content         | Array<Array<String>> | <b>Explanation</b><br>SQL execution result Only non-SELECT statements return results in <b>content</b> . If the SQL statement does not return results, <b>content</b> is empty.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Status code: 400****Table 6-117** Response body parameters

| Parameter  | Type   | Description                                                                                                               |
|------------|--------|---------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| error_msg | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

Example request for querying the SQL execution result

```
GET https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/sql-execution/{sql_id}
```

## Example Response

**Status code: 200**

Querying the SQL execution result is successful.

```
{
 "id" : "20190909_011820_00151_xxxxx",
 "statement" : "show tables",
 "status" : "FINISHED",
 "result_location" : "obs://my_bucket/uuid_date/xxxx.csv",
 "content" : [["t1", null], [null, "t2"], [null, "t3"]]
}
```

**Status code: 400**

Failed to query the SQL execution result.

```
{
 "error_code" : "MRS.0011",
 "message": "Failed to submit SQL to the executor. The cluster ID is xxxx"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.5.3 Canceling a SQL Execution Task

### Function

This API is used to cancel the execution task of a SQL statement in an MRS cluster.

Constraints

None

Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

POST /v2/{project\_id}/clusters/{cluster\_id}/sql-execution/{sql\_id}/cancel

Table 6-118 URI parameters

| Parameter  | Mandato<br>ry | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|---------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes           | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                  |
| cluster_id | Yes           | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details on how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

| Parameter | Mandato<br>ry | Type   | Description                                                                                                                                                                                                                                     |
|-----------|---------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sql_id    | Yes           | String | <b>Explanation</b><br>The execution ID of a SQL statement, that is, <b>sql_id</b> in the return result in <a href="#">Submitting a SQL Statement</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

Table 6-119 Response parameters

| Parameter | Type   | Description                                                                                                                  |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------|
| message   | String | <b>Explanation</b><br>Error message<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| status    | String | <b>Explanation</b><br>The result of canceling the execution of the SQL statement. By default, <b>SUCCEED</b> is returned. <b>SUCCEED</b> is also returned when the task is completed. Only when the running SQL statement fails to be canceled, <b>FAILED</b> is returned.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SUCCEED</b></li><li>• <b>FAILED</b></li></ul> <b>Default value</b><br>N/A |

**Status code: 400****Table 6-120** Response body parameter

| Parameter | Type   | Description                                                                                                                  |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------|
| message   | String | <b>Explanation</b><br>Error message<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| status    | String | <b>Explanation</b><br>The result of canceling the execution of the SQL statement. By default, <b>SUCCEED</b> is returned. <b>SUCCEED</b> is also returned when the task is completed. Only when the running SQL statement fails to be canceled, <b>FAILED</b> is returned.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SUCCEED</b></li><li>• <b>FAILED</b></li></ul> <b>Default value</b><br>N/A |

## Example Request

Cancel a SQL execution task.

```
POST https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/sql-execution/{sql_id}/cancel
```

## Example Response

**Status code: 200**

Canceling a SQL execution task is successful.

```
{
 "status": "SUCCEED"
}
```

**Status code: 400**

Failed to cancel a SQL execution task.

```
{
 "status": "FAILED",
 "message": "Cancel sql error"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 6.6 Agency Management

## 6.6.1 Querying the Mapping Between a User (Group) and an IAM Agency

### Function

This API is used to obtain details about the mapping between a user or user group and an IAM agency.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- URI format  
GET /v2/{project\_id}/clusters/{cluster\_id}/agency-mapping
- Parameter description

**Table 6-121** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>The cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

Table 6-122 Response parameter

| Parameter       | Type                           | Description                                                                                                                                                                                                          |
|-----------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agency_mappings | Array of AgencyMapping objects | <b>Explanation</b><br>The mapping between users or user groups and agencies. For details, see <a href="#">Table 6-123</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-123** agency\_mappings parameters

| Parameter       | Type            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agency          | String          | <b>Explanation</b><br>The name of the IAM agency bound to the mapping.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                |
| identifier_type | String          | <b>Explanation</b><br>The agency type. Available values are <b>User</b> and <b>Group</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>User</b>: indicates that the mapping is for users. Enter the user name list in <b>identifiers</b>.</li><li>• <b>Group</b>: indicates that the mapping is for user groups. Enter the user group name list in <b>identifiers</b>.</li></ul> <b>Default value</b><br>N/A |
| identifiers     | Array of String | <b>Explanation</b><br>List of users or user groups mapped to the IAM agency. Log in to the IAM management console and choose <b>Users</b> or <b>User Groups</b> in the navigation pane to obtain the user or user group name list.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                    |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agency_id | String | <b>Explanation</b><br>Unique ID of the agency bound to the mapping. Log in to the IAM management console and choose <b>Agencies</b> in the left navigation pane. On the <b>Agencies</b> page that is displayed, move your cursor over the agency name to obtain the agency ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Status code: 400**

**Table 6-124** Response parameters

| Parameter  | Type   | Description                                                                                                                  |
|------------|--------|------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| error_msg  | String | <b>Explanation</b><br>Error message<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

None

## Example Response

**Status code: 200**

Querying the mapping between a user or user group and an IAM agency is successful.

```
{
 "agency_mappings": [{
 "agency": "agency01",
 "identifier_type": "User",
 "identifiers": ["user01"],
 "agency_id": "092adc623c00d2ea4fdac01d4b637f0b"
 }, {
 "agency": "agency02",
 "identifier_type": "User",
 "identifiers": ["user02"],
 "agency_id": "065239307e00d3ae4f80c01d4bdafdfd"
 }, {
 "agency": "groupAgency",
 "identifier_type": "Group",
 "identifiers": ["group01", "group02", "group03"],
 "agency_id": "08467a446200d5ac4ff9c01d56670c3b"
 }]
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.6.2 Updating the Mapping Between a User (Group) and an IAM Agency

### Function

This API is used to update the mapping between a user or user group and an IAM agency.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

- URI format  
PUT /v2/{project\_id}/clusters/{cluster\_id}/agency-mapping
- Parameter description

Table 6-125 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                         |
|------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                              |
| cluster_id | Yes       | String | <b>Explanation</b><br>The cluster ID. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-126** Request parameter

| Parameter       | Mandatory | Type                           | Description                                                                                                                                                                                                          |
|-----------------|-----------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agency_mappings | Yes       | Array of AgencyMapping objects | <b>Explanation</b><br>The mapping between users or user groups and agencies. For details, see <a href="#">Table 6-127</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-127** agency\_mappings parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                 |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agency    | Yes       | String | <b>Explanation</b><br>Name of the IAM agency bound to the mapping.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter       | Mandatory | Type            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|-----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| identifier_type | Yes       | String          | <b>Explanation</b><br>The agency type. Available values are <b>User</b> and <b>Group</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>User</b>: indicates that the mapping is for users. Enter the user name list in <b>identifiers</b>.</li><li>• <b>Group</b>: indicates that the mapping is for user groups. Enter the user group name list in <b>identifiers</b>.</li></ul> <b>Default value</b><br>N/A |
| identifiers     | Yes       | Array of String | <b>Explanation</b><br>List of users or user groups mapped to the IAM agency. Log in to the IAM management console and choose <b>Users</b> or <b>User Groups</b> in the navigation pane to obtain the user or user group name list.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                    |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| agency_id | Yes       | String | <b>Explanation</b><br>Unique ID of the agency bound to the mapping. Log in to the IAM management console and choose <b>Agencies</b> in the left navigation pane. On the <b>Agencies</b> page that is displayed, move your cursor over the agency name to obtain the agency ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Response Parameters

Status code: 200

Table 6-128 Response body parameter

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                        |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| result    | String | <b>Explanation</b><br>Result of the request for updating a mapping.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>succeeded</b>: The operation is successful.</li><li>• <b>failed</b>: The operation failed.</li></ul> <b>Default value</b><br>N/A |

Status code: 400

**Table 6-129** Response body parameters

| Parameter  | Type   | Description                                                                                                                  |
|------------|--------|------------------------------------------------------------------------------------------------------------------------------|
| error_code | String | <b>Explanation</b><br>Error code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| error_msg  | String | <b>Explanation</b><br>Error message<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Example Request**

Example request for updating the mapping between a user or user group and an IAM agency

```
PUT https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/agency-mapping
{
 "agency_mappings": [{
 "agency": "agency01",
 "identifier_type": "User",
 "identifiers": ["test"],
 "agency_id": "xxxx"
 }]
}
```

**Example Response**

**Status code: 200**

Updating the mapping between a user or user group and an IAM agency is successful.

```
{
 "result": "succeeded"
}
```

**Status Codes**

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 6.7 Data Connection Management

## 6.7.1 Creating a Data Connection

### Function

This API is used to create a data connection.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

POST /v2/{project\_id}/data-connectors

**Table 6-130** URI parameter

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-131** Request body parameter

| Parameter          | Mandatory | Type   | Description                                                                                                                                                                    |
|--------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| data_connect<br>or | Yes       | object | <b>Explanation</b><br>Data connection. For details, see <a href="#">Table 6-132</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-132** DataConnector

| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connector_name | Yes       | String | <b>Explanation</b><br>Data connection name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                        |
| source_type    | Yes       | String | <b>Explanation</b><br>Data connection type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>RDS_POSTGRES</b>: RDS PostgreSQL database</li><li>• <b>RDS_MYSQL</b>: RDS MySQL database</li><li>• <b>gaussdb-mysql</b>: GaussDB(for MySQL)</li></ul> <b>Default value</b><br>N/A |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                      |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| source_info | Yes       | String | <b>Explanation</b><br>Data source information, which is in JSON format.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Response Parameters

Status code: 201

Table 6-133 Response body parameter

| Parameter    | Type   | Description                                                                                                                                                                    |
|--------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connector_id | String | <b>Explanation</b><br>Data connection ID returned after a data connection is created.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

Create a MySQL data connection.

```
/v2/ac66f1a5-e8f4-4399-8ec6-2c8cb1aefda7/data-connector
```

```
{
 "data_connector" : {
 "connector_name" : "mrs-mysql-connector",
 "source_type" : "RDS_MYSQL",
 "source_info" : "{\"db_name\":\"default\",\"user_name\":\"mrs\",\"password\":\"*****\",\"rds_instance_id\":\"3aa55f1cb4c3491686936130f21e9f16in01\"}"
 }
}
```

## Example Response

Status code: 201

Data connection created successfully.

```
{
 "connector_id" : "0822239c1e80d4502f82c008937da9b5"
}
```

Status Codes

See [Status Codes](#).

Error Codes

See [Error Codes](#).

6.7.2 Querying the Data Connection List

Function

This API is used to query the data connection list.

Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

URI

GET /v2/{project\_id}/data-connectors

Table 6-134 URI parameter

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

**Table 6-135** Query parameters

| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                             |
|----------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connector_id   | No        | String | <b>Explanation</b><br>Connection ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A                                                                                   |
| source_type    | No        | String | <b>Explanation</b><br>Data source type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>RDS_POSTGRES</b>: RDS PostgreSQL database</li><li>• <b>RDS_MYSQL</b>: RDS MySQL database</li><li>• <b>gaussdb-mysql</b>: GaussDB(for MySQL)</li></ul> <b>Default value</b><br>N/A |
| connector_name | No        | String | <b>Explanation</b><br>Data connection name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                    |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                          |
|-----------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit     | No        | Integer | <b>Explanation</b><br>Number of resources on each page.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-1000<br><b>Default value</b><br>N/A                                                                                  |
| offset    | No        | Integer | <b>Explanation</b><br>Start offset of the pagination query.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>$\geq 0$<br><b>Default value</b><br>N/A                                                                            |
| available | No        | Boolean | <b>Explanation</b><br>Whether the data connection is valid.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br><b>true</b> : The connection is valid.<br><b>false</b> : The connection is invalid.<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

**Status code:** 200

Table 6-136 Response body parameters

| Parameter       | Type                                 | Description                                                                                                                                                                                 |
|-----------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| total_count     | Integer                              | <b>Explanation</b><br>Total number of data connections<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                             |
| data_connectors | Array of DataConnectorDetail objects | <b>Explanation</b><br>Data connection details list. For details, see <a href="#">Table 6-137</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 6-137 DataConnectorDetail

| Parameter      | Type   | Description                                                                                                                          |
|----------------|--------|--------------------------------------------------------------------------------------------------------------------------------------|
| connector_name | String | <b>Explanation</b><br>Data connection name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                              |
|--------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| source_type  | String | <p><b>Explanation</b><br/>Data connection type.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>RDS_POSTGRES</b>: RDS PostgreSQL database</li> <li>• <b>RDS_MYSQL</b>: RDS MySQL database</li> <li>• <b>gaussdb-mysql</b>: GaussDB(for MySQL)</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| source_info  | String | <p><b>Explanation</b><br/>Data source information, which is in JSON format.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                  |
| connector_id | String | <p><b>Explanation</b><br/>Data connection ID.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                |
| create_time  | Long   | <p><b>Explanation</b><br/>Time when the connection is created.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                               |

| Parameter        | Type   | Description                                                                                                                                        |
|------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| last_update_time | Long   | <b>Explanation</b><br>Last update time of the connection.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| create_by        | String | <b>Explanation</b><br>Creator ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| create_user      | String | <b>Explanation</b><br>Creator username.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                   |
| tenant_id        | String | <b>Explanation</b><br>Tenant ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                          |

| Parameter      | Type    | Description                                                                                                                                                                                                                                               |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| last_update_by | String  | <b>Explanation</b><br>ID of the user who last updated the information.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                           |
| status         | Integer | <b>Explanation</b><br>Data connection status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• -1: deleted</li><li>• 0: normal</li><li>• -2: abnormal</li><li>• 1: in use</li></ul> <b>Default value</b><br>N/A |
| used_clusters  | String  | <b>Explanation</b><br>Clusters using the connection.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                             |
| encrypt_type   | Integer | <b>Explanation</b><br>Encryption type<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                            |

## Example Request

None

## Example Response

**Status code: 200**

Successful query of the data connection list

```
{
 "total_count": 1,
 "data_connectors": [{
 "connector_id": "7d169c6c-ab50-4a56-a5d2-240ca20aabda",
 "connector_name": "test",
 "create_time": 1681270961,
 "source_type": "RDS_MYSQL",
 "source_info": "{ \"rds_instance_id\": \"3ce1ae8af8cd43b2bcd18b7541bb8b0in01\", \"jdbc_url\": \"jdbc:mysql://192.XXX.XXX.XXX:3306/test?socketTimeout=60000\", \"db_name\": \"test\", \"user_name\": \"root\", \"driver_path\": \"mrs-public/drivers/mysql-connector-java-5.1.47.jar\" }",
 "last_update_time": 1681270961,
 "create_by": "148c89d603e048b291f5940935b38f46",
 "create_user": "xxx",
 "tenant_id": "xxxe662a7e24cc99bfc858c4558dbf6",
 "last_update_by": "148c89d603e048b291f5940935b38f46",
 "status": 0,
 "encrypt_type": 2
 }]
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 6.7.3 Updating a Data Connection

### Function

This API is used to update a data connection.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

PUT /v2/{project\_id}/data-connectors/{connector\_id}

**Table 6-138** URI parameters

| Parameter    | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|--------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id   | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |
| connector_id | Yes       | String | <b>Explanation</b><br>Data connection ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 0 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A                                                             |

## Request Parameters

**Table 6-139** Request body parameter

| Parameter      | Mandatory | Type                 | Description                                                                                                                                                                    |
|----------------|-----------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| data_connector | Yes       | DataConnector object | <b>Explanation</b><br>Data connection. For details, see <a href="#">Table 6-140</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-140** DataConnector

| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connector_name | Yes       | String | <b>Explanation</b><br>Data connection name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                        |
| source_type    | Yes       | String | <b>Explanation</b><br>Data connection type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>RDS_POSTGRES</b>: RDS PostgreSQL database</li><li>• <b>RDS_MYSQL</b>: RDS MySQL database</li><li>• <b>gaussdb-mysql</b>: GaussDB(for MySQL)</li></ul> <b>Default value</b><br>N/A |
| source_info    | Yes       | String | <b>Explanation</b><br>Data source information, which is in JSON format.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                            |

## Response Parameters

**Status code: 200**

Table 6-141 Response body parameter

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                        |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| result    | String | <b>Explanation</b><br>Result of the request for updating a mapping.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>● <b>succeeded</b>: The operation is successful.</li><li>● <b>failed</b>: The operation failed.</li></ul> <b>Default value</b><br>N/A |

Example Request

```
/v2/274ee662a7e24cc99bfc858c4558dbf6/data-connector/7d169c6c-ab50-4a56-a5d2-240ca20aabda
{
 "data_connector" : {
 "connector_name" : "mrs-mysql-connector",
 "source_type" : "RDS_MYSQL",
 "source_info" : "{ \"db_name\": \"default\", \"user_name\": \"mrs\", \"password\": \"*****\", \"rds_instance_id\": \"3aa55f1cb4c3491686936130f21e9f16in01\" }"
 }
}
```

Example Response

```
Status code: 200

Data connection updated.

{
 "result" : "succeed"
}
```

Status Codes

See [Status Codes](#).

Error Codes

See [Error Codes](#).

6.7.4 Deleting a Data Connection

Function

This API is used to delete a data connection.

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

DELETE /v2/{project\_id}/data-connectors/{connector\_id}

Table 6-142 URI parameters

| Parameter    | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|--------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connector_id | Yes       | String | <b>Explanation</b><br>Connection ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 0 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A                                                                  |
| project_id   | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

None

## Example Request

None

## Example Response

None

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 6.8 Version Metadata

## 6.8.1 Obtaining MRS Version List

### Function

This API is used to obtain the MRS version list.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

GET /v2/{project\_id}/metadata/versions

Table 6-143 URI parameter

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

Request Parameter

None

Response Parameter

Status code: 200

Table 6-144 Response body parameter

| Parameter        | Type             | Description                                                                                                                         |
|------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| cluster_versions | Array of strings | <b>Explanation</b><br>Cluster version list<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

None

Example Response

Status code: 200

Successful request

```
{
 "cluster_versions" : ["MRS xxx", "MRS aaa", "MRS bbb"]
}
```

## Status Codes

For details, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

# 6.8.2 Querying Available Specifications of an MRS Cluster Version

## Function

This API is used to query available specifications of an MRS cluster version.

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

## URI

GET /v2/{project\_id}/metadata/version/{version\_name}/available-flavor

**Table 6-145** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                |
|--------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| version_name | Yes       | String | <b>Explanation</b><br>Cluster version, for example, MRS 3.1.0. If the request client does not support automatic escape, escape the space to %20, for example, MRS %203.1.0.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters.<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

Table 6-146 Response body parameters

| Parameter    | Type   | Description                                                                                                                  |
|--------------|--------|------------------------------------------------------------------------------------------------------------------------------|
| version_name | String | <b>Explanation</b><br>Version name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter         | Type                       | Description                                                                                                                                                                                       |
|-------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| available_flavors | Array of AzFlavors objects | <b>Explanation</b><br>Flavors supported by different AZs. For details, see <a href="#">Table 6-147</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 6-147** AzFlavors

| Parameter | Type                    | Description                                                                                                                                                                                                |
|-----------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| az_code   | String                  | <b>Explanation</b><br>AZ code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                    |
| az_name   | String                  | <b>Explanation</b><br>AZ name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                     |
| master    | Array of Flavor objects | <b>Explanation</b><br>Specifications supported by the master node. For details, see <a href="#">Table 6-148</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type                    | Description                                                                                                                                                                                              |
|-----------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| core      | Array of Flavor objects | <b>Explanation</b><br>Specifications supported by the core node. For details, see <a href="#">Table 6-148</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| task      | Array of Flavor objects | <b>Explanation</b><br>Specifications supported by the task node. For details, see <a href="#">Table 6-148</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 6-148 Flavor

| Parameter   | Type   | Description                                                                                                                 |
|-------------|--------|-----------------------------------------------------------------------------------------------------------------------------|
| flavor_name | String | <b>Explanation</b><br>Flavor name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Obtain details about MRS 3.1.0 metadata.

```
/v2/f77c10d14a544393a24e5f0bf53202b6/metadata/version/MRS%203.1.0/available-flavor
```

Example Response

Status code: 200

## Available specifications of the current version

```
{
 "version_name" : "MRS 3.1.0",
 "available_flavors" : [{
 "az_code" : "xxx",
 "az_name" : "AZ 1",
 "master" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
 "flavor_name" : "m3.8xlarge.8"
 }, {
 "flavor_name" : "c6.xlarge.4"
 }, {
 "flavor_name" : "m6.xlarge.8"
 }],
 "core" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
 "flavor_name" : "m3.8xlarge.8"
 }, {
 "flavor_name" : "c6.xlarge.4"
 }, {
 "flavor_name" : "m6.xlarge.8"
 }],
 "task" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
 "flavor_name" : "m3.8xlarge.8"
 }, {
 "flavor_name" : "c6.xlarge.4"
 }, {
 "flavor_name" : "m6.xlarge.8"
 }]
 }, {
 "az_code" : "xxx",
 "az_name" : "AZ 2",
 "master" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
 "flavor_name" : "m3.8xlarge.8"
 }, {
 "flavor_name" : "c6.xlarge.4"
 }, {
 "flavor_name" : "m6.xlarge.8"
 }],
 "core" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
 "flavor_name" : "m3.8xlarge.8"
 }, {
 "flavor_name" : "c6.xlarge.4"
 }, {
 "flavor_name" : "m6.xlarge.8"
 }],
 "task" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
 "flavor_name" : "m3.8xlarge.8"
 }, {
 "flavor_name" : "c6.xlarge.4"
 }, {
 "flavor_name" : "m6.xlarge.8"
 }]
 }, {
 "az_code" : "xxx",
 "az_name" : "AZ 3",
 "master" : [{
 "flavor_name" : "Si3.4xlarge.4"
 }, {
```

```
{
 "flavor_name" : "m3.8xlarge.8"
}, {
 "flavor_name" : "c6.xlarge.4"
}, {
 "flavor_name" : "m6.xlarge.8"
}],
"core" : [{
 "flavor_name" : "Si3.4xlarge.4"
}, {
 "flavor_name" : "m3.8xlarge.8"
}, {
 "flavor_name" : "c6.xlarge.4"
}, {
 "flavor_name" : "m6.xlarge.8"
}],
"task" : [{
 "flavor_name" : "Si3.4xlarge.4"
}, {
 "flavor_name" : "m3.8xlarge.8"
}, {
 "flavor_name" : "c6.xlarge.4"
}, {
 "flavor_name" : "m6.xlarge.8"
}]
}]
}
```

## Status Codes

For details, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

# 6.9 IAM Synchronization

## 6.9.1 Obtaining Synchronized IAM Users and User Groups

### Function

This API is used to obtain synchronized IAM users and user groups.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

GET /v2/{project\_id}/clusters/{cluster\_id}/iam-sync-user

Table 6-149 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

**Table 6-150** Response body parameters

| Parameter   | Type             | Description                                                                                                                              |
|-------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| user_names  | Array of strings | <b>Explanation</b><br>Synchronized users.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| group_names | Array of strings | <b>Explanation</b><br>Synchronized user groups.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Example Request**

None

**Example Response**

**Status code: 200**

Synchronized users and user groups

```
{
 "user_names" : ["user1", "user2"],
 "group_names" : ["group1"]
}
```

**Status Codes**

For details, see [Status Codes](#).

**Error Codes**

For details, see [Error Codes](#).

## 6.9.2 Synchronizing an IAM User and User Group

### Function

This API is used to synchronize IAM users and user groups to Manager. If a user is specified, the IAM user group the user belongs is also synchronized.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

POST /v2/{project\_id}/clusters/{cluster\_id}/iam-sync-user

**Table 6-151** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-152** Request body parameters

| Parameter   | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                    |
|-------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| is_all_sync | No        | Boolean | <b>Explanation</b><br>Whether to perform full synchronization.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: full synchronization</li><li>• <b>false</b>: synchronization of specified users and user groups</li></ul> <b>Default value</b><br>false |

| Parameter   | Mandatory | Type             | Description                                                                                                                                       |
|-------------|-----------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| group_names | No        | Array of strings | <b>Explanation</b><br>IAM user groups to be synchronized<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| user_names  | No        | Array of strings | <b>Explanation</b><br>IAM user to be synchronized<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A        |

Response Parameters

Status code: 202

Table 6-153 Response body parameter

| Parameter | Type   | Description                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| state     | String | <b>Explanation</b><br>Request result<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Synchronize group1 and user1 to the Manager. The IAM user group associated with user1 is automatically synchronized to Manager.

```
/v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/iam-sync-user
```

```
{
 "is_all_sync" : false,
 "group_names" : ["groups1"],
 "user_names" : ["user1", "user2"]
}
```

## Example Response

**Status code: 202**

Result the synchronization request.

```
{
 "state" : "synchronizing"
}
```

## Status Codes

For details, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

## 6.9.3 Cancelling Synchronization of Specified Users and User Groups

### Function

This API is used to cancel synchronization of specified users and user groups.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

DELETE /v2/{project\_id}/clusters/{cluster\_id}/iam-sync-user

Table 6-154 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                    |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 6-155** Request body parameters

| Parameter   | Mandatory | Type             | Description                                                                                                                                                                                                  |
|-------------|-----------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| group_names | No        | Array of strings | <b>Explanation</b><br>IAM user group whose synchronization is to be canceled<br><b>Constraints</b><br>The number of records cannot exceed 1,000.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| user_names  | No        | Array of strings | <b>Explanation</b><br>IAM user whose synchronization is to be canceled.<br><b>Constraints</b><br>The number of records cannot exceed 1,000.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |

## Response Parameters

**Status code: 202**

**Table 6-156** Response body parameter

| Parameter | Type   | Description                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| state     | String | <b>Explanation</b><br>Request result<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Example Request**

```
/v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/iam-sync-user
{
 "group_names" : ["groups1"],
 "user_names" : ["user1", "user2"]
}
```

**Example Response**

**Status code: 202**

Request result

```
{
 "state" : "synchronizing"
}
```

**Status Codes**

For details, see [Status Codes](#).

**Error Codes**

For details, see [Error Codes](#).

**6.10 Tag Management**

**6.10.1 Enabling or Disabling the Default Tag of a Cluster**

**Function**

This API is used to enable or disable the default cluster tag. If this function is enabled, nodes in a cluster are added with the default cluster tag.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

POST /v2/{project\_id}/clusters/{cluster\_id}/tags/switch

Table 6-157 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                    |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

Table 6-158 Request body parameter

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                      |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action    | Yes       | String | <b>Explanation</b><br>Operation, which can be create or delete.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li><b>create</b>: Create a cluster tag.</li><li><b>delete</b>: Delete a cluster tag.</li></ul> <b>Default value</b><br>N/A |

## Response Parameters

None

## Example Request

- Disable the default tag for a cluster.  
/v2/174ee662a7e24cc99bfc858c455xxxxxx/clusters/848cd341-cbc8-4ac3-82f2-35cd58c077d9/tags/switch  

```
{
 "action" : "delete"
}
```
- Enable the default tag for a cluster.  
/v2/174ee662a7e24cc99bfc858c455xxxxxx/clusters/848cd341-cbc8-4ac3-82f2-35cd58c077d9/tags/switch  

```
{
 "action" : "create"
}
```

## Example Response

Status code: 400

Response for a failed request

```
{
 "error_code" : "MRS.00000000",
 "error_msg" : "Insufficient tag quotas."
}
```

## Status Codes

For details, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

## 6.10.2 Querying the Status of The Default Cluster Tag

### Function

This API is used to query the status of the default cluster tag.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

GET /v2/{project\_id}/clusters/{cluster\_id}/tags/status

**Table 6-159** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

Table 6-160 Response body parameters

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| status    | String | <b>Explanation</b><br>Tag status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>● <b>processing</b>: The operation is being processed.</li><li>● <b>succeed</b>: The operation is successful.</li><li>● <b>failed</b>: The operation failed.</li></ul> <b>Default value</b><br>N/A |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                         |
|---------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_tags_enable | Boolean | <b>Explanation</b><br>Whether to enable the default cluster tag.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li><b>true</b>: Enable the default cluster tag.</li><li><b>false</b>: Disable the default cluster tag.</li></ul> <b>Default value</b><br>N/A |

### Example Request

None

### Example Response

**Status code: 200**

Response for a successful request

```
{
 "status" : "succeed",
 "default_tags_enable" : "true"
}
```

**Status code: 400**

Response for a failed request

```
{
 "error_code" : "MRS.00000000",
 "error_msg" : "An error occurred when requesting the tag."
}
```

### Status Codes

For details, see [Status Codes](#).

### Error Codes

For details, see [Error Codes](#).

## 6.10.3 Querying Tag Quotas

### Function

This API is used to query tag quotas.

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

### URI

GET /v2/{project\_id}/clusters/{cluster\_id}/tags/quota

Table 6-161 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                    |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Table 6-162 Query parameter

| Parameter                | Mandatory | Type    | Description                                                                                                                                                                                                                                                                          |
|--------------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_policy_tags | No        | Boolean | <b>Explanation</b><br>Whether to query the auto scaling policy tag.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br><b>true</b> : Query the tag of the auto scaling policy.<br><b>false</b> : Do not query the tags of the auto scaling policy.<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

Table 6-163 Response body parameters

| Parameter   | Type    | Description                                                                                                                  |
|-------------|---------|------------------------------------------------------------------------------------------------------------------------------|
| total_quota | Integer | <b>Explanation</b><br>Total quotas.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter       | Type    | Description                                                                                                                      |
|-----------------|---------|----------------------------------------------------------------------------------------------------------------------------------|
| available_quota | Integer | <b>Explanation</b><br>Available quotas.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

None

## Example Response

**Status code: 200**

Response for a successful request

```
{
 "total_quota" : 10,
 "available_quota" : 2
}
```

**Status code: 400**

Response for a failed request

```
{
 "error" : {
 "error_code" : "MRS.00000000",
 "error_msg" : "The cluster does not exist."
 }
}
```

## Status Codes

For details, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

# 7 API V1.1

## 7.1 Cluster Management APIs

### 7.1.1 Creating a Cluster and Executing a Job

#### Function

This API is used to create an MRS cluster and submit a job in the cluster. This API is incompatible with Sahara.

You are advised to use the V2 APIs for [creating a cluster](#) and [creating a cluster and submitting a job](#).

A maximum of 10 clusters can be concurrently created. You can set the **enterprise\_project\_id** parameter to perform fine-grained authorization for resources.

Before using the API, you need to obtain the resources listed in [Table 7-1](#).

**Table 7-1** Obtaining resources

| Resource | How to Obtain                                                                                                                                                     |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VPC      | See operation instructions in <a href="#">Querying VPCs</a> and <a href="#">Creating a VPC</a> in the <i>VPC API Reference</i> .                                  |
| Subnet   | See operation instructions in <a href="#">Querying Subnets</a> and <a href="#">Creating a Subnet</a> in the <i>VPC API Reference</i> .                            |
| Key Pair | See operation instructions in <a href="#">Querying SSH Key Pairs</a> and <a href="#">Creating and Importing an SSH Key Pair</a> in the <i>ECS API Reference</i> . |
| Zone     | See <a href="#">Endpoints</a> for details about regions and AZs.                                                                                                  |
| Version  | Currently, MRS 1.9.2, 3.1.0, 3.1.5, 3.1.2-LTS.3, and 3.2.0-LTS.1 are supported.                                                                                   |

| Resource  | How to Obtain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Component | <ul style="list-style-type: none"><li>• MRS 3.2.0-LTS.1 supports the following components:<ul style="list-style-type: none"><li>– An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Loader, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, and Guardian.</li><li>– A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger.</li><li>– A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Loader, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, Kafka, Flume, and Guardian.</li><li>– A custom cluster contains the following components: CDL, Hadoop, Spark2x, HBase, Hive, Hue, IoTDB, Loader, Kafka, Flume, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, and ClickHouse, and Guardian.</li></ul></li><li>• MRS 3.1.5 supports the following components:<ul style="list-style-type: none"><li>– An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Sqoop, and Guardian</li><li>– A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger.</li><li>– A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Sqoop, Guardian, Kafka, and Flume.</li><li>– A custom cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Kafka, Flume, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, ClickHouse, Kudu, Sqoop, and Guardian.</li></ul></li><li>• MRS 3.1.0 supports the following components:<ul style="list-style-type: none"><li>– An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, and Kudu.</li><li>– A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger.</li><li>– A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Kafka, and Flume.</li><li>– A custom cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Kafka, Flume, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, ClickHouse, and Kudu.</li></ul></li><li>• MRS 1.9.2 supports the following components:</li></ul> |

| Resource | How to Obtain                                                                                                                                                                                                                                                                                                |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | <ul style="list-style-type: none"><li>- An analysis cluster contains the following components: Presto, Hadoop, Spark, HBase, OpenTSDB, Hive, Hue, Loader, Tez, Flink, Alluxio, and Ranger.</li><li>- A streaming cluster contains the following components: Kafka, KafkaManager, Storm, and Flume.</li></ul> |

## Constraints

- You can log in to a cluster using either a password or a key pair.
- To use the password mode, you need to configure the password of user **root** for accessing the cluster node, that is, **cluster\_master\_secret**.
- To use the key pair mode, you need to configure the key pair name, that is, **node\_public\_cert\_name**.
- Disk parameters can be represented either by **volume\_type** and **volume\_size**, or by multi-disk parameters (**master\_data\_volume\_type**, **master\_data\_volume\_size**, **master\_data\_volume\_count**, **core\_data\_volume\_type**, **core\_data\_volume\_size**, and **core\_data\_volume\_count**).

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

POST /v1.1/{project\_id}/run-job-flow

**Table 7-2** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 7-3** Request parameters

| Parameter       | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                    |
|-----------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_version | Yes       | String  | <b>Explanation</b><br>Cluster version, for example, MRS 3.1.0.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• MRS 1.9.2</li><li>• MRS 3.1.0</li><li>• MRS 3.1.5</li><li>• MRS 3.2.0-LTS.1</li><li>• MRS 3.3.0-LTS.1</li></ul> <b>Default value</b><br>N/A          |
| cluster_name    | Yes       | String  | <b>Explanation</b><br>Cluster name. It must be unique.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A                                                        |
| master_node_num | No        | Integer | <b>Explanation</b><br>Number of Master nodes.<br><b>Constraints</b><br>If cluster HA is enabled, set this parameter to <b>2</b> . If cluster HA is disabled, set this parameter to <b>1</b> . This parameter cannot be set to <b>1</b> in MRS 3.x.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter     | Mandatory | Type    | Description                                                                                                                                                                                                                                                         |
|---------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| core_node_num | No        | Integer | <b>Explanation</b><br>Number of Core nodes. The default maximum number of core nodes is <b>500</b> . If more than 500 core nodes are required, apply for a higher quota.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-500<br><b>Default value</b><br>N/A |
| billing_type  | Yes       | Integer | <b>Explanation</b><br>Cluster billing mode.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br><b>12</b> : The cluster is billed on a pay-per-use basis. Only pay-per-use clusters can be created by calling APIs.<br><b>Default value</b><br>N/A                |
| data_center   | Yes       | String  | <b>Explanation</b><br>The information about the region where the cluster is located. For details, see <a href="#">Endpoints</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                          |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vpc       | Yes       | String | <p><b>Explanation</b></p> <p>The name of the VPC where the subnet is located. Obtain the VPC name by performing the following operations on the VPC management console:</p> <ol style="list-style-type: none"> <li>1. Log in to the management console.</li> <li>2. Choose <b>Virtual Private Cloud &gt; My VPCs</b>.</li> <li>3. On the <b>Virtual Private Cloud</b> page, obtain the VPC name from the list.</li> </ol> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| master_node_size | No        | String | <p><b>Explanation</b></p> <p>Specifications of the node, for example, {ECS_FLAVOR_NAME}.linux.bigdata. {ECS_FLAVOR_NAME} can be <b>c3.4xlarge.2</b> or other flavors that are displayed on the MRS purchase page. The supported host specifications are determined by CPU, memory, and disk space. For details about instance specifications, see <a href="#">ECS Specifications Used by MRS</a> and <a href="#">BMS Specifications Used by MRS</a>. You are advised to obtain the specifications supported by the corresponding version in the corresponding region from the cluster creation page on the MRS console.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter         | Mandatory | Type                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------|-----------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| core_node_size    | No        | String                          | <b>Explanation</b><br>Specifications of the Core node, for example, {ECS_FLAVOR_NAME}.linux.bigdata. {ECS_FLAVOR_NAME} can be <b>c3.4xlarge.2</b> or other flavors that are displayed on the MRS purchase page. For details about instance specifications, see <a href="#">ECS Specifications Used by MRS</a> and <a href="#">BMS Specifications Used by MRS</a> . You are advised to obtain the specifications supported by the corresponding version in the corresponding region from the cluster creation page on the MRS console.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| component_list    | Yes       | Array of component_list objects | <b>Explanation</b><br>The list of service components to be installed. For details about the parameters, see <a href="#">Table 7-4</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                               |
| available_zone_id | Yes       | String                          | <b>Explanation</b><br>AZ ID. You can obtain the IDs of some AZs by calling the API for <a href="#">querying AZ information</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                             |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vpc_id    | Yes       | String | <p><b>Explanation</b></p> <p>The ID of the VPC where the subnet is located.</p> <p>Obtain the VPC ID by performing the following operations on the VPC management console:</p> <ol style="list-style-type: none"> <li>1. Log in to the management console.</li> <li>2. Choose <b>Virtual Private Cloud &gt; My VPCs</b>.</li> <li>3. On the <b>Virtual Private Cloud</b> page, obtain the VPC ID from the list.</li> </ol> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| subnet_id | Yes       | String | <p><b>Explanation</b></p> <p>Subnet ID Obtain the subnet ID by performing the following operations on the VPC management console:</p> <ol style="list-style-type: none"><li>1. Log in to the management console.</li><li>2. Choose <b>Virtual Private Cloud &gt; My VPCs</b>.</li><li>3. Locate the row that contains the target VPC and click the number in the <b>Subnets</b> column to view the subnet information.</li><li>4. Click the subnet name to obtain the network ID.</li></ol> <p><b>Constraints</b></p> <p>At least one of <b>subnet_id</b> and <b>subnet_name</b> must be configured. If the two parameters are configured but do not match the same subnet, the cluster fails to create. <b>subnet_id</b> is recommended.</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| subnet_name | Yes       | String | <p><b>Explanation</b></p> <p>The subnet name.</p> <p>Obtain the subnet name by performing the following operations on the VPC management console:</p> <ol style="list-style-type: none"> <li>1. Log in to the management console.</li> <li>2. Choose <b>Virtual Private Cloud &gt; My VPCs</b>.</li> <li>3. Locate the row that contains the target VPC and click the number in the <b>Subnets</b> column to obtain the subnet name.</li> </ol> <p><b>Constraints</b></p> <p>At least one of <b>subnet_id</b> and <b>subnet_name</b> must be configured. If the two parameters are configured but do not match the same subnet, the cluster fails to create. If only <b>subnet_name</b> is configured and subnets with the same name exist in the VPC, the first subnet name in the VPC is used when a cluster is created. <b>subnet_id</b> is recommended.</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter          | Mandatory | Type                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------|-----------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| security_groups_id | No        | String                    | <p><b>Explanation</b></p> <p>The ID of the security group configured for the cluster.</p> <ul style="list-style-type: none"><li>• If this parameter is left blank, MRS automatically creates a security group, whose name starts with <b>mrs_{cluster_name}</b>.</li><li>• If this parameter is not left blank, a fixed security group is used to create a cluster. The transferred ID must be the security group ID owned by the current tenant. The security group must include an inbound rule in which all protocols and all ports are allowed and the source is the IP address of the specified node on the management plane.</li></ul> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |
| add_jobs           | No        | Array of add_jobs objects | <p><b>Explanation</b></p> <p>Jobs can be submitted when a cluster is created. Currently, only one job can be created. For details about the parameters, see <a href="#">Table 7-5</a>.</p> <p><b>Constraints</b></p> <p>There must be no more than 1 record.</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter   | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| volume_size | No        | Integer | <p><b>Explanation</b></p> <p>Data disk storage space of Master and Core nodes, in GB To increase the data storage capacity, you can add disks when creating a cluster. Select a proper disk storage space based on the following application scenarios:</p> <ul style="list-style-type: none"><li>• Storage-compute decoupling: Data is stored in the OBS system. Costs of clusters are relatively low but computing performance is poor. The clusters can be deleted at any time. It is recommended when data computing is infrequently performed.</li><li>• Storage-compute integration: Data is stored in the HDFS system. Costs of clusters are relatively high but computing performance is good. The clusters cannot be deleted in a short term. It is recommended when data computing is frequently performed.</li></ul> <p><b>Constraints</b></p> <p>This parameter is not recommended. For details, see the description of the <b>volume_type</b> parameter.</p> <p><b>Value range</b></p> <p>100-32000</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter               | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| volume_type             | No        | String | <p><b>Explanation</b></p> <p>The data disk storage type of master and core nodes. Currently, SATA, SAS, SSD, and GPSSD are supported. Disk parameters can be represented by <b>volume_type</b> and <b>volume_size</b>, or multi-disk parameters. If the <b>volume_type</b> and <b>volume_size</b> parameters coexist with the multi-disk parameters, the system reads the <b>volume_type</b> and <b>volume_size</b> parameters first. You are advised to use the multi-disk parameters.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <p><b>Default value</b></p> <p>N/A</p> |
| master_data_volume_type | No        | String | <p><b>Explanation</b></p> <p>This parameter is a multi-disk parameter, indicating the data disk storage type of the master node. Currently, SATA, SAS, SSD, and GPSSD are supported.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <p><b>Default value</b></p> <p>N/A</p>                                                                                                                                                                                                                                                                                                    |

| Parameter                | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| master_data_volume_size  | No        | Integer | <b>Explanation</b><br>This parameter is a multi-disk parameter, indicating the data disk storage space of master nodes. To increase the data storage capacity, you can add disks when creating a cluster. You only need to pass in a number without the unit GB.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A                                                                                   |
| master_data_volume_count | No        | Integer | <b>Explanation</b><br>This parameter is a multi-disk parameter, indicating the number of data disks of the master nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can only be 1.<br><b>Default value</b><br>1                                                                                                                                                                                                              |
| core_data_volume_type    | No        | String  | <b>Explanation</b><br>This parameter is a multi-disk parameter, indicating the data disk storage type of core nodes. Currently, SATA, SAS, SSD, and GPSSD are supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <b>Default value</b><br>N/A |

| Parameter              | Mandatory | Type                              | Description                                                                                                                                                                                                                                                                                                                                                   |
|------------------------|-----------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| core_data_volume_size  | No        | Integer                           | <b>Explanation</b><br>This parameter is a multi-disk parameter, indicating the data disk storage space of core nodes. To increase the data storage capacity, you can add disks when creating a cluster. You only need to pass in a number without the unit GB.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A |
| core_data_volume_count | No        | Integer                           | <b>Explanation</b><br>This parameter is a multi-disk parameter, indicating the number of data disks of the core nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-20<br><b>Default value</b><br>N/A                                                                                                                                              |
| task_node_groups       | No        | Array of task_node_groups objects | <b>Explanation</b><br>The list of task nodes. For details about the parameters, see <a href="#">Table 7-6</a> .<br><b>Constraints</b><br>There must be no more than 1 record.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                     |

| Parameter             | Mandatory | Type                              | Description                                                                                                                                                                                                                                                                                        |
|-----------------------|-----------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| bootstrap_scripts     | No        | Array of Bootstrap Script objects | <b>Explanation</b><br>The Bootstrap action script information. For details about the parameters, see <a href="#">Table 7-8</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                          |
| node_public_cert_name | No        | String                            | <b>Explanation</b><br>The name of a key pair. You can use a key pair to log in to a cluster node.<br><b>Constraints</b><br>If <b>login_mode</b> is set to <b>1</b> , the request body contains the <b>node_public_cert_name</b> field.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter            | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_admin_secret | No        | String | <p><b>Explanation</b><br/>Password of the MRS Manager administrator.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• Must contain 8 to 26 characters.</li> <li>• Cannot be the username or the username spelled backwards.</li> <li>• Must contain every type of the following: <ul style="list-style-type: none"> <li>– Lowercase letters</li> <li>– Uppercase letters</li> <li>– Numbers</li> <li>– Special characters (!@\$%^&amp;_+=+[{ }]:,./?)</li> </ul> </li> </ul> <p><b>Default value</b><br/>N/A</p> |

| Parameter             | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_master_secret | No        | String | <p><b>Explanation</b></p> <p>The password of user <b>root</b> for logging in to a cluster node.</p> <p><b>Constraints</b></p> <p>If <b>login_mode</b> is set to <b>0</b>, the request body contains the <b>cluster_master_secret</b> field.</p> <p><b>Value range</b></p> <p>A password must meet the following complexity requirements:</p> <ul style="list-style-type: none"><li>• Must be 8 to 26 characters long.</li><li>• Must contain every type of the following: uppercase letters, lowercase letters, numbers, and special characters (!@\$%^_+=[]:./?), but must not contain spaces.</li><li>• Cannot be the username or the username spelled backwards.</li></ul> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter | Mandatory | Type                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-----------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| safe_mode | Yes       | Integer              | <b>Explanation</b><br>The running mode of an MRS cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>0</b>: normal cluster. In a normal cluster, Kerberos authentication is disabled, and users can use all functions provided by the cluster.</li><li>• <b>1</b>: security cluster. In a security cluster, Kerberos authentication is enabled, and common users cannot use the file management and job management functions of an MRS cluster or view cluster resource usage and the job records of Hadoop and Spark. To use more functions, the users must obtain the relevant permissions from the MRS Manager administrator.</li></ul> <b>Default value</b><br>N/A |
| tags      | No        | Array of tag objects | <b>Explanation</b><br>The cluster tags. For details about the parameters, see <a href="#">Table 7-9</a> .<br><b>Constraints</b><br>A maximum of 20 tags can be used in a cluster. The tag name (key) must be unique. The tag key and value can contain letters, digits, spaces, and special characters ( _ . : = + - @ ), but cannot start or end with a space or start with _sys_.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                           |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_type   | No        | Integer | <p><b>Explanation</b><br/>The cluster type.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>0</b>: analysis cluster</li> <li>• <b>1</b>: streaming cluster</li> </ul> <p><b>Default value</b><br/>0</p>                                                                                                                                                                         |
| log_collection | No        | Integer | <p><b>Explanation</b><br/>Whether to collect logs when cluster creation fails. The default value is <b>1</b>, indicating that OBS buckets are created only for collecting logs when an MRS cluster fails to create.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>0</b>: Do not collect logs.</li> <li>• <b>1</b>: Collect logs.</li> </ul> <p><b>Default value</b><br/>1</p> |

| Parameter             | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enterprise_project_id | No        | String  | <p><b>Explanation</b></p> <p>Enterprise project ID. When you create a cluster, associate the enterprise project ID with the cluster. The default value is <b>0</b>, indicating the <b>default</b> enterprise project.</p> <p>To obtain the enterprise project ID, see the <b>id</b> value in the <b>enterprise_project field data structure</b> table in "Querying the Enterprise Project List" in <i>Enterprise Management API Reference</i>.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>0</p> |
| login_mode            | No        | Integer | <p><b>Explanation</b></p> <p>Cluster login mode.</p> <p><b>Constraints</b></p> <ul style="list-style-type: none"><li>• If <b>login_mode</b> is set to <b>0</b>, the request body contains the <b>cluster_master_secret</b> field.</li><li>• If <b>login_mode</b> is set to <b>1</b>, the request body contains the <b>node_public_cert_name</b> field.</li></ul> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>0</b>: password</li><li>• <b>1</b>: key pair</li></ul> <p><b>Default value</b></p> <p>1</p>                                 |

| Parameter   | Mandatory | Type                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|-----------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_groups | No        | Array of NodeGroupV11 objects | <b>Explanation</b><br>List of nodes. For details about the parameters, see <a href="#">Table 7-10</a> .<br><b>Constraints</b><br>Configure either this parameter or the following parameters:<br><b>master_node_num,</b><br><b>master_node_size,</b><br><b>core_node_num, core_node_size,</b><br><b>master_data_volume_type,</b><br><b>master_data_volume_size,</b><br><b>master_data_volume_count,</b><br><b>core_data_volume_type,</b><br><b>core_data_volume_size,</b><br><b>core_data_volume_count,</b><br><b>volume_type, volume_size,</b><br><b>task_node_groups</b><br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-4** ComponentAmbV11

| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                      |
|----------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| component_name | Yes       | String | <b>Explanation</b><br>Component name. For details, see the component information in <a href="#">Table 7-1</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

**Table 7-5** AddJobsReqV11

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type  | Yes       | Integer | <p><b>Explanation</b><br/>Job type code.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• 1: MapReduce</li><li>• 2: Spark</li><li>• 3: Hive Script</li><li>• 4: HiveQL (not supported currently)</li><li>• 5: DistCp for importing and exporting data (not supported currently)</li><li>• 6: Spark Script</li><li>• 7: Spark SQL for submitting Spark SQL statements (not supported currently)</li></ul> <p><b>NOTE</b><br/>Spark and Hive jobs can be created only in clusters that where Spark and Hive are installed.</p> <p><b>Default value</b><br/>N/A</p> |
| job_name  | Yes       | String  | <p><b>Explanation</b><br/>Job name.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>The value can contain 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.</p> <p><b>NOTE</b><br/>Identical job names are allowed but not recommended.</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                   |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| jar_path  | No        | String | <p><b>Explanation</b></p> <p>Path of the <b>.jar</b> file or <b>.sql</b> file to be executed.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>The value must meet the following requirements:</p> <ul style="list-style-type: none"><li>• The value contains a maximum of 1,023 characters. It cannot contain special characters (; &amp;&gt;,&lt;'\$) and cannot be left blank or all spaces.</li><li>• Files can be stored in HDFS or OBS. The path varies depending on the file system.<ul style="list-style-type: none"><li>– OBS: The path must start with <b>s3a://</b>. Files or programs encrypted by KMS are not supported.</li><li>– HDFS: The path starts with a slash (/).</li></ul></li><li>• Spark Script must end with <b>.sql</b> while MapReduce and Spark Jar must end with <b>.jar</b>. <b>sql</b> and <b>jar</b> are case-insensitive.</li></ul> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| arguments | No        | String | <p><b>Explanation</b></p> <p>The key parameter for program execution. The parameter is specified by the function of the user's program. MRS is only responsible for loading the parameter.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>The parameter can contain 0 to 150,000 characters, but special characters (; &amp;&gt;'&lt;\$) are not allowed.</p> <p><b>Default value</b></p> <p>N/A</p>                                                                                                                                                  |
| input     | No        | String | <p><b>Explanation</b></p> <p>The data input path.</p> <p>Files can be stored in HDFS or OBS. The path varies depending on the file system.</p> <ul style="list-style-type: none"><li>• OBS: The path must start with <b>s3a://</b>. Files or programs encrypted by KMS are not supported.</li><li>• HDFS: The path starts with a slash (/).</li></ul> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>The value can contain 0 to 1,023 characters, but special characters (; &amp;&gt;'&lt;\$) are not allowed.</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| output    | No        | String | <p><b>Explanation</b></p> <p>The data output path.</p> <p>Files can be stored in HDFS or OBS. The path varies depending on the file system.</p> <ul style="list-style-type: none"><li>• OBS: The path must start with <b>s3a://</b>.</li><li>• HDFS: The path starts with a slash (/).</li></ul> <p>If the specified path does not exist, the system will automatically create it.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>The value can contain 0 to 1,023 characters, but special characters (; &amp;&gt;'&lt;\$) are not allowed.</p> <p><b>Default value</b></p> <p>N/A</p> |
| job_log   | No        | String | <p><b>Explanation</b></p> <p>The path for storing job logs that record job running status.</p> <p>Files can be stored in HDFS or OBS. The path varies depending on the file system.</p> <ul style="list-style-type: none"><li>• OBS: The path must start with <b>s3a://</b>.</li><li>• HDFS: The path starts with a slash (/).</li></ul> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>The value can contain 0 to 1,023 characters, but special characters (; &amp;&gt;'&lt;\$) are not allowed.</p> <p><b>Default value</b></p> <p>N/A</p>                                               |

| Parameter                   | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| shutdown_cluster            | No        | Boolean | <p><b>Explanation</b><br/>Whether to delete the cluster after the job execution is complete.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Delete the cluster after job execution is complete.</li> <li>• <b>false</b>: Do not delete the cluster after the job execution is complete.</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| file_action                 | No        | String  | <p><b>Explanation</b><br/>The action to be performed on a file.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>import</b>: Import data.</li> <li>• <b>export</b>: Export data.</li> </ul> <p><b>Default value</b><br/>N/A</p>                                                                                                                    |
| submit_job_once_cluster_run | Yes       | Boolean | <p><b>Explanation</b><br/>Whether to submit a job when creating a cluster. Set it to <b>true</b>.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Submit a job during cluster creation.</li> <li>• <b>false</b>: Submit a job after the cluster is created.</li> </ul> <p><b>Default value</b><br/>N/A</p>                              |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hql              | No        | String | <p><b>Explanation</b><br/>The HQL script statement.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| hive_script_path | No        | String | <p><b>Explanation</b><br/>SQL program path. This parameter is required by Spark Script and Hive Script jobs only.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>The value must meet the following requirements:</p> <ul style="list-style-type: none"> <li>• The value contains a maximum of 1,023 characters. It cannot contain special characters (; &amp;&gt;&lt;'\$) and cannot be left blank or all spaces.</li> <li>• Files can be stored in HDFS or OBS. The path varies depending on the file system. <ul style="list-style-type: none"> <li>– OBS: The path must start with <b>s3a://</b>. Files or programs encrypted by KMS are not supported.</li> <li>– HDFS: The path starts with a slash (/).</li> </ul> </li> <li>• Ends with <b>.sql</b>. <b>sql</b> is case-insensitive.</li> </ul> <p><b>Default value</b><br/>N/A</p> |

**Table 7-6** TaskNodeGroup

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_num  | Yes       | Integer | <b>Explanation</b><br>Number of Task nodes.<br><b>Constraints</b><br>The total number of Core and Task nodes cannot exceed 500.<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                            |
| node_size | Yes       | String  | <b>Explanation</b><br>Specifications of the Task node, for example, {ECS_FLAVOR_NAME}.linux.bigdata. {ECS_FLAVOR_NAME} can be <b>c3.4xlarge.2</b> or other flavors that are displayed on the MRS purchase page. For details about instance specifications, see <a href="#">ECS Specifications Used by MRS</a> and <a href="#">BMS Specifications Used by MRS</a> .<br>Obtain the instance specifications of the corresponding version in the corresponding region from the cluster creation page of the MRS management console.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter         | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| data_volume_type  | Yes       | String  | <b>Explanation</b><br>Data disk storage type of the Task node. Supported types include SATA, SAS, and SSD.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <b>Default value</b><br>N/A |
| data_volume_count | Yes       | Integer | <b>Explanation</b><br>Number of data disks of a Task node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-20<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                |
| data_volume_size  | Yes       | Integer | <b>Explanation</b><br>Data disk storage space of a Task node. You only need to pass in a number without the unit GB.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A                                                                                                                                                                 |

| Parameter           | Mandatory | Type                       | Description                                                                                                                                                                          |
|---------------------|-----------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_policy | No        | auto_scaling_policy object | <b>Explanation</b><br>The auto scaling policy. For details, see <a href="#">Table 7-7</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-7** AutoScalingPolicy

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                    |
|---------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_enable | Yes       | Boolean | <b>Explanation</b><br>Whether to enable the auto scaling policy.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li><b>true</b>: Enable the auto scaling rule.</li><li><b>false</b>: Disable the autoscaling rule.</li></ul> <b>Default value</b><br>N/A |
| min_capacity        | Yes       | Integer | <b>Explanation</b><br>The minimum number of nodes reserved in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                       |

| Parameter       | Mandatory | Type                            | Description                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|-----------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_capacity    | Yes       | Integer                         | <b>Explanation</b><br>The maximum number of nodes in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                          |
| resources_plans | No        | Array of resources_plan objects | <b>Explanation</b><br>The resource plan list. For details, see <a href="#">Table 7-11</a> . If this parameter is left blank, the resource plan is disabled.<br><b>Constraints</b><br>When <b>auto_scaling_enable</b> is set to <b>true</b> , either this parameter or <b>rules</b> must be configured. There must be no more than 5 records.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| exec_scripts    | No        | Array of scale_script objects   | <b>Explanation</b><br>The list of custom scaling automation scripts. For details, see <a href="#">Table 7-14</a> . If this parameter is left blank, a hook script is disabled.<br><b>Constraints</b><br>The number of records cannot exceed 10.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                              |

| Parameter | Mandatory | Type                   | Description                                                                                                                                                                                                                                                                                                                                                  |
|-----------|-----------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rules     | No        | Array of rules objects | <b>Explanation</b><br>The list of auto scaling rules. For details, see <a href="#">Table 7-12</a> .<br><b>Constraints</b><br>When <b>auto_scaling_enable</b> is set to <b>true</b> , either this parameter or <b>resources_plans</b> must be configured. The number of records cannot exceed 10.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-8** BootstrapScript

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                        |
|-----------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | Yes       | String | <b>Explanation</b><br>Name of a bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The names of bootstrap action scripts in the same cluster must be unique. The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-), and cannot start with a space.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| uri        | Yes       | String | <p><b>Explanation</b></p> <p>The path of a Bootstrap action script. Set this parameter to an OBS bucket path or a local VM path.</p> <ul style="list-style-type: none"><li>• OBS bucket path: Enter a script path. For example, enter the path of the public sample script provided by MRS. Example: <b>s3a://bootstrap/presto/presto-install.sh</b>. If <b>dualroles</b> is installed, the parameter of the <b>presto-install.sh</b> script is <b>dualroles</b>. If <b>worker</b> is installed, the parameter of the <b>presto-install.sh</b> script is <b>worker</b>. Based on the Presto usage habit, you are advised to install <b>dualroles</b> on the active master nodes and <b>worker</b> on the Core nodes.</li><li>• Local VM path: Enter a script path. The script path must start with a slash (/) and end with <b>.sh</b>.</li></ul> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |
| parameters | No        | String | <p><b>Explanation</b></p> <p>The bootstrap action script parameters.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Parameter     | Mandatory | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                |
|---------------|-----------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nodes         | Yes       | Array of strings | <b>Explanation</b><br>The type of a node where the bootstrap action script is executed. The value can be <b>Master</b> , <b>Core</b> , or <b>Task</b> .<br><b>Constraints</b><br>The node type must be represented in lowercase letters.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                       |
| active_master | No        | Boolean          | <b>Explanation</b><br>Whether the bootstrap action script runs only on active master nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: The bootstrap action script runs only on active Master nodes.</li><li>• <b>false</b>: The bootstrap action script can run on all Master nodes.</li></ul> <b>Default value</b><br>false |

| Parameter              | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| before_component_start | No        | Boolean | <p><b>Explanation</b></p> <p>Time when the bootstrap action script is executed. Currently, the following two options are available: <b>Before component start</b> and <b>After component start</b></p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>true</b>: The bootstrap action script is executed before the component starts.</li><li>• <b>false</b>: The bootstrap action script is executed after the component starts.</li></ul> <p><b>Default value</b></p> <p>false</p>                                                                                                   |
| fail_action            | Yes       | String  | <p><b>Explanation</b></p> <p>Whether to continue executing subsequent scripts and creating a cluster after the Bootstrap action script fails to be executed.</p> <p>You are advised to set this parameter to <b>continue</b> in the commissioning phase so that the cluster can continue to be installed and started no matter whether the bootstrap action is successful.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>continue</b>: Continue to execute subsequent scripts.</li><li>• <b>errorout</b>: Stop the action.</li></ul> <p><b>Default value</b></p> <p>errorout</p> |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| start_time | No        | Long   | <b>Explanation</b><br>The execution time of one bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                   |
| state      | No        | String | <b>Explanation</b><br>The running status of one bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>PENDING</b>: The script is suspended.</li><li>• <b>IN_PROGRESS</b>: The script is being processed.</li><li>• <b>SUCCESS</b></li><li>• <b>FAILURE</b>: The script fails to be executed.</li></ul> <b>Default value</b><br>N/A |

| Parameter     | Mandatory | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|-----------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action_stages | No        | Array of strings | <b>Explanation</b><br>Select the time when the bootstrap action script is executed. <ul style="list-style-type: none"><li>• <b>BEFORE_COMPONENT_FIRST_START</b>: before initial component starts</li><li>• <b>AFTER_COMPONENT_FIRST_START</b>: after initial component starts</li><li>• <b>BEFORE_SCALE_IN</b>: before scale-in</li><li>• <b>AFTER_SCALE_IN</b>: after scale-in</li><li>• <b>BEFORE_SCALE_OUT</b>: before scale-out</li><li>• <b>AFTER_SCALE_OUT</b>: after scale-out</li></ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-9** Tag

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• The value can contain a maximum of 128 characters and cannot be an empty string.</li><li>• The tag key of a resource must be unique.</li><li>• A tag key can contain letters, digits, spaces, and special characters <code>_.:=-@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li></ul> <b>Default value</b><br>N/A |
| value     | Yes       | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• The value can contain a maximum of 255 characters and can be an empty string.</li><li>• The value can contain letters, digits, spaces, and special characters <code>_.:=-@</code>, but cannot start or end with a space or start with <code>_sys_</code>.</li></ul> <b>Default value</b><br>N/A                                                      |

Table 7-10 NodeGroupV11

| Parameter  | Mandato<br>ry | Type    | Description                                                                                                                                                                                                                                                                                                                                         |
|------------|---------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| group_name | Yes           | String  | <b>Explanation</b><br>The node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• master_node_default_group</li><li>• core_node_analysis_group</li><li>• core_node_streaming_group</li><li>• task_node_analysis_group</li><li>• task_node_streaming_group</li></ul> <b>Default value</b><br>N/A |
| node_num   | Yes           | Integer | <b>Explanation</b><br>Number of nodes.<br><b>Constraints</b><br>The total number of Core and Task nodes cannot exceed 500.<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                            |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_size        | Yes       | String | <p><b>Explanation</b></p> <p>Specifications of the node, for example, {ECS_FLAVOR_NAME}.linux.bigdata. {ECS_FLAVOR_NAME} can be <b>c3.4xlarge.2</b> or other flavors that are displayed on the MRS purchase page. The host specifications supported by MRS are determined by CPU, memory, and disk space. For details about instance specifications, see <a href="#">ECS Specifications Used by MRS</a> and <a href="#">BMS Specifications Used by MRS</a>. You are advised to obtain the specifications supported by the corresponding version in the corresponding region from the cluster creation page on the MRS console.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |
| root_volume_size | No        | String | <p><b>Explanation</b></p> <p>The system disk storage space of a node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Parameter         | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| root_volume_type  | No        | String  | <b>Explanation</b><br>System disk storage type of a node. Supported types include SATA, SAS, and SSD.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <b>Default value</b><br>N/A |
| data_volume_type  | No        | String  | <b>Explanation</b><br>Data disk storage type of nodes. Supported types include SATA, SAS, and SSD.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <b>Default value</b><br>N/A    |
| data_volume_count | No        | Integer | <b>Explanation</b><br>Number of data disks of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-20<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                |

| Parameter           | Mandatory | Type                       | Description                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|-----------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| data_volume_size    | No        | Integer                    | <b>Explanation</b><br>Data disk storage space of a node.<br>Unit: GB.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A                                                                                                                                                                                                                   |
| auto_scaling_policy | No        | auto_scaling_policy object | <b>Explanation</b><br>The auto scaling policy.<br><b>Constraints</b><br>The auto scaling rule information.<br>This parameter is available only when <b>group_name</b> is set to <b>task_node_analysis_group</b> or <b>task_node_streaming_group</b> .<br>For details about the parameters, see <a href="#">Table 7-7</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-11** ResourcesPlan

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                   |
|-------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| period_type | Yes       | String | <b>Explanation</b><br>Cycle type of a resource plan. This parameter can be set to <b>daily</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                             |
|--------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| start_time   | Yes       | String  | <b>Explanation</b><br>The start time of a resource plan. The value is in the format of <b>hour:minute</b> , indicating that the time ranges from 00:00 to 23:59.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                               |
| end_time     | Yes       | String  | <b>Explanation</b><br>End time of a resource plan. The format is the same as that of <b>start_time</b> .<br><b>Constraints</b><br>The value cannot be earlier than the <b>start_time</b> , and the interval between <b>start_time</b> and <b>start_time</b> cannot be less than 30 minutes.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| min_capacity | Yes       | Integer | <b>Explanation</b><br>Minimum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                              |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                |
|--------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_capacity | Yes       | Integer | <b>Explanation</b><br>Maximum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A |

Table 7-12 Rule

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                  |
|-------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name        | Yes       | String | <b>Explanation</b><br>Name of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>It contains only 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. Rule names must be unique in a node group.<br><b>Default value</b><br>N/A |
| description | No        | String | <b>Explanation</b><br>Description about an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>It contains a maximum of 1024 characters.<br><b>Default value</b><br>N/A                                                                                                 |

| Parameter          | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                         |
|--------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| adjustment_type    | Yes       | String  | <b>Explanation</b><br>Auto scaling rule adjustment type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>scale_out</b>: cluster scale-out</li><li>• <b>scale_in</b>: cluster scale-in</li></ul> <b>Default value</b><br>N/A                                                           |
| cool_down_minutes  | Yes       | Integer | <b>Explanation</b><br>Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value ranges from 0 to 10080. <b>10080</b> indicates the number of minutes in a week.<br><b>Default value</b><br>N/A |
| scaling_adjustment | Yes       | Integer | <b>Explanation</b><br>Number of nodes that can be adjusted once.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-100<br><b>Default value</b><br>N/A                                                                                                                                                                         |

| Parameter | Mandatory | Type           | Description                                                                                                                                                                                   |
|-----------|-----------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| trigger   | Yes       | trigger object | <b>Explanation</b><br>Condition for triggering a rule. For details, see <a href="#">Table 7-13</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-13** Trigger

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                      |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_name | Yes       | String | <b>Explanation</b><br>Metric name. This triggering condition makes a judgment according to the value of the metric.<br>For details about metric names, see <a href="#">Configuring Auto Scaling for an MRS Cluster</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A metric name contains a maximum of 64 characters.<br><b>Default value</b><br>N/A |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_value        | Yes       | String  | <p><b>Explanation</b><br/>Metric threshold to trigger a rule<br/>The value must be an integer or a number with two decimal places.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>Only integers or numbers with two decimal places are allowed.</p> <p><b>Default value</b><br/>N/A</p>                                                                 |
| comparison_operator | No        | String  | <p><b>Explanation</b><br/>Metric judgment logic operator.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>LT</b>: less than</li> <li>• <b>GT</b>: greater than</li> <li>• <b>LTOE</b>: less than or equal to</li> <li>• <b>GTOE</b>: greater than or equal to</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| evaluation_periods  | Yes       | Integer | <p><b>Explanation</b><br/>The number of consecutive five-minute periods, during which a metric threshold is reached.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>1-200</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                       |

**Table 7-14** ScaleScript

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | Yes       | String | <b>Explanation</b><br>Names of custom scaling automation scripts.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The names in the same cluster must be unique. The value can contain 1 to 64 characters, including only digits, letters, spaces, hyphens (-), and underscores (_), and cannot start with a space.<br><b>Default value</b><br>N/A                                                                                                                  |
| uri       | Yes       | String | <b>Explanation</b><br>Path of a custom automation script. Set this parameter to an OBS bucket path or a local VM path. <ul style="list-style-type: none"><li>• OBS bucket path: Enter a script path manually, for example, <b>s3a://XXX/scale.sh</b>.</li><li>• Local VM path: Enter a script path. The script path must start with a slash (/) and end with <b>.sh</b>.</li></ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------|-----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| parameters | No        | String          | <p><b>Explanation</b></p> <p>Parameters of a custom automation script. Separate multiple parameters by spaces. The following predefined parameters can be transferred:</p> <ul style="list-style-type: none"><li>• <i>`\${mrs_scale_node_num}`</i>: Number of the nodes to be added or removed</li><li>• <i>`\${mrs_scale_type}`</i>: Scaling type. The value can be <b>scale_out</b> or <b>scale_in</b>.</li><li>• <i>`\${mrs_scale_node_hostnames}`</i>: Host names of the nodes to be added or removed</li><li>• <i>`\${mrs_scale_node_ips}`</i>: IP addresses of the nodes to be added or removed</li><li>• <i>`\${mrs_scale_rule_name}`</i>: Name of the rule that triggers auto scaling</li></ul> <p>Other user-defined parameters are used in the same way as those of common shell scripts. Parameters are separated by space.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |
| nodes      | Yes       | Array of string | <p><b>Explanation</b></p> <p>Type of a node where the custom automation script is executed. The node type can be Master, Core, or Task.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Parameter     | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| active_master | No        | Boolean | <p><b>Explanation</b><br/>Whether the custom automation script runs only on the active master node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: The custom automation script runs only on the active Master nodes.</li> <li>• <b>false</b>: The custom automation script can run on all Master nodes.</li> </ul> <p><b>Default value</b><br/>false</p> |
| action_stage  | Yes       | String  | <p><b>Explanation</b><br/>Time when a script is executed.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>before_scale_out</b>: before scale-out</li> <li>• <b>before_scale_in</b>: before scale-in</li> <li>• <b>after_scale_out</b>: after scale-out</li> <li>• <b>after_scale_in</b>: after scale-in</li> </ul> <p><b>Default value</b><br/>N/A</p>               |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| fail_action | Yes       | String | <b>Explanation</b><br>Whether to continue to execute subsequent scripts and create a cluster after the custom automation script fails to be executed. You are advised to set this parameter to <b>continue</b> in the commissioning phase so the cluster can continue to be installed and started no matter whether the custom automation script is executed successfully. The scale-in operation cannot be undone. <b>fail_action</b> must be set to <b>continue</b> for the scripts that are executed after scale-in.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>continue</b>: Continue to execute subsequent scripts.</li><li>• <b>errorout</b>: Stop the action.</li></ul> <b>Default value</b><br>N/A |

## Response Parameters

Status code: 200

Table 7-15 Response body parameters

| Parameter  | Type   | Description                                                                                                                                                                              |
|------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | String | <b>Explanation</b><br>Cluster ID, which is returned by the system after the cluster is created.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type    | Description                                                                                                                                                                                                                                                     |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| result    | Boolean | <b>Explanation</b><br>Operation result<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: The operation is successful.</li><li>• <b>false</b>: The operation failed.</li></ul> <b>Default value</b><br>N/A |
| msg       | String  | <b>Explanation</b><br>System message, which can be empty.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                              |

## Example Request

- Use the **node\_groups** parameter group to create a cluster with the HA function enabled. The cluster version is MRS 3.2.0-LTS.1.

POST https://{endpoint}/v1.1/{project\_id}/run-job-flow

```
{
 "billing_type" : 12,
 "data_center" : "",
 "available_zone_id" : ,
 "cluster_name" : "mrs_HEbK",
 "cluster_version" : "MRS 3.2.0-LTS.1",
 "safe_mode" : 0,
 "cluster_type" : 0,
 "component_list" : [{
 "component_name" : "Hadoop"
 }, {
 "component_name" : "Spark2x"
 }, {
 "component_name" : "HBase"
 }, {
 "component_name" : "Hive"
 }, {
 "component_name" : "Zookeeper"
 }, {
 "component_name" : "Tez"
 }, {
 "component_name" : "Hue"
 }, {
 "component_name" : "Loader"
 }, {
 "component_name" : "Flink"
 }],
}
```

```
"vpc" : "vpc-4b1c",
"vpc_id" : "4a365717-67be-4f33-80c5-98e98a813af8",
"subnet_id" : "67984709-e15e-4e86-9886-d76712d4e00a",
"subnet_name" : "subnet-4b44",
"security_groups_id" : "4820eace-66ad-4f2c-8d46-cf340e3029dd",
"enterprise_project_id" : "0",
"tags" : [{
 "key" : "key1",
 "value" : "value1"
}, {
 "key" : "key2",
 "value" : "value2"
}],
"node_groups" : [{
 "group_name" : "master_node_default_group",
 "node_num" : 2,
 "node_size" : "s3.xlarge.2.linux.bigdata",
 "root_volume_size" : 480,
 "root_volume_type" : "SATA",
 "data_volume_type" : "SATA",
 "data_volume_count" : 1,
 "data_volume_size" : 600
}, {
 "group_name" : "core_node_analysis_group",
 "node_num" : 3,
 "node_size" : "s3.xlarge.2.linux.bigdata",
 "root_volume_size" : 480,
 "root_volume_type" : "SATA",
 "data_volume_type" : "SATA",
 "data_volume_count" : 1,
 "data_volume_size" : 600
}, {
 "group_name" : "task_node_analysis_group",
 "node_num" : 2,
 "node_size" : "s3.xlarge.2.linux.bigdata",
 "root_volume_size" : 480,
 "root_volume_type" : "SATA",
 "data_volume_type" : "SATA",
 "data_volume_count" : 0,
 "data_volume_size" : 600,
 "auto_scaling_policy" : {
 "auto_scaling_enable" : true,
 "min_capacity" : 1,
 "max_capacity" : "3",
 "resources_plans" : [{
 "period_type" : "daily",
 "start_time" : "9:50",
 "end_time" : "10:20",
 "min_capacity" : 2,
 "max_capacity" : 3
 }, {
 "period_type" : "daily",
 "start_time" : "10:20",
 "end_time" : "12:30",
 "min_capacity" : 0,
 "max_capacity" : 2
 }],
 },
 "exec_scripts" : [{
 "name" : "before_scale_out",
 "uri" : "s3a://XXX/zeppelin_install.sh",
 "parameters" : "${mrs_scale_node_num} ${mrs_scale_type} xxx",
 "nodes" : ["master", "core", "task"],
 "active_master" : "true",
 "action_stage" : "before_scale_out",
 "fail_action" : "continue"
 }, {
 "name" : "after_scale_out",
 "uri" : "s3a://XXX/storm_rebalance.sh",
 "parameters" : "${mrs_scale_node_hostnames} ${mrs_scale_node_ips}",
```

```
"nodes" : ["master", "core", "task"],
"active_master" : "true",
"action_stage" : "after_scale_out",
"fail_action" : "continue"
}],
"rules" : [{
 "name" : "default-expand-1",
 "adjustment_type" : "scale_out",
 "cool_down_minutes" : 5,
 "scaling_adjustment" : 1,
 "trigger" : {
 "metric_name" : "YARNMemoryAvailablePercentage",
 "metric_value" : "25",
 "comparison_operator" : "LT",
 "evaluation_periods" : 10
 }
}, {
 "name" : "default-shrink-1",
 "adjustment_type" : "scale_in",
 "cool_down_minutes" : 5,
 "scaling_adjustment" : 1,
 "trigger" : {
 "metric_name" : "YARNMemoryAvailablePercentage",
 "metric_value" : "70",
 "comparison_operator" : "GT",
 "evaluation_periods" : 10
 }
}
}],
"login_mode" : 1,
"cluster_master_secret" : "",
"cluster_admin_secret" : "",
"log_collection" : 1,
"add_jobs" : [{
 "job_type" : 1,
 "job_name" : "tenji111",
 "jar_path" : "s3a://bigdata/program/hadoop-mapreduce-examples-2.7.2.jar",
 "arguments" : "wordcount",
 "input" : "s3a://bigdata/input/wd_1k/",
 "output" : "s3a://bigdata/output/",
 "job_log" : "s3a://bigdata/log/",
 "shutdown_cluster" : true,
 "file_action" : "",
 "submit_job_once_cluster_run" : true,
 "hql" : "",
 "hive_script_path" : ""
}
],
"bootstrap_scripts" : [{
 "name" : "Modify os config",
 "uri" : "s3a://XXX/modify_os_config.sh",
 "parameters" : "param1 param2",
 "nodes" : ["master", "core", "task"],
 "active_master" : "false",
 "before_component_start" : "true",
 "start_time" : "1667892101",
 "state" : "IN_PROGRESS",
 "fail_action" : "continue",
 "action_stages" : ["BEFORE_COMPONENT_FIRST_START", "BEFORE_SCALE_IN"]
}, {
 "name" : "Install zeppelin",
 "uri" : "s3a://XXX/zeppelin_install.sh",
 "parameters" : "",
 "nodes" : ["master"],
 "active_master" : "true",
 "before_component_start" : "false",
 "start_time" : "1667892101",
 "state" : "IN_PROGRESS",
 "fail_action" : "continue",
```

```
 "action_stages" : ["AFTER_SCALE_IN", "AFTER_SCALE_OUT"]
 }]
}
```

- Create a cluster with the HA function enabled without using the **node\_groups** parameter group. The cluster version is MRS 3.2.0-LTS.1.

POST [https://{endpoint}/v1.1/{project\\_id}/run-job-flow](https://{endpoint}/v1.1/{project_id}/run-job-flow)

```
{
 "billing_type" : 12,
 "data_center" : "",
 "master_node_num" : 2,
 "master_node_size" : "s3.2xlarge.2.linux.bigdata",
 "core_node_num" : 3,
 "core_node_size" : "s3.2xlarge.2.linux.bigdata",
 "available_zone_id" : ,
 "cluster_name" : "newcluster",
 "vpc" : "vpc1",
 "vpc_id" : "5b7db34d-3534-4a6e-ac94-023cd36aaf74",
 "subnet_id" : "815bece0-fd22-4b65-8a6e-15788c99ee43",
 "subnet_name" : "subnet",
 "security_groups_id" : "845bece1-fd22-4b45-7a6e-14338c99ee43",
 "tags" : [{
 "key" : "key1",
 "value" : "value1"
 }, {
 "key" : "key2",
 "value" : "value2"
 }],
 "cluster_version" : "MRS 3.2.0-LTS.1",
 "cluster_type" : 0,
 "master_data_volume_type" : "SATA",
 "master_data_volume_size" : 600,
 "master_data_volume_count" : 1,
 "core_data_volume_type" : "SATA",
 "core_data_volume_size" : 600,
 "core_data_volume_count" : 2,
 "node_public_cert_name" : "SSHkey-bba1",
 "safe_mode" : 0,
 "log_collection" : 1,
 "task_node_groups" : [{
 "node_num" : 2,
 "node_size" : "",
 "data_volume_type" : "SATA",
 "data_volume_count" : 1,
 "data_volume_size" : 600,
 "auto_scaling_policy" : {
 "auto_scaling_enable" : true,
 "min_capacity" : 1,
 "max_capacity" : "3",
 "resources_plans" : [{
 "period_type" : "daily",
 "start_time" : "9: 50",
 "end_time" : "10: 20",
 "min_capacity" : 2,
 "max_capacity" : 3
 }],
 "period_type" : "daily",
 "start_time" : "10: 20",
 "end_time" : "12: 30",
 "min_capacity" : 0,
 "max_capacity" : 2
 }],
 "exec_scripts" : [{
 "name" : "before_scale_out",
 "uri" : "s3a://XXX/zeppelin_install.sh",
 "parameters" : "${mrs_scale_node_num}${mrs_scale_type}xxx",
 "nodes" : ["master", "core", "task"],
 "active_master" : "true",
 "action_stage" : "before_scale_out",
 }],
 }],
}
```

```
 "fail_action" : "continue"
 }, {
 "name" : "after_scale_out",
 "uri" : "s3a: //XXX/storm_rebalance.sh",
 "parameters" : "${mrs_scale_node_hostnames}${mrs_scale_node_ips}",
 "nodes" : ["master", "core", "task"],
 "active_master" : "true",
 "action_stage" : "after_scale_out",
 "fail_action" : "continue"
 }],
 "rules" : [{
 "name" : "default-expand-1",
 "adjustment_type" : "scale_out",
 "cool_down_minutes" : 5,
 "scaling_adjustment" : 1,
 "trigger" : {
 "metric_name" : "YARNMemoryAvailablePercentage",
 "metric_value" : "25",
 "comparison_operator" : "LT",
 "evaluation_periods" : 10
 }
 }, {
 "name" : "default-shrink-1",
 "adjustment_type" : "scale_in",
 "cool_down_minutes" : 5,
 "scaling_adjustment" : 1,
 "trigger" : {
 "metric_name" : "YARNMemoryAvailablePercentage",
 "metric_value" : "70",
 "comparison_operator" : "GT",
 "evaluation_periods" : 10
 }
 }]
}, {
 "component_list" : [{
 "component_name" : "Hadoop"
 }, {
 "component_name" : "Spark"
 }, {
 "component_name" : "HBase"
 }, {
 "component_name" : "Hive"
 }],
 "add_jobs" : [{
 "job_type" : 1,
 "job_name" : "tenji111",
 "jar_path" : "s3a: //bigdata/program/hadoop-mapreduce-examples-2.7.2.jar",
 "arguments" : "wordcount",
 "input" : "s3a: //bigdata/input/wd_1k/",
 "output" : "s3a: //bigdata/ouput/",
 "job_log" : "s3a: //bigdata/log/",
 "shutdown_cluster" : true,
 "file_action" : "",
 "submit_job_once_cluster_run" : true,
 "hql" : "",
 "hive_script_path" : ""
 }],
 "bootstrap_scripts" : [{
 "name" : "Modifyosconfig",
 "uri" : "s3a: //XXX/modify_os_config.sh",
 "parameters" : "param1param2",
 "nodes" : ["master", "core", "task"],
 "active_master" : "false",
 "before_component_start" : "true",
 "start_time" : "1667892101",
 "state" : "IN_PROGRESS",
 "fail_action" : "continue",
 "action_stages" : ["BEFORE_COMPONENT_FIRST_START", "BEFORE_SCALE_IN"]
 }]
}
```

```
}, {
 "name": "Installzeppelin",
 "uri": "s3a://XXX/zeppelin_install.sh",
 "parameters": "",
 "nodes": ["master"],
 "active_master": "true",
 "before_component_start": "false",
 "start_time": "1667892101",
 "state": "IN_PROGRESS",
 "fail_action": "continue",
 "action_stages": ["AFTER_SCALE_IN", "AFTER_SCALE_OUT"]
}
}
```

- Use the **node\_groups** parameter group to create a cluster with the HA function disabled. The cluster version is MRS 3.2.0-LTS.1.

POST [https://{endpoint}/v1.1/{project\\_id}/run-job-flow](https://{endpoint}/v1.1/{project_id}/run-job-flow)

```
{
 "billing_type": 12,
 "data_center": "",
 "available_zone_id": ,
 "cluster_name": "mrs_HEbK",
 "cluster_version": "MRS 3.2.0-LTS.1",
 "safe_mode": 0,
 "cluster_type": 0,
 "component_list": [{
 "component_name": "Hadoop"
 }, {
 "component_name": "Spark2x"
 }, {
 "component_name": "HBase"
 }, {
 "component_name": "Hive"
 }, {
 "component_name": "Zookeeper"
 }, {
 "component_name": "Tez"
 }, {
 "component_name": "Hue"
 }, {
 "component_name": "Loader"
 }, {
 "component_name": "Flink"
 }],
 "vpc": "vpc-4b1c",
 "vpc_id": "4a365717-67be-4f33-80c5-98e98a813af8",
 "subnet_id": "67984709-e15e-4e86-9886-d76712d4e00a",
 "subnet_name": "subnet-4b44",
 "security_groups_id": "4820eace-66ad-4f2c-8d46-cf340e3029dd",
 "tags": [{
 "key": "key1",
 "value": "value1"
 }, {
 "key": "key2",
 "value": "value2"
 }],
 "node_groups": [{
 "group_name": "master_node_default_group",
 "node_num": 1,
 "node_size": "",
 "root_volume_size": 480,
 "root_volume_type": "SATA",
 "data_volume_type": "SATA",
 "data_volume_count": 1,
 "data_volume_size": 600
 }, {
 "group_name": "core_node_analysis_group",
 "node_num": 1,
 "node_size": "",
 }],
}
```

```
"root_volume_size" : 480,
"root_volume_type" : "SATA",
"data_volume_type" : "SATA",
"data_volume_count" : 1,
"data_volume_size" : 600
}],
"login_mode" : 1,
"cluster_master_secret" : "",
"cluster_admin_secret" : "",
"log_collection" : 1,
"add_jobs" : [{
 "job_type" : 1,
 "job_name" : "tenji111",
 "jar_path" : "s3a://bigdata/program/hadoop-mapreduce-examples-2.7.2.jar",
 "arguments" : "wordcount",
 "input" : "s3a://bigdata/input/wd_1k/",
 "output" : "s3a://bigdata/output/",
 "job_log" : "s3a://bigdata/log/",
 "shutdown_cluster" : true,
 "file_action" : "",
 "submit_job_once_cluster_run" : true,
 "hql" : "",
 "hive_script_path" : ""
}],
"bootstrap_scripts" : [{
 "name" : "Modify os config",
 "uri" : "s3a://XXX/modify_os_config.sh",
 "parameters" : "param1 param2",
 "nodes" : ["master", "core", "task"],
 "active_master" : "false",
 "before_component_start" : "true",
 "start_time" : "1667892101",
 "state" : "IN_PROGRESS",
 "fail_action" : "continue",
 "action_stages" : ["BEFORE_COMPONENT_FIRST_START", "BEFORE_SCALE_IN"]
}, {
 "name" : "Install zeppelin",
 "uri" : "s3a://XXX/zeppelin_install.sh",
 "parameters" : "",
 "nodes" : ["master"],
 "active_master" : "true",
 "before_component_start" : "false",
 "start_time" : "1667892101",
 "state" : "IN_PROGRESS",
 "fail_action" : "continue",
 "action_stages" : ["AFTER_SCALE_IN", "AFTER_SCALE_OUT"]
}]
}
```

- Create a cluster with the HA function disabled without using the **node\_groups** parameter group. The cluster version is MRS 3.2.0-LTS.1.  
POST [https://{endpoint}/v1.1/{project\\_id}/run-job-flow](https://{endpoint}/v1.1/{project_id}/run-job-flow)

```
{
 "billing_type" : 12,
 "data_center" : "",
 "master_node_num" : 1,
 "master_node_size" : "",
 "core_node_num" : 1,
 "core_node_size" : "",
 "available_zone_id" : ,
 "cluster_name" : "newcluster",
 "vpc" : "vpc1",
 "vpc_id" : "5b7db34d-3534-4a6e-ac94-023cd36aaf74",
 "subnet_id" : "815bece0-fd22-4b65-8a6e-15788c99ee43",
 "subnet_name" : "subnet",
 "security_groups_id" : "",
 "tags" : [{
 "key" : "key1",
 "value" : "value1"
 }]
}
```

```
{
 "key": "key2",
 "value": "value2"
}, {
 "cluster_version": "MRS 3.2.0-LTS.1",
 "cluster_type": 0,
 "master_data_volume_type": "SATA",
 "master_data_volume_size": 600,
 "master_data_volume_count": 1,
 "core_data_volume_type": "SATA",
 "core_data_volume_size": 600,
 "core_data_volume_count": 1,
 "login_mode": 1,
 "node_public_cert_name": "SSHkey-bba1",
 "safe_mode": 0,
 "cluster_admin_secret": "*****",
 "log_collection": 1,
 "component_list": [{
 "component_name": "Hadoop"
 }, {
 "component_name": "Spark2x"
 }, {
 "component_name": "HBase"
 }, {
 "component_name": "Hive"
 }, {
 "component_name": "Zookeeper"
 }, {
 "component_name": "Tez"
 }, {
 "component_name": "Hue"
 }, {
 "component_name": "Loader"
 }, {
 "component_name": "Flink"
 }],
 "add_jobs": [{
 "job_type": 1,
 "job_name": "tenji111",
 "jar_path": "s3a://bigdata/program/hadoop-mapreduce-examples-XXX.jar",
 "arguments": "wordcount",
 "input": "s3a://bigdata/input/wd_1k/",
 "output": "s3a://bigdata/output/",
 "job_log": "s3a://bigdata/log/",
 "shutdown_cluster": false,
 "file_action": "",
 "submit_job_once_cluster_run": true,
 "hql": "",
 "hive_script_path": ""
 }],
 "bootstrap_scripts": [{
 "name": "Install zeppelin",
 "uri": "s3a://XXX/zeppelin_install.sh",
 "parameters": "",
 "nodes": ["master"],
 "active_master": "false",
 "before_component_start": "false",
 "start_time": "1667892101",
 "state": "IN_PROGRESS",
 "fail_action": "continue",
 "action_stages": ["AFTER_SCALE_IN", "AFTER_SCALE_OUT"]
 }]
}
```

## Example Response

**Status code: 200**

The cluster is created.

```
{
 "cluster_id": "da1592c2-bb7e-468d-9ac9-83246e95447a",
 "result": true,
 "msg": ""
}
```

## Status Codes

[Table 7-16](#) describes the status code.

**Table 7-16** Status code

| Status Code | Description                   |
|-------------|-------------------------------|
| 200         | The cluster has been created. |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.1.2 Resizing a Cluster

### Function

This API is used to scale out or scale in Core or Task nodes in a cluster that has been created. After an MRS cluster is created, the number of Master nodes cannot be adjusted. That is, Master nodes cannot be scaled in or out. This API is incompatible with Sahara.

Only clusters in the **Running** state can be scaled out or in.

The APIs described in this section support only streaming, analysis, and hybrid clusters.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
PUT /v1.1/{project\_id}/cluster\_infos/{cluster\_id}
- Parameter description

Table 7-17 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 7-18** Request parameters

| Parameter  | Mandatory | Type                        | Description                                                                                                                                                                                                 |
|------------|-----------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| service_id | No        | String                      | <b>Explanation</b><br>Service ID. This parameter is reserved for extension. You do not need to set this parameter.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| plan_id    | No        | String                      | <b>Explanation</b><br>Plan ID. This parameter is reserved for extension. You do not need to set this parameter.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| parameters | Yes       | ClusterScalingParams object | <b>Explanation</b><br>Request parameters. For details, see <a href="#">Table 7-19</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                            |

| Parameter       | Mandatory | Type               | Description                                                                                                                                                                                                       |
|-----------------|-----------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| previous_values | No        | Map<String,String> | <b>Explanation</b><br>This parameter is an extended API and needs to be reserved. You do not need to set this parameter.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-19** ClusterScalingParams

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                |
|------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| order_id   | No        | String | <b>Explanation</b><br>Order ID obtained by the system during scale-out or scale-in. You do not need to set the parameter.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                         |
| scale_type | Yes       | String | <b>Explanation</b><br>Operation type on the cluster node.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>scale_in</b>: cluster scale-in</li><li>• <b>scale_out</b>: cluster scale-out</li></ul> <b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                      |
|------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_id    | Yes       | String | <p><b>Explanation</b><br/>ID of the newly added or removed node. The parameter value is fixed to <b>node_orderadd</b>.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                               |
| node_group | No        | String | <p><b>Explanation</b><br/>Node group to be scaled out or in</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>core_node_default_group</b>: indicates the Core node group.</li> <li>• <b>task_node_default_group</b>: indicates the Task node group.</li> </ul> <p><b>Default value</b><br/>core_node_default_group</p> |

| Parameter      | Mandato<br>ry | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|---------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| task_node_info | No            | Object | <p><b>Explanation</b></p> <p>Task node specifications. For more parameter description, see <a href="#">Table 7-20</a>.</p> <p><b>Constraints</b></p> <ul style="list-style-type: none"><li>• When the number of Task nodes is <b>0</b>, this parameter is used to specify Task node specifications.</li><li>• When the number of Task nodes is greater than <b>0</b>, this parameter is unavailable. If this parameter is left blank, its mandatory field becomes unavailable and will pass an empty button for the null object.</li></ul> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| instances | Yes       | Integer | <p><b>Explanation</b></p> <p>Number of nodes to be added or removed</p> <p><b>Constraints</b></p> <ul style="list-style-type: none"><li>• The maximum number of nodes to be added is 500 minus the number of Core and Task nodes. For example, the current number of Core nodes is 3, the number of nodes to be added must be less than or equal to 497.</li><li>• A maximum of 500 Core and Task nodes are supported by default. If more than 500 Core and Task nodes are required, contact technical support engineers or call a background API to modify the database.</li><li>• Nodes can be deleted for cluster scale-out when the number of Core nodes is greater than 3 or the number of Task nodes is greater than 0. For example, if there are 5 Core nodes and 5 Task nodes in a cluster, only 2 (5 minus 3) Core nodes are available for deletion and 5 or fewer than 5 Task nodes can be deleted.</li></ul> <p><b>Value range</b></p> <p>≥1</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter              | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| skip_bootstrap_scripts | No        | String  | <p><b>Explanation</b></p> <p>Whether to skip the bootstrap action. This parameter is valid only when a bootstrap action is configured during cluster creation and takes effect during scale-out. It indicates whether the bootstrap action specified during cluster creation is performed on nodes added during scale-out.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Skip the bootstrap action.</li> <li>• <b>false</b>: Execute the bootstrap action.</li> </ul> <p><b>Default value</b></p> <p>false</p> |
| scale_without_start    | No        | Boolean | <p><b>Explanation</b></p> <p>Whether to start components on the added nodes after cluster scale-out</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Do not start components after scale-out.</li> <li>• <b>false</b>: Start components after scale-out.</li> </ul> <p><b>Default value</b></p> <p>N/A</p>                                                                                                                                                                                                        |

| Parameter  | Mandatory | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|-----------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| server_ids | No        | Array of strings | <b>Explanation</b><br>ID list of Task nodes to be deleted during task node scale-in.<br><b>Constraints</b> <ul style="list-style-type: none"><li>• This parameter does not take effect when <b>scale_type</b> is set to <b>scale-out</b>.</li><li>• If <b>scale_type</b> is set to <b>scale-in</b> and cannot be left blank, the system deletes the specified Task nodes.</li><li>• When <b>scale_type</b> is set to <b>scale-in</b> and <b>server_ids</b> is left blank, the system automatically deletes the Task nodes based on the system rules.</li></ul> <b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-20** task\_node\_info parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                              |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_size | Yes       | String | <b>Explanation</b><br>Instance specifications of a Task node, for example, . You are advised to obtain the specifications supported by the corresponding version in the corresponding region from the cluster creation page on the MRS console.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter         | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| data_volume_type  | Yes       | String  | <b>Explanation</b><br>Data disk storage type of the Task node. Supported types include SATA, SAS, and SSD.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li><li>• <b>GPSSD</b>: general-purpose SSD</li></ul> <b>Default value</b><br>N/A |
| data_volume_count | Yes       | Integer | <b>Explanation</b><br>Number of data disks of a Task node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-20<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                |
| data_volume_size  | Yes       | Integer | <b>Explanation</b><br>Data disk storage space of a Task node. You only need to pass in a number without the unit GB.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A                                                                                                                                                                 |

## Response Parameters

[Table 7-21](#) describes the response parameter.

**Table 7-21** Response parameter

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                     |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| result    | String | <b>Explanation</b><br>Operation result<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>succeeded</b>: The operation is successful.</li><li>• <b>Error Codes</b> describes the error codes returned upon operation failures.</li></ul> <b>Default value</b><br>N/A |

## Example Request

- Add one core node to the MRS cluster.

```
PUT /v1.1/{project_id}/cluster_infos/{cluster_id}
```

```
{
 "service_id": "",
 "plan_id": "",
 "parameters": {
 "order_id": "",
 "scale_type": "scale_out",
 "node_id": "node_orderadd",
 "node_group": "core_node_default_group",
 "instances": "1",
 "skip_bootstrap_scripts": false,
 "scale_without_start": false
 },
 "previous_values": { }
}
```

- If there is no Task node, add one to the MRS cluster.

```
PUT /v1.1/{project_id}/cluster_infos/{cluster_id}
```

```
{
 "service_id": "",
 "plan_id": "",
 "parameters": {
 "order_id": "",
 "scale_type": "scale_out",
 "node_id": "node_orderadd",
 "node_group": "task_node_default_group",
 "instances": "1",
 "skip_bootstrap_scripts": false,
 "scale_without_start": false
 },
 "previous_values": { }
}
```

- If the number of Task nodes is greater than 0, add a Task node of the specification to the MRS cluster.

```
PUT /v1.1/{project_id}/cluster_infos/{cluster_id}
```

```
{
 "service_id": "",
 "plan_id": "",
 "parameters": {
 "order_id": "",
 "scale_type": "scale_out",
 "node_id": "node_orderadd",
 "node_group": "task_node_default_group",
 "task_node_info": {
 "node_size": "",
 "data_volume_type": "SATA",
 "data_volume_count": 2,
 "data_volume_size": 600
 },
 "instances": "1",
 "scale_without_start": false
 },
 "previous_values": { }
}
```

- Remove a core node from the MRS cluster.

PUT /v1.1/{project\_id}/cluster\_infos/{cluster\_id}

```
{
 "service_id": "",
 "plan_id": "",
 "parameters": {
 "order_id": "",
 "scale_type": "scale_in",
 "node_id": "node_orderadd",
 "node_group": "core_node_default_group",
 "instances": "1"
 },
 "previous_values": { }
}
```

- Remove a Task node from the MRS cluster.

PUT /v1.1/{project\_id}/cluster\_infos/{cluster\_id}

```
{
 "service_id": "",
 "plan_id": "",
 "parameters": {
 "order_id": "",
 "scale_type": "scale_in",
 "node_id": "node_orderadd",
 "node_group": "task_node_default_group",
 "instances": "1"
 },
 "previous_values": { }
}
```

- Remove a specified Task node from the MRS cluster.

PUT /v1.1/{project\_id}/cluster\_infos/{cluster\_id}

```
{
 "service_id": "",
 "plan_id": "",
 "parameters": {
 "order_id": "",
 "scale_type": "scale_in",
 "node_id": "node_orderadd",
 "node_group": "task_node_default_group",
 "instances": "2",
 "server_ids": ["c9573435-7814-4b2c-9131-ad78b814414c",
"a4951009-6a0f-4e7b-9c81-9d4bd1f8c537"]
 }
}
```

```
},
"previous_values": { }
}
```

## Example Response

**Status code: 200**

The core or task node has been added or removed.

```
{
 "result": "succeeded"
}
```

## Status Codes

- [Table 7-22](#) describes the status code.

**Table 7-22** Status code

| Status Code | Description                                        |
|-------------|----------------------------------------------------|
| 200         | The core or task nodes have been added or removed. |

- See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.1.3 Querying a Cluster List

### Function

This API is used to query a list of clusters created by a user. This API is incompatible with Sahara.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
GET /v1.1/{project\_id}/cluster\_infos
- Parameter description

**Table 7-23** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

**Table 7-24** Query parameters

| Parameter   | Mandatory | Type   | Description                                                                                                                                                           |
|-------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pageSize    | No        | String | <b>Explanation</b><br>Maximum number of clusters displayed on a page<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-2147483646<br><b>Default value</b><br>10 |
| currentPage | No        | String | <b>Explanation</b><br>Current page number<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>1                                      |

| Parameter   | Mandatory | Type   | Description                                                                                                                      |
|-------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------|
| clusterName | No        | String | <b>Explanation</b><br>The cluster name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| clusterState | No        | String | <p><b>Explanation</b></p> <p>Query clusters by status.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>existing</b>: Query existing clusters, including all clusters except those in the <b>Deleted</b> state and the yearly/monthly clusters in the <b>Order processing</b> or <b>Preparing</b> state.</li><li>• <b>history</b>: Quer historical clusters, including all the deleted clusters, clusters that fail to delete, clusters whose VMs fail to delete, and clusters whose database updates fail to delete.</li><li>• <b>starting</b>: Query a list of clusters that are being started.</li><li>• <b>running</b>: Query a list of running clusters.</li><li>• <b>terminated</b>: Query a list of terminated clusters.</li><li>• <b>failed</b>: Query a list of failed clusters.</li><li>• <b>abnormal</b>: Query a list of abnormal clusters.</li><li>• <b>terminating</b>: Query a list of clusters that are being terminated.</li><li>• <b>frozen</b>: Query a list of frozen clusters.</li><li>• <b>scaling-out</b>: Query a list of clusters that are being scaled out.</li><li>• <b>scaling-in</b>: Query a list of clusters that are being scaled in.</li></ul> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags                | No        | String | <b>Explanation</b><br>Tag list. You can search for a cluster by its tag. If you specify multiple tags, the relationship between them is AND.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The format of the <b>tags</b> parameter is <b>tags=k1*v1,k2*v2,k3*v3</b>.</li><li>When the values of some tags are null, the format is <b>tags=k1,k2,k3*v3</b>.</li></ul> <b>Default value</b><br>N/A |
| enterpriseProjectId | No        | String | <b>Explanation</b><br>The enterprise project ID used to query clusters in a specified enterprise project. To obtain the enterprise project ID, check the <b>id</b> value in the <b>enterprise_project field data structure</b> table in "Querying the Enterprise Project List" in <i>Enterprise Management API Reference</i> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>0                       |

## Request Parameters

None

Response Parameters

Table 7-25 Response parameters

| Parameter    | Type                     | Description                                                                                                                                                                      |
|--------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| clusterTotal | Integer                  | <b>Explanation</b><br>Total number of clusters in a list<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                |
| clusters     | Array of Cluster objects | <b>Explanation</b><br>Cluster parameters. For details, see <a href="#">Table 7-26</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-26 clusters parameters

| Parameter | Type   | Description                                                                                                                |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------|
| clusterId | String | <b>Explanation</b><br>Cluster ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter     | Type   | Description                                                                                                                                                  |
|---------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| clusterName   | String | <b>Explanation</b><br>Cluster name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                 |
| masterNodeNum | String | <b>Explanation</b><br>Number of Master nodes deployed in a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| coreNodeNum   | String | <b>Explanation</b><br>Number of Core nodes deployed in a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| totalNodeNum  | String | <b>Explanation</b><br>Total number of nodes deployed in a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| clusterState | String | <b>Explanation</b><br>Cluster status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>starting</b>: The cluster is being started.</li><li>• <b>running</b>: The cluster is running.</li><li>• <b>terminated</b>: The cluster has been terminated.</li><li>• <b>failed</b>: The cluster fails.</li><li>• <b>abnormal</b>: The cluster is abnormal.</li><li>• <b>terminating</b>: The cluster is being terminated.</li><li>• <b>frozen</b>: The cluster has been frozen.</li><li>• <b>scaling-out</b>: The cluster is being scaled out.</li><li>• <b>scaling-in</b>: The cluster is being scaled in.</li></ul> <b>Default value</b><br>N/A |
| createAt     | String | <b>Explanation</b><br>Cluster creation time, which is a 10-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| updateAt     | String | <b>Explanation</b><br>Cluster update time, which is a 10-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| Parameter   | Type   | Description                                                                                                                                                                                                      |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| billingType | String | <b>Explanation</b><br>Cluster billing mode.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>Yearly/monthly</li> <li>Pay-per-use</li> </ul> <b>Default value</b><br>N/A |
| dataCenter  | String | <b>Explanation</b><br>Cluster work region.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                              |
| vpc         | String | <b>Explanation</b><br>VPC name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                         |
| vpclId      | String | <b>Explanation</b><br>VPC ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                           |

| Parameter      | Type   | Description                                                                                                                                                             |
|----------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| duration       | String | <b>Explanation</b><br>Cluster subscription duration.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                           |
| fee            | String | <b>Explanation</b><br>Cluster creation fee, which is automatically calculated.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| hadoopVersion  | String | <b>Explanation</b><br>Hadoop version<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                           |
| masterNodeSize | String | <b>Explanation</b><br>Instance specifications of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                |

| Parameter           | Type   | Description                                                                                                                                                                                                                         |
|---------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| coreNodeSize        | String | <b>Explanation</b><br>Instance specifications of a Core node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                              |
| componentList       | Array  | <b>Explanation</b><br>Component list. For details, see <a href="#">Table 7-27</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                        |
| externalIp          | String | <b>Explanation</b><br>External IP address. This IP address is opened to the outside of the cluster as access to the active Master process.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| externalAlternateIp | String | <b>Explanation</b><br>Backup external IP address. This IP address is used outside the cluster as access to the standby Master process.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |

| Parameter    | Type   | Description                                                                                                                                                                                                                                    |
|--------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| internallp   | String | <p><b>Explanation</b><br/>Internal IP address. This IP address is used within the cluster as access to Master processes.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>           |
| deploymentId | String | <p><b>Explanation</b><br/>Cluster deployment ID. The ID is used by cloud services to query details about cluster deployment tasks.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |
| remark       | String | <p><b>Explanation</b><br/>Cluster remarks. By default, this parameter is left blank.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                               |
| orderId      | String | <p><b>Explanation</b><br/>Cluster creation order ID.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                               |

| Parameter                 | Type   | Description                                                                                                                                       |
|---------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| azId                      | String | <b>Explanation</b><br>AZ ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                             |
| masterNodeProductId       | String | <b>Explanation</b><br>Product ID of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| masterNodeSpecificationId | String | <b>Explanation</b><br>Specification ID of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| coreNodeProductId         | String | <b>Explanation</b><br>Product ID of a Core node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A         |

| Parameter          | Type   | Description                                                                                                                                    |
|--------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------|
| coreNodeSpecId     | String | <b>Explanation</b><br>Specification ID of a Core node<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| azName             | String | <b>Explanation</b><br>AZ name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                        |
| azCode             | String | <b>Explanation</b><br>AZ name (en).<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                   |
| availabilityZoneId | String | <b>Explanation</b><br>Availability zone.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A              |

| Parameter  | Type    | Description                                                                                                                                           |
|------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| instanceId | String  | <b>Explanation</b><br>Instance ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                           |
| vnc        | String  | <b>Explanation</b><br>URI for remotely logging in to an ECS.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| tenantId   | String  | <b>Explanation</b><br>Project ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                            |
| volumeSize | Integer | <b>Explanation</b><br>Disk storage space.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                    |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                  |
|---------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| volumeType          | String  | <b>Explanation</b><br>Disk type.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                    |
| subnetId            | String  | <b>Explanation</b><br>Subnet ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                    |
| enterpriseProjectId | String  | <b>Explanation</b><br>Enterprise project ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                        |
| clusterType         | Integer | <b>Explanation</b><br>Cluster type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• 0: analysis cluster</li><li>• 1: streaming cluster</li><li>• 2: hybrid cluster</li><li>• 3: custom cluster</li><li>• 4: Offline cluster</li></ul> <b>Default value</b><br>N/A |

| Parameter             | Type                             | Description                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| subnetName            | String                           | <b>Explanation</b><br>Subnet name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                  |
| securityGroupsId      | String                           | <b>Explanation</b><br>Security group ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                            |
| slaveSecurityGroupsId | String                           | <b>Explanation</b><br>Security group ID of a non-master node. Currently, one MRS cluster uses only one security group. Therefore, this field has been discarded. This field returns the same value as <b>securityGroupsId</b> does for compatibility consideration.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| bootstrapScripts      | Array of BootstrapScript objects | <b>Explanation</b><br>Bootstrap action script. For details, see <a href="#">Table 7-28</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                        |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| stageDesc | String | <p><b>Explanation</b><br/>Cluster process.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>The cluster installation progress includes:</p> <ul style="list-style-type: none"><li>• Verifying cluster parameters: Cluster parameters are being verified.</li><li>• Applying for cluster resources: Cluster resources are being applied for.</li><li>• Creating VMs: The VMs are being created.</li><li>• Initializing VMs: The VMs are being initialized.</li><li>• Installing MRS Manager: MRS Manager is being installed.</li><li>• Deploying the cluster: The cluster is being deployed.</li><li>• Cluster installation failed: Failed to install the cluster.</li></ul> <p>The cluster scale-out progress includes:</p> <ul style="list-style-type: none"><li>• Preparing for scale-out: Cluster scale-out is being prepared.</li><li>• Creating VMs: The VMs are being created.</li><li>• Initializing VMs: The VMs are being initialized.</li><li>• Adding nodes to the cluster: The nodes are being added to the cluster.</li><li>• Scale-out failed: Failed to scale out the cluster.</li></ul> <p>The cluster scale-in progress includes:</p> <ul style="list-style-type: none"><li>• Preparing for scale-in: Cluster scale-in is being prepared.</li><li>• Decommissioning instance: The instance is being decommissioned.</li><li>• Deleting VMs: The VMs are being deleted.</li></ul> |

| Parameter          | Type    | Description                                                                                                                                                                                                                                                                                                                                 |
|--------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    |         | <ul style="list-style-type: none"><li>Deleting nodes from the cluster: The nodes are being deleted from the cluster.</li><li>Scale-in failed: Failed to scale in the cluster.</li></ul> If the cluster installation, scale-out, or scale-in fails, <b>stageDesc</b> will display the failure cause.<br><b>Constraints</b><br>N/A            |
| isMrsManagerFinish | Boolean | <b>Explanation</b><br>Whether MRS Manager installation is finished during cluster creation.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li><b>true</b>: MRS Manager installation is finished.</li><li><b>false</b>: MRS Manager installation is not finished.</li></ul> <b>Constraints</b><br>N/A |
| safeMode           | Integer | <b>Explanation</b><br>Run mode of an MRS cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li><b>0</b>: Normal cluster</li><li><b>1</b>: Security cluster</li></ul> <b>Constraints</b><br>N/A                                                                                                  |
| clusterVersion     | String  | <b>Explanation</b><br>Cluster version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                             |

| Parameter          | Type   | Description                                                                                                                                  |
|--------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------|
| nodePublicCertName | String | <b>Explanation</b><br>Name of the key file.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A         |
| masterNodeIp       | String | <b>Explanation</b><br>IP address of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| privateIpFirst     | String | <b>Explanation</b><br>Preferred private IP address.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| errorInfo          | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                |

| Parameter         | Type            | Description                                                                                                                                                                                                                                                  |
|-------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags              | String          | <b>Explanation</b><br>Tag information.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                              |
| chargingStartTime | String          | <b>Explanation</b><br>Start time of billing.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                        |
| logCollection     | Integer         | <b>Explanation</b><br>Whether to collect logs when cluster installation fails.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>0: Do not collect logs.</li><li>1: Collect logs.</li></ul> <b>Constraints</b><br>N/A |
| taskNodeGroups    | List<NodeGroup> | <b>Explanation</b><br>List of Task nodes. For more parameter description, see <a href="#">Table 7-29</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                          |

| Parameter            | Type            | Description                                                                                                                                                                                                                                                        |
|----------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nodeGroups           | List<NodeGroup> | <b>Explanation</b><br>List of Master, Core and Task nodes. For more parameter description, see <a href="#">Table 7-29</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                               |
| masterDataVolumeType | String          | <b>Explanation</b><br>Data disk storage type of the Master node. Currently, SATA, SAS, and SSD are supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                             |
| masterDataVolumeSize | Integer         | <b>Explanation</b><br>Data disk storage space of Master nodes, in GB To increase data storage capacity, you can add disks at the same time when creating a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A |

| Parameter             | Type    | Description                                                                                                                                                                                                                                                      |
|-----------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| masterDataVolumeCount | Integer | <b>Explanation</b><br>Number of data disks of the Master node<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can only be 1.<br><b>Default value</b><br>N/A                                                                                      |
| coreDataVolumeType    | String  | <b>Explanation</b><br>Data disk storage type of the Core node. Currently, SATA, SAS, and SSD are supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                             |
| coreDataVolumeSize    | Integer | <b>Explanation</b><br>Data disk storage space of Core nodes, in GB To increase data storage capacity, you can add disks at the same time when creating a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A |
| coreDataVolumeCount   | Integer | <b>Explanation</b><br>Number of data disks of the Core node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-10<br><b>Default value</b><br>N/A                                                                                                           |

| Parameter  | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| periodType | Integer | <p><b>Explanation</b><br/>Whether the subscription type is yearly or monthly.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>0</b>: monthly subscription</li> <li>• <b>1</b>: yearly subscription</li> </ul> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| scale      | String  | <p><b>Explanation</b><br/>Status of node changes If this parameter is left blank, no change operation has been performed on a cluster node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>Scaling-out</b>: The cluster is being scaled out.</li> <li>• <b>Scaling-in</b>: The cluster is being scaled in.</li> <li>• <b>scaling-error</b>: The cluster is in the running state and fails to be scaled in or out or the specifications fail to be scaled up for the last time.</li> <li>• <b>scaling-up</b>: The master node specifications are being scaled up.</li> <li>• <b>scaling_up_first</b>: The standby master node specifications are being scaled up.</li> <li>• <b>scaled_up_first</b>: The standby master node specifications have been scaled up.</li> <li>• <b>scaled-up-success</b>: The master node specifications have been scaled up.</li> </ul> <p><b>Default value</b><br/>N/A</p> |

| Parameter    | Type   | Description                                                                                                                                                                                                  |
|--------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eipId        | String | <b>Explanation</b><br>Unique ID of the cluster EIP<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                  |
| eipAddress   | String | <b>Explanation</b><br>IPv4 address of the cluster EIP<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                               |
| eipv6Address | String | <b>Explanation</b><br>IPv6 address of the cluster EIP. This parameter is not returned when an IPv4 address is used.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-27** componentAmb

| Parameter   | Type   | Description                                                                                                                  |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------|
| componentId | String | <b>Explanation</b><br>Component ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>None<br><b>Default value</b><br>N/A |

| Parameter        | Type   | Description                                                                                                                           |
|------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| componentName    | String | <b>Explanation</b><br>Component name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A        |
| componentVersion | String | <b>Explanation</b><br>Component version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| componentDesc    | String | <b>Explanation</b><br>Component description.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-28** bootstrapScripts

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | String | <p><b>Explanation</b></p> <p>Name of a bootstrap action script.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>The names of bootstrap action scripts in the same cluster must be unique. The value can contain 1 to 64 characters, including only digits, letters, spaces, hyphens (-), and underscores (_), and cannot start with a space.</p> <p><b>Default value</b></p> <p>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| uri       | String | <p><b>Explanation</b></p> <p>The path of a bootstrap action script. Set this parameter to an OBS bucket path or a local VM path.</p> <ul style="list-style-type: none"><li>• OBS bucket path: Enter a script path. For example, enter the path of the public sample script provided by MRS. Example: <b>s3a://bootstrap/presto/presto-install.sh</b>. If <b>dualroles</b> is installed, the parameter of the <b>presto-install.sh</b> script is <b>dualroles</b>. If <b>worker</b> is installed, the parameter of the <b>presto-install.sh</b> script is <b>worker</b>. Based on the Presto usage habit, you are advised to install <b>dualroles</b> on the active master nodes and <b>worker</b> on the core nodes.</li><li>• Local VM path: Enter a script path. The script path must start with a slash (/) and end with <b>.sh</b>.</li></ul> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter     | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| parameters    | String           | <b>Explanation</b><br>The bootstrap action script parameters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                         |
| nodes         | Array of strings | <b>Explanation</b><br>Type of a node where the bootstrap action script is executed. The value can be Master, Core, or Task.<br><b>Constraints</b><br>The node type must be represented in lowercase letters.<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: The bootstrap action script runs only on active Master nodes.</li><li>• <b>false</b>: The bootstrap action script can run on all Master nodes.</li></ul> <b>Default value</b><br>false |
| active_master | Boolean          | <b>Explanation</b><br>Whether the bootstrap action script runs only on active master nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: The bootstrap action script runs only on active Master nodes.</li><li>• <b>false</b>: The bootstrap action script can run on all Master nodes.</li></ul> <b>Default value</b><br>false                                                                                     |

| Parameter              | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| fail_action            | String  | <p><b>Explanation</b></p> <p>Whether to continue executing subsequent scripts and creating a cluster after the bootstrap action script fails to execute. You are advised to set this parameter to <b>continue</b> in the commissioning phase so that the cluster can continue to be installed and started no matter whether the bootstrap action is successful.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>continue</b>: Continue to execute subsequent scripts.</li> <li>• <b>errorout</b>: Stop the action.</li> </ul> <p><b>Default value</b></p> <p>errorout</p> |
| before_component_start | Boolean | <p><b>Explanation</b></p> <p>Time when the bootstrap action script is executed. Currently, the following two options are available: <b>Before component start</b> and <b>After component start</b>.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: The bootstrap action script is executed before the component starts.</li> <li>• <b>false</b>: The bootstrap action script is executed after the component starts.</li> </ul> <p><b>Default value</b></p> <p>false</p>                                                                                       |

| Parameter  | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| start_time | Long   | <b>Explanation</b><br>The execution time of one bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                   |
| state      | String | <b>Explanation</b><br>The running status of one bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>PENDING</b>: The script is suspended.</li><li>• <b>IN_PROGRESS</b>: The script is being processed.</li><li>• <b>SUCCESS</b></li><li>• <b>FAILURE</b>: The script fails to be executed.</li></ul> <b>Default value</b><br>N/A |

| Parameter     | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action_stages | Array of strings | <b>Explanation</b><br>Select the time when the bootstrap action script is executed. <ul style="list-style-type: none"><li>• <b>BEFORE_COMPONENT_FIRST_START</b>: before initial component starts</li><li>• <b>AFTER_COMPONENT_FIRST_START</b>: after initial component starts</li><li>• <b>BEFORE_SCALE_IN</b>: before scale-in</li><li>• <b>AFTER_SCALE_IN</b>: after scale-in</li><li>• <b>BEFORE_SCALE_OUT</b>: before scale-out</li><li>• <b>AFTER_SCALE_OUT</b>: after scale-out</li></ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-29 NodeGroupV10

| Parameter | Type   | Description                                                                                                                     |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------|
| GroupName | String | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter     | Type    | Description                                                                                                                                                                                                                                                                                              |
|---------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NodeNum       | Integer | <p><b>Explanation</b><br/>Number of nodes. The value ranges from 0 to 500. The minimum number of Master and Core nodes is 1 and the total number of Core and Task nodes cannot exceed 500.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>0-500</p> <p><b>Default value</b><br/>N/A</p> |
| NodeSize      | String  | <p><b>Explanation</b><br/>Instance specifications of a node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                 |
| NodeSpecId    | String  | <p><b>Explanation</b><br/>Instance specification ID of a node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                               |
| NodeProductId | String  | <p><b>Explanation</b><br/>Instance product ID of a node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                     |

| Parameter           | Type    | Description                                                                                                                                                                                                           |
|---------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VmProductId         | String  | <b>Explanation</b><br>VM specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                           |
| VmSpecCode          | String  | <b>Explanation</b><br>VM specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                           |
| RootVolumeSize      | Integer | <b>Explanation</b><br>System disk size of a node. This parameter is not configurable and its default value is <b>40 GB</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| RootVolumeProductId | String  | <b>Explanation</b><br>System disk product ID of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                      |

| Parameter                  | Type   | Description                                                                                                                                                                                                                                                                                                                       |
|----------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RootVolumeType             | String | <b>Explanation</b><br>System disk type of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                        |
| RootVolumeResourceSpecCode | String | <b>Explanation</b><br>System disk product specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                      |
| RootVolumeResourceType     | String | <b>Explanation</b><br>System disk product type of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                |
| DataVolumeType             | String | <b>Explanation</b><br>Data disk storage type of a node. Currently, SATA, SAS, and SSD are supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li></ul> <b>Default value</b><br>N/A |

| Parameter                  | Type    | Description                                                                                                                                        |
|----------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| DataVolumeCount            | Integer | <b>Explanation</b><br>Number of data disks of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| DataVolumeSize             | Integer | <b>Explanation</b><br>Data disk storage space of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| DataVolumeProductId        | String  | <b>Explanation</b><br>Data disk product ID of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| DataVolumeResourceSpecCode | String  | <b>Explanation</b><br>Data disk specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter              | Type   | Description                                                                                                                              |
|------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------|
| DataVolumeResourceType | String | <b>Explanation</b><br>Data disk type of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Response

**Status code: 200**

Querying the cluster list is successful.

```
{
 "clusterTotal": "1",
 "clusters": [{
 "clusterId": "bc134369-294c-42b7-a707-b2036ba38524",
 "clusterName": "mrs_D0zW",
 "masterNodeNum": "2",
 "coreNodeNum": "3",
 "clusterState": "terminated",
 "createAt": "1498272043",
 "updateAt": "1498636753",
 "chargingStartTime": "1498273733",
 "logCollection": "1",
 "billingType": "Metered",
 "dataCenter": ,
 "vpc": null,
 "duration": "0",
 "fee": null,
 "hadoopVersion": null,
 "masterNodeSize": null,
 "coreNodeSize": null,
 "componentList": [{
 "componentId": "MRS 3.1.0_001",
 "componentName": "Hadoop",
 "componentVersion": "3.1.1",
 "componentDesc": "A framework that allows for the distributed processing of large data sets across clusters."
 }, {
 "componentId": "MRS 3.1.0_003",
 "componentName": "HBase",
 "componentVersion": "2.1.1",
 "componentDesc": "A scalable, distributed database that supports structured data storage for large tables."
 }, {
 "componentId": "MRS 3.1.0_002",
 "componentName": "Spark",
 "componentVersion": "2.3.2",
 "componentDesc": "A fast and general engine for large-scale data processing."
 }, {
 "componentId": "MRS 3.1.0_004",
 "componentName": "Hive",
 "componentVersion": "3.1.0",
 "componentDesc": "A data warehouse infrastructure that provides data summarization and ad hoc querying."
 }
]
}
```

```
 }],
 "externalIp" : null,
 "externalAlternateIp" : null,
 "internalIp" : null,
 "deploymentId" : null,
 "remark" : "",
 "orderId" : null,
 "azId" : null,
 "azCode" : null,
 "masterNodeProductId" : null,
 "masterNodeSpecId" : null,
 "coreNodeProductId" : null,
 "coreNodeSpecId" : null,
 "azName" : ,
 "instanceId" : null,
 "vnc" : "v2/5a3314075bfa49b9ae360f4ecd333695/servers/e2cda891-232e-4703-995e-3b1406add01d/
action",
 "tenantId" : null,
 "volumeSize" : "0",
 "volumeType" : null,
 "subnetId" : null,
 "subnetName" : null,
 "securityGroupId" : null,
 "slaveSecurityGroupId" : null,
 "bootstrapScripts" : [{
 "name" : "test1-success",
 "uri" : "s3a://bootstrap/script/simple/basic_success.sh",
 "parameters" : "",
 "nodes" : ["master", "core"],
 "active_master" : true,
 "fail_action" : "errorout",
 "before_component_start" : true,
 "state" : "SUCCESS",
 "start_time" : 1527681083,
 "action_stages" : ["AFTER_SCALE_IN", "AFTER_SCALE_OUT"]
 }],
 "isMrsManagerFinish" : false,
 "stageDesc" : "Installing MRS Manager",
 "safeMode" : "0",
 "clusterVersion" : null,
 "nodePublicCertName" : null,
 "masterNodeIp" : "unknown",
 "privateIpFirst" : null,
 "errorInfo" : "",
 "clusterType" : "0",
 "nodeGroups" : [{
 "GroupName" : "master_node_default_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
 "VmProductId" : "",
 "VmSpecCode" : null,
 "NodeProductId" : "dc970349d128460e960a0c2b826c427c",
 "RootVolumeSize" : "40",
 "RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "RootVolumeType" : "SATA",
 "RootVolumeResourceSpecCode" : "",
 "RootVolumeResourceType" : "",
 "DataVolumeType" : "SATA",
 "DataVolumeCount" : "1",
 "DataVolumeSize" : "100",
 "DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "DataVolumeResourceSpecCode" : "",
 "DataVolumeResourceType" : ""
 }, {
 "GroupName" : "core_node_analysis_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
```

```
"VmProductId" : "",
"VmSpecCode" : null,
"NodeProductId" : "dc970349d128460e960a0c2b826c427c",
"RootVolumeSize" : "40",
"RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
"RootVolumeType" : "SATA",
"RootVolumeResourceSpecCode" : "",
"RootVolumeResourceType" : "",
"DataVolumeType" : "SATA",
"DataVolumeCount" : "1",
"DataVolumeSize" : "100",
"DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
"DataVolumeResourceSpecCode" : "",
"DataVolumeResourceType" : ""
}, {
 "GroupName" : "task_node_analysis_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
 "VmProductId" : "",
 "VmSpecCode" : null,
 "NodeProductId" : "dc970349d128460e960a0c2b826c427c",
 "RootVolumeSize" : "40",
 "RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "RootVolumeType" : "SATA",
 "RootVolumeResourceSpecCode" : "",
 "RootVolumeResourceType" : "",
 "DataVolumeType" : "SATA",
 "DataVolumeCount" : "1",
 "DataVolumeSize" : "100",
 "DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "DataVolumeResourceSpecCode" : "",
 "DataVolumeResourceType" : ""
}],
"taskNodeGroups" : [{
 "GroupName" : "task_node_default_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
 "VmProductId" : "",
 "VmSpecCode" : null,
 "NodeProductId" : "dc970349d128460e960a0c2b826c427c",
 "RootVolumeSize" : "40",
 "RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "RootVolumeType" : "SATA",
 "RootVolumeResourceSpecCode" : "",
 "RootVolumeResourceType" : "",
 "DataVolumeType" : "SATA",
 "DataVolumeCount" : "1",
 "DataVolumeSize" : "100",
 "DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "DataVolumeResourceSpecCode" : "",
 "DataVolumeResourceType" : ""
}],
"masterDataVolumeType" : "SATA",
"masterDataVolumeSize" : "200",
"masterDataVolumeCount" : "1",
"coreDataVolumeType" : "SATA",
"coreDataVolumeSize" : "100",
"coreDataVolumeCount" : "1",
"periodType" : "0"
}]
}
```

## Status Codes

[Table 7-30](#) describes the status code.

**Table 7-30** Status code

| Status Code | Description                                    |
|-------------|------------------------------------------------|
| 200         | The cluster list information has been queried. |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.1.4 Querying Cluster Details

### Function

This API is used to query details about a specified cluster. This API is incompatible with Sahara.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
GET /v1.1/{project\_id}/cluster\_infos/{cluster\_id}
- Parameter description

Table 7-31 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Request Parameters

None

## Response Parameters

**Table 7-32** Response body parameter

| Parameter | Type           | Description                                                                                                                                                                      |
|-----------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster   | Cluster object | <b>Explanation</b><br>Cluster parameters. For details, see <a href="#">Table 7-33</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-33** Response parameters

| Parameter   | Type   | Description                                                                                                                  |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------|
| clusterId   | String | <b>Explanation</b><br>Cluster ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| clusterName | String | <b>Explanation</b><br>Cluster name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| totalNodeNum | String | <b>Explanation</b><br>Total number of nodes deployed in a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| clusterState | String | <b>Explanation</b><br>Cluster status.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>starting</b>: The cluster is being started.</li><li>• <b>running</b>: The cluster is running.</li><li>• <b>terminated</b>: The cluster has been deleted.</li><li>• <b>failed</b>: The cluster is failed.</li><li>• <b>abnormal</b>: The cluster is abnormal.</li><li>• <b>terminating</b>: The cluster is being deleted.</li><li>• <b>frozen</b>: The cluster is frozen.</li><li>• <b>scaling-out</b>: The cluster is being scaled out.</li><li>• <b>scaling-in</b>: The cluster is being scaled in.</li></ul> <b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| stageDesc | String | <p><b>Explanation</b><br/>Cluster operation progress.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>The cluster installation progress includes:</p> <ul style="list-style-type: none"><li>• Verifying cluster parameters: Cluster parameters are being verified.</li><li>• Applying for cluster resources: Cluster resources are being applied for.</li><li>• Creating VMs: The VMs are being created.</li><li>• Initializing VMs: The VMs are being initialized.</li><li>• Installing MRS Manager: MRS Manager is being installed.</li><li>• Deploying the cluster: The cluster is being deployed.</li><li>• Cluster installation failed: Failed to install the cluster.</li></ul> <p>The cluster scale-out progress includes:</p> <ul style="list-style-type: none"><li>• Preparing for scale-out: Cluster scale-out is being prepared.</li><li>• Creating VMs: The VMs are being created.</li><li>• Initializing VMs: The VMs are being initialized.</li><li>• Adding nodes to the cluster: The nodes are being added to the cluster.</li><li>• Scale-out failed: Failed to scale out the cluster.</li></ul> <p>The cluster scale-in progress includes:</p> <ul style="list-style-type: none"><li>• Preparing for scale-in: Cluster scale-in is being prepared.</li><li>• Decommissioning instance: The instance is being decommissioned.</li><li>• Deleting VMs: The VMs are being deleted.</li></ul> |

| Parameter         | Type   | Description                                                                                                                                                                                                                                                                                                                                    |
|-------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |        | <ul style="list-style-type: none"><li>Deleting nodes from the cluster: The nodes are being deleted from the cluster.</li><li>Scale-in failed: Failed to scale in the cluster.</li></ul> <p>If the cluster installation, scale-out, or scale-in fails, <b>stageDesc</b> will display the failure cause.</p> <p><b>Default value</b><br/>N/A</p> |
| createAt          | String | <p><b>Explanation</b><br/>Cluster creation time, which is a 10-bit timestamp.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p>                                                                                                                                                                                          |
| updateAt          | String | <p><b>Explanation</b><br/>Cluster update time, which is a 10-bit timestamp.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                        |
| chargingStartTime | String | <p><b>Explanation</b><br/>Start time of billing.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                   |

| Parameter   | Type   | Description                                                                                                                                                                                                              |
|-------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| billingType | String | <b>Explanation</b><br>Cluster billing mode.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>11: Yearly/Monthly</li> <li>12: Pay-per-use</li> </ul> <b>Default value</b><br>N/A |
| dataCenter  | String | <b>Explanation</b><br>Cluster work region.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                      |
| vpc         | String | <b>Explanation</b><br>VPC name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                 |
| vpclId      | String | <b>Explanation</b><br>VPC ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                   |

| Parameter     | Type   | Description                                                                                                                                                                  |
|---------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| duration      | String | <b>Explanation</b><br>Cluster subscription duration.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                |
| fee           | String | <b>Explanation</b><br>Cluster creation fee, which is automatically calculated.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| hadoopVersion | String | <b>Explanation</b><br>Hadoop version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                               |
| componentList | Array  | <b>Explanation</b><br>Component list. For details, see <a href="#">Table 7-34</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter           | Type   | Description                                                                                                                                                                                                                                               |
|---------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| externalIp          | String | <p><b>Explanation</b><br/>External IP address This IP address is opened to the outside of the cluster as access to the active Master process.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |
| externalAlternateIp | String | <p><b>Explanation</b><br/>Backup external IP address. This IP address is used outside the cluster as access to the standby Master process.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>    |
| internalIp          | String | <p><b>Explanation</b><br/>Internal IP address This IP address is used within the cluster as access to Master processes.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                       |

| Parameter    | Type   | Description                                                                                                                                                                                                             |
|--------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| deploymentId | String | <b>Explanation</b><br>Cluster deployment ID. The ID is used by cloud services to query details about cluster deployment tasks.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| remark       | String | <b>Explanation</b><br>Cluster remarks. By default, this parameter is left blank.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                               |
| orderId      | String | <b>Explanation</b><br>Cluster creation order ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                               |
| azId         | String | <b>Explanation</b><br>AZ ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                    |

| Parameter          | Type   | Description                                                                                                                       |
|--------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------|
| azName             | String | <b>Explanation</b><br>AZ name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A           |
| azCode             | String | <b>Explanation</b><br>AZ name (en).<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| availabilityZoneId | String | <b>Explanation</b><br>Availability zone.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| instanceId         | String | <b>Explanation</b><br>Instance ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |

| Parameter  | Type    | Description                                                                                                                                           |
|------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| vnc        | String  | <b>Explanation</b><br>URI for remotely logging in to an ECS.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| tenantId   | String  | <b>Explanation</b><br>Project ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                            |
| volumeSize | Integer | <b>Explanation</b><br>Disk storage space.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                    |
| volumeType | String  | <b>Explanation</b><br>Disk type.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                             |

| Parameter             | Type   | Description                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| subnetId              | String | <b>Explanation</b><br>Subnet ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                    |
| subnetName            | String | <b>Explanation</b><br>Subnet name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                  |
| securityGroupsId      | String | <b>Explanation</b><br>Security group ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                            |
| slaveSecurityGroupsId | String | <b>Explanation</b><br>Security group ID of a non-master node. Currently, one MRS cluster uses only one security group. Therefore, this field has been discarded. This field returns the same value as <b>securityGroupsId</b> does for compatibility consideration.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter          | Type                             | Description                                                                                                                                                                                                                        |
|--------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| bootstrapScripts   | Array of BootstrapScript objects | <b>Explanation</b><br>Bootstrap action script information. For more parameter description, see <a href="#">Table 7-36</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A               |
| safeMode           | Integer                          | <b>Explanation</b><br>Run mode of an MRS cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• 0: Normal cluster</li><li>• 1: Security cluster</li></ul> <b>Default value</b><br>N/A |
| clusterVersion     | String                           | <b>Explanation</b><br>Cluster version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                    |
| nodePublicCertName | String                           | <b>Explanation</b><br>Name of the key file.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                               |

| Parameter      | Type   | Description                                                                                                                                  |
|----------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------|
| masterNodeIp   | String | <b>Explanation</b><br>IP address of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| privateIpFirst | String | <b>Explanation</b><br>Preferred private IP address.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| errorInfo      | String | <b>Explanation</b><br>Error message.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                |
| tags           | String | <b>Explanation</b><br>Tag information.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A              |

| Parameter      | Type   | Description                                                                                                                                                  |
|----------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| masterNodeNum  | String | <b>Explanation</b><br>Number of Master nodes deployed in a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| coreNodeNum    | String | <b>Explanation</b><br>Number of Core nodes deployed in a cluster.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| masterNodeSize | String | <b>Explanation</b><br>Instance specifications of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| coreNodeSize   | String | <b>Explanation</b><br>Instance specifications of a Core node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |

| Parameter           | Type   | Description                                                                                                                                       |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| masterNodeProductId | String | <b>Explanation</b><br>Product ID of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| masterNodeSpecId    | String | <b>Explanation</b><br>Specification ID of a Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| coreNodeProductId   | String | <b>Explanation</b><br>Product ID of a Core node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A         |
| coreNodeSpecId      | String | <b>Explanation</b><br>Specification ID of a Core node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |

| Parameter             | Type    | Description                                                                                                                                                                                                                                                               |
|-----------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| masterDataVolumeType  | String  | <b>Explanation</b><br>Data disk storage type of the Master node. Currently, SATA, SAS, and SSD are supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                    |
| masterDataVolumeSize  | Integer | <b>Explanation</b><br>Data disk storage space of the Master node. To increase data storage capacity, you can add disks at the same time when creating a cluster. Unit: GB.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>100-32000<br><b>Default value</b><br>N/A |
| masterDataVolumeCount | Integer | <b>Explanation</b><br>Number of data disks of the Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can only be 1.<br><b>Default value</b><br>N/A                                                                                              |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                    |
|---------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| coreDataVolumeType  | String  | <p><b>Explanation</b><br/>Data disk storage type of the Core node. Currently, SATA, SAS, and SSD are supported.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                    |
| coreDataVolumeSize  | Integer | <p><b>Explanation</b><br/>Data disk storage space of the Core node. To increase data storage capacity, you can add disks at the same time when creating a cluster. Unit: GB.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>100-32000</p> <p><b>Default value</b><br/>N/A</p> |
| coreDataVolumeCount | Integer | <p><b>Explanation</b><br/>Number of data disks of the Core node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>1-10</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                  |
| enterpriseProjectId | String  | <p><b>Explanation</b><br/>Enterprise project ID</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                    |

| Parameter          | Type    | Description                                                                                                                                                                                                                                                                                                                                       |
|--------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| isMrsManagerFinish | Boolean | <b>Explanation</b><br>Whether MRS Manager installation is finished during cluster creation.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: MRS Manager installation is finished.</li><li>• <b>false</b>: MRS Manager installation is not finished.</li></ul> <b>Default value</b><br>N/A |
| clusterType        | Integer | <b>Explanation</b><br>Cluster type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>0</b>: analysis cluster</li><li>• <b>1</b>: streaming cluster</li><li>• <b>2</b>: hybrid cluster</li><li>• <b>3</b>: custom cluster</li><li>• <b>4</b>: Offline cluster</li></ul> <b>Default value</b><br>N/A   |
| logCollection      | Integer | <b>Explanation</b><br>Whether to collect logs when cluster installation fails<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>0</b>: Do not collect.</li><li>• <b>1</b>: Collect.</li></ul> <b>Default value</b><br>N/A                                                                             |

| Parameter  | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| periodType | Integer | <p><b>Explanation</b><br/>Whether the subscription type is yearly or monthly</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>0</b>: monthly subscription</li> <li>• <b>1</b>: yearly subscription</li> </ul> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| scale      | String  | <p><b>Explanation</b><br/>Node change status. If this parameter is left blank, no change operation has been performed on a cluster node.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>scaling-out</b>: The cluster is being scaled out.</li> <li>• <b>scaling-in</b>: The cluster is being scaled in.</li> <li>• <b>scaling-error</b>: The cluster is in the running state and fails to be scaled in or out or the specifications fail to be scaled up for the last time.</li> <li>• <b>scaling-up</b>: The Master node specifications are being scaled up.</li> <li>• <b>scaling_up_first</b>: The standby Master node specifications are being scaled up.</li> <li>• <b>scaled_up_first</b>: The standby Master node specifications have been scaled up successfully.</li> <li>• <b>scaled-up-success</b>: The master node specifications have been scaled up.</li> </ul> <p><b>Default value</b><br/>N/A</p> |

| Parameter      | Type            | Description                                                                                                                                                                                                            |
|----------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nodeGroups     | List<NodeGroup> | <b>Explanation</b><br>List of Master, Core and Task nodes. For details about this parameter, see <a href="#">Table 7-35</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| taskNodeGroups | List<NodeGroup> | <b>Explanation</b><br>List of Task nodes. For more parameter description, see <a href="#">Table 7-35</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                    |
| eipId          | String          | <b>Explanation</b><br>Unique ID of the cluster EIP<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                            |
| eipAddress     | String          | <b>Explanation</b><br>IPv4 address of the cluster EIP.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                        |

| Parameter    | Type   | Description                                                                                                                                                                                                  |
|--------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eipv6Address | String | <b>Explanation</b><br><b>Constraints</b><br>N/A<br>IPv6 address of the cluster EIP. This parameter is not returned when an IPv4 address is used.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-34** componentAmb

| Parameter        | Type   | Description                                                                                                                       |
|------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------|
| componentId      | String | <b>Explanation</b><br>Component ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>None<br><b>Default value</b><br>N/A      |
| componentName    | String | <b>Explanation</b><br>Component name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| componentVersion | String | <b>Explanation</b><br>Component version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter     | Type   | Description                                                                                                                           |
|---------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| componentDesc | String | <b>Explanation</b><br>Component description.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-35 NodeGroupV10

| Parameter | Type    | Description                                                                                                                                                                                                                                                                       |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GroupName | String  | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                   |
| NodeNum   | Integer | <b>Explanation</b><br>Number of nodes. The value ranges from 0 to 500. The minimum number of Master and Core nodes is 1 and the total number of Core and Task nodes cannot exceed 500.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A |

| Parameter     | Type   | Description                                                                                                                                         |
|---------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| NodeSize      | String | <b>Explanation</b><br>Instance specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| NodeSpecId    | String | <b>Explanation</b><br>Instance specification ID of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| NodeProductId | String | <b>Explanation</b><br>Instance product ID of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| VmProductId   | String | <b>Explanation</b><br>VM specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A         |

| Parameter           | Type    | Description                                                                                                                                                                                                           |
|---------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VmSpecCode          | String  | <b>Explanation</b><br>VM specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                           |
| RootVolumeSize      | Integer | <b>Explanation</b><br>System disk size of a node. This parameter is not configurable and its default value is <b>40 GB</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| RootVolumeProductId | String  | <b>Explanation</b><br>System disk product ID of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                      |
| RootVolumeType      | String  | <b>Explanation</b><br>System disk type of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                            |

| Parameter                  | Type    | Description                                                                                                                                                                                                                                                                                                                       |
|----------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RootVolumeResourceSpecCode | String  | <b>Explanation</b><br>System disk product specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                      |
| RootVolumeResourceType     | String  | <b>Explanation</b><br>System disk product type of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                |
| DataVolumeType             | String  | <b>Explanation</b><br>Data disk storage type of a node. Currently, SATA, SAS, and SSD are supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>SATA</b>: common I/O</li><li>• <b>SAS</b>: high I/O</li><li>• <b>SSD</b>: ultra-high I/O</li></ul> <b>Default value</b><br>N/A |
| DataVolumeCount            | Integer | <b>Explanation</b><br>Number of data disks of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                    |

| Parameter                  | Type    | Description                                                                                                                                        |
|----------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| DataVolumeSize             | Integer | <b>Explanation</b><br>Data disk storage space of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| DataVolumeProductId        | String  | <b>Explanation</b><br>Data disk product ID of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| DataVolumeResourceSpecCode | String  | <b>Explanation</b><br>Data disk specifications of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| DataVolumeResourceType     | String  | <b>Explanation</b><br>Data disk type of a node.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A           |

**Table 7-36** BootstrapScripts

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | String | <b>Explanation</b><br>Name of a bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The names of bootstrap action scripts in the same cluster must be unique. The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-), and cannot start with a space.<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| uri       | String | <b>Explanation</b><br>Path of a bootstrap action script. Set this parameter to an OBS bucket path or a local VM path. <ul style="list-style-type: none"><li>• OBS bucket path: Enter a script path manually. For example, enter the path of the public sample script provided by MRS. Example: <b>s3a://bootstrap/presto/presto-install.sh</b>. If <b>dualroles</b> is installed, the parameter of the <b>presto-install.sh</b> script is <b>dualroles</b>. If <b>worker</b> is installed, the parameter of the <b>presto-install.sh</b> script is <b>worker</b>. Based on the Presto usage habit, you are advised to install <b>dualroles</b> on the active Master nodes and <b>worker</b> on the Core nodes.</li><li>• Local VM path: Enter a script path. The script path must start with a slash (/) and end with <b>.sh</b>.</li></ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter     | Type         | Description                                                                                                                                                                                                                                                                                                                                                                                |
|---------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| parameters    | String       | <b>Explanation</b><br>Bootstrap action script parameters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                         |
| nodes         | Array String | <b>Explanation</b><br>Type of a node where the bootstrap action script is executed. The value can be Master, Core, or Task.<br><b>Constraints</b><br>The node type must be represented in lowercase letters.                                                                                                                                                                               |
| active_master | Boolean      | <b>Explanation</b><br>Whether the bootstrap action script runs only on active Master nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: The bootstrap action script runs only on active Master nodes.</li><li>• <b>false</b>: The bootstrap action script can run on all Master nodes.</li></ul> <b>Default value</b><br>false |

| Parameter              | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| before_component_start | Boolean | <p><b>Explanation</b></p> <p>Time when the bootstrap action script is executed. Currently, the following two options are available: <b>Before component start</b> and <b>After component start</b></p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>true</b>: The bootstrap action script is executed before the component starts.</li><li>• <b>false</b>: The bootstrap action script is executed after the component starts.</li></ul> <p><b>Default value</b></p> <p>false</p>                                                                                            |
| fail_action            | String  | <p><b>Explanation</b></p> <p>Whether to continue executing subsequent scripts and creating a cluster after the bootstrap action script fails to be executed. You are advised to set this parameter to <b>continue</b> in the commissioning phase so that the cluster can continue to be installed and started no matter whether the bootstrap action is successful.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• <b>continue</b>: Continue to execute subsequent scripts.</li><li>• <b>errorout</b>: Stop the action.</li></ul> <p><b>Default value</b></p> <p>errorout</p> |

| Parameter  | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| start_time | Long   | <b>Explanation</b><br>Execution time of one boot operation script.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                              |
| state      | String | <b>Explanation</b><br>Running state of an individual bootstrap action script.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>PENDING</b>: The script is suspended.</li><li>• <b>IN_PROGRESS</b>: The script is being processed.</li><li>• <b>SUCCESS</b></li><li>• <b>FAILURE</b>: The script fails to be executed.</li></ul> <b>Default value</b><br>N/A |

| Parameter     | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action_stages | Array of strings | <b>Explanation</b><br>Select the time when the bootstrap action script is executed. <ul style="list-style-type: none"><li>• <b>BEFORE_COMPONENT_FIRST_START</b>: before initial component starts</li><li>• <b>AFTER_COMPONENT_FIRST_START</b>: after initial component starts</li><li>• <b>BEFORE_SCALE_IN</b>: before scale-in</li><li>• <b>AFTER_SCALE_IN</b>: after scale-in</li><li>• <b>BEFORE_SCALE_OUT</b>: before scale-out</li><li>• <b>AFTER_SCALE_OUT</b>: after scale-out</li></ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

```
GET /v1.1/{project_id}/cluster_infos/{cluster_id}
```

## Example response

**Status code: 200**

Cluster details are queried successfully.

```
{
 "cluster": {
 "clusterId": "bdb064ff-2855-4624-90d5-e9a6376abd6e",
 "clusterName": "c17022001",
 "masterNodeNum": "2",
 "coreNodeNum": "3",
 "clusterState": "scaling-in",
 "stageDesc": "Installing MRS Manager",
 "createAt": "1487570757",
 "updateAt": "1487668974",
 "billingType": "Metered",
 "dataCenter": "",
 "vpc": "vpc-autotest",
 "vpclId": "e2978efcd-ca12-4058-9332-1ca0bfbab592",
 "duration": "0",
 "fee": "0",
 "hadoopVersion": "",
 "masterNodeSize": "",
 "coreNodeSize": "",
 "componentList": [{
 "componentId": "MRS 3.2.0-LTS.1_001",
 "componentName": "Hadoop",
 "componentVersion": "3.1.1",
```

```
"componentDesc" : "A framework that allows for the distributed processing of large data sets across clusters."
}, {
 "componentId" : "MRS 3.2.0-LTS.1_002",
 "componentName" : "Spark",
 "componentVersion" : "2.3.2",
 "componentDesc" : "A fast and general engine for large-scale data processing."
}, {
 "componentId" : "MRS 3.2.0-LTS.1_004",
 "componentName" : "Hive",
 "componentVersion" : "3.1.0",
 "componentDesc" : "A data warehouse infrastructure that provides data summarization and ad hoc querying."
}, {
 "componentId" : "MRS 3.2.0-LTS.1_003",
 "componentName" : "HBase",
 "componentVersion" : "2.1.1",
 "componentDesc" : "A scalable, distributed database that supports structured data storage for large tables."
}],
"externalIp" : "100.XXX.XXX.XXX",
"externalAlternateIp" : "100.XXX.XXX.XXX",
"internalIp" : "192.XXX.XXX.XXX",
"eipId" : "b16dd5eb-5e5b-486a-906a-2e8f6e814a7a",
"eipAddress" : "100.XXX.XXX.XXX",
"eipv6Address" : "2403:XXXX:XXXX:XXXX:XXXX",
"deploymentId" : "4ac46ca7-a488-4b91-82c2-e4d7aa9c40c2",
"remark" : "",
"orderId" : "null",
"azId" : "null",
"masterNodeProductId" : "b35cf2d2348a445ca74b32289a160882",
"masterNodeSpecId" : "8ab05e503b4c42abb304e2489560063b",
"coreNodeProductId" : "dc970349d128460e960a0c2b826c427c",
"coreNodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
"azName" : "",
"instanceId" : "4ac46ca7-a488-4b91-82c2-e4d7aa9c40c2",
"vnc" : null,
"tenantId" : "3f99e3319a8943ceb15c584f3325d064",
"volumeSize" : "600",
"volumeType" : "SATA",
"subnetId" : "6b96eec3-4f8d-4c83-93e2-6ec625001d7c",
"subnetName" : "subnet-ftest",
"securityGroupId" : "930e34e2-195d-401f-af07-0b64ea6603f8",
"slaveSecurityGroupId" : "2ef3343e-3477-4a0d-80fe-4d874e4f81b8",
"bootstrapScripts" : [{
 "name" : "test1-success",
 "uri" : "s3a://bootstrap/script/simple/basic_success.sh",
 "parameters" : "",
 "nodes" : ["master", "core"],
 "active_master" : true,
 "fail_action" : "errorout",
 "before_component_start" : true,
 "state" : "SUCCESS",
 "start_time" : 1527681083,
 "action_stages" : ["AFTER_SCALE_IN", "AFTER_SCALE_OUT"]
}],
"isMrsManagerFinish" : false,
"safeMode" : "1",
"clusterVersion" : "MRS 3.2.0-LTS.1",
"nodePublicCertName" : "myp",
"masterNodeIp" : "192.XXX.XXX.XXX",
"privateIpFirst" : "192.XXX.XXX.XXX",
"errorInfo" : null,
"tags" : "k1=v1,k2=v2,k3=v3",
"clusterType" : "",
"logCollection" : "1",
"nodeGroups" : [{
 "GroupName" : "master_node_default_group",
 "NodeNum" : "1",
```

```
"NodeSize" : "",
"NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
"VmProductId" : "",
"VmSpecCode" : null,
"NodeProductId" : "dc970349d128460e960a0c2b826c427c",
"RootVolumeSize" : "480",
"RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
"RootVolumeType" : "SATA",
"RootVolumeResourceSpecCode" : "",
"RootVolumeResourceType" : "",
"DataVolumeType" : "SATA",
"DataVolumeCount" : "1",
"DataVolumeSize" : "600",
"DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
"DataVolumeResourceSpecCode" : "",
"DataVolumeResourceType" : ""
}, {
 "GroupName" : "core_node_analysis_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
 "VmProductId" : "",
 "VmSpecCode" : null,
 "NodeProductId" : "dc970349d128460e960a0c2b826c427c",
 "RootVolumeSize" : "480",
 "RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "RootVolumeType" : "SATA",
 "RootVolumeResourceSpecCode" : "",
 "RootVolumeResourceType" : "",
 "DataVolumeType" : "SATA",
 "DataVolumeCount" : "1",
 "DataVolumeSize" : "600",
 "DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "DataVolumeResourceSpecCode" : "",
 "DataVolumeResourceType" : ""
}, {
 "GroupName" : "task_node_analysis_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
 "VmProductId" : "",
 "VmSpecCode" : null,
 "NodeProductId" : "dc970349d128460e960a0c2b826c427c",
 "RootVolumeSize" : "480",
 "RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "RootVolumeType" : "SATA",
 "RootVolumeResourceSpecCode" : "",
 "RootVolumeResourceType" : "",
 "DataVolumeType" : "SATA",
 "DataVolumeCount" : "1",
 "DataVolumeSize" : "600",
 "DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "DataVolumeResourceSpecCode" : "",
 "DataVolumeResourceType" : ""
}],
"taskNodeGroups" : [{
 "GroupName" : "task_node_default_group",
 "NodeNum" : "1",
 "NodeSize" : "",
 "NodeSpecId" : "cdc6035a249a40249312f5ef72a23cd7",
 "VmProductId" : "",
 "VmSpecCode" : null,
 "NodeProductId" : "dc970349d128460e960a0c2b826c427c",
 "RootVolumeSize" : "480",
 "RootVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
 "RootVolumeType" : "SATA",
 "RootVolumeResourceSpecCode" : "",
 "RootVolumeResourceType" : "",
 "DataVolumeType" : "SATA",
```

```
"DataVolumeCount" : "1",
"DataVolumeSize" : "600",
"DataVolumeProductId" : "16c1dcf0897249758b1ec276d06e0572",
"DataVolumeResourceSpecCode" : "",
"DataVolumeResourceType" : ""
}],
"masterDataVolumeType" : "SATA",
"masterDataVolumeSize" : "600",
"masterDataVolumeCount" : "1",
"coreDataVolumeType" : "SATA",
"coreDataVolumeSize" : "600",
"coreDataVolumeCount" : "1",
"periodType" : "0"
}
```

## Status Codes

[Table 7-37](#) describes the status code.

**Table 7-37** Status code

| Status Code | Description                        |
|-------------|------------------------------------|
| 200         | Cluster details have been queried. |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.1.5 Querying a Host List

### Function

This API is used to query a host list of a specified cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
GET /v1.1/{project\_id}/clusters/{cluster\_id}/hosts
- Parameter description

Table 7-38 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

**Table 7-39** Query parameters

| Parameter   | Mandatory | Type    | Description                                                                                                                                                            |
|-------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pageSize    | No        | Integer | <b>Explanation</b><br>Maximum number of clusters displayed on a page.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-2147483646<br><b>Default value</b><br>10 |
| currentPage | No        | Integer | <b>Explanation</b><br>Current page number.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                    |

## Request Parameters

None

## Response Parameters

**Table 7-40** Response body parameters

| Parameter | Type    | Description                                                                                                                     |
|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------|
| total     | Integer | <b>Explanation</b><br>Host parameters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type                       | Description                                                                                                                                                                     |
|-----------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hosts     | Array of HostModel objects | <b>Explanation</b><br>Host parameters<br>For details, see <a href="#">Table 7-41</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-41 HostModel

| Parameter            | Type   | Description                                                                                                                       |
|----------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------|
| id                   | String | <b>Explanation</b><br>VM ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A             |
| ip                   | String | <b>Explanation</b><br>VM IP address.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| availability_zone_id | String | <b>Explanation</b><br>Availability zone.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type                      | Description                                                                                                                                                                                         |
|-----------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags      | Array of TagPlain objects | <b>Explanation</b><br>The tag list. For details, see <a href="#">Table 7-42</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                          |
| flavor    | String                    | <b>Explanation</b><br>VM specification ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                 |
| type      | String                    | <b>Explanation</b><br>VM type. The value can be <b>MasterNode</b> , <b>CoreNode</b> , or <b>TaskNode</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| name      | String                    | <b>Explanation</b><br>VM name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                             |

| Parameter   | Type   | Description                                                                                                                         |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------|
| status      | String | <b>Explanation</b><br>Current VM state.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| resource_id | String | <b>Explanation</b><br>Node resource ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| mem         | String | <b>Explanation</b><br>Memory.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A              |
| cpu         | String | <b>Explanation</b><br>Number of CPU cores.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter         | Type    | Description                                                                                                                          |
|-------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| root_volume_size  | String  | <b>Explanation</b><br>OS disk capacity.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| data_volume_type  | String  | <b>Explanation</b><br>Data disk type.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| data_volume_size  | Integer | <b>Explanation</b><br>Data disk capacity.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| data_volume_count | Integer | <b>Explanation</b><br>Number of data disks.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter       | Type   | Description                                                                                                                     |
|-----------------|--------|---------------------------------------------------------------------------------------------------------------------------------|
| node_group_name | String | <b>Explanation</b><br>Node group name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-42 TagPlain parameters

| Parameter | Type   | Description                                                                                                                                                                                                                                                   |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag key can contain letters, digits, spaces, and special characters _.:=-@, but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A   |
| value     | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain letters, digits, spaces, and special characters _.:=-@, but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A |

## Example Request

```
GET /v1.1/{project_id}/clusters/{cluster_id}/hosts
```

## Example Response

**Status code: 200**

Querying the host list is successful.

```
{
 "total": "5",
 "hosts": [{
 "id": "063d1d47-ae91-4a48-840c-b3cfe4efbcf0",
 "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_core_IQhiC",
 "ip": "192.168.0.169",
 "availability_zone_id": null,
 "tags": null,
 "status": "ACTIVE",
 "resource_id": "95c1eabc-ed1d-4037-97d1-62f0587790c7",
 "flavor": "c2.2xlarge.linux.mrs",
 "type": "Core",
 "mem": "16384",
 "cpu": "8",
 "root_volume_size": "480",
 "data_volume_type": "SATA",
 "data_volume_size": "600",
 "data_volume_count": "1",
 "node_group_name": "node_group_1"
 }, {
 "id": "dc5c6208-faa2-4727-a65a-2b1ce235d350",
 "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_master1_ASzkl",
 "ip": "192.168.0.156",
 "availability_zone_id": null,
 "tags": null,
 "status": "ACTIVE",
 "resource_id": "95c1eabc-ed1d-4037-97d1-62f0587790c7",
 "flavor": "c2.4xlarge.linux.mrs",
 "type": "Master",
 "mem": "32768",
 "cpu": "16",
 "root_volume_size": "480",
 "data_volume_type": "SATA",
 "data_volume_size": "600",
 "data_volume_count": "1",
 "node_group_name": "master_node_default_group"
 }, {
 "id": "c0ce793d-848b-448a-835b-ea0cac534b09",
 "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_core_ANnRN",
 "ip": "192.168.0.243",
 "availability_zone_id": null,
 "tags": null,
 "status": "ACTIVE",
 "resource_id": "95c1eabc-ed1d-4037-97d1-62f0587790c7",
 "flavor": "c2.2xlarge.linux.mrs",
 "type": "Core",
 "mem": "16384",
 "cpu": "8",
 "root_volume_size": "480",
 "data_volume_type": "SATA",
 "data_volume_size": "600",
 "data_volume_count": "1",
 "node_group_name": "node_group_1"
 }, {
 "id": "95c23e43-ef6e-4732-b6ed-a5f1c7779fae",
 "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_core_uRRiA",
 "ip": "192.168.0.126",
 "availability_zone_id": null,
 "tags": null,
```

```
{
 "status": "ACTIVE",
 "resource_id": "95c1eabc-ed1d-4037-97d1-62f0587790c7",
 "flavor": "c2.2xlarge.linux.mrs",
 "type": "Core",
 "mem": "16384",
 "cpu": "8",
 "root_volume_size": "480",
 "data_volume_type": "SATA",
 "data_volume_size": "600",
 "data_volume_count": "1",
 "node_group_name": "node_group_1"
}, {
 "id": "63bdbf75-1133-4a94-8c27-1fa12c8b9e70",
 "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_master2_StqFu",
 "ip": "192.168.0.22",
 "availability_zone_id": null,
 "tags": null,
 "status": "ACTIVE",
 "resource_id": "95c1eabc-ed1d-4037-97d1-62f0587790c7",
 "flavor": "c2.4xlarge.linux.mrs",
 "type": "Master",
 "mem": "32768",
 "cpu": "16",
 "root_volume_size": "480",
 "data_volume_type": "SATA",
 "data_volume_size": "600",
 "data_volume_count": "1",
 "node_group_name": "master_node_default_group"
}]
}
```

## Status Codes

[Table 7-43](#) describes the status code.

**Table 7-43** Status code

| Status Code | Description                     |
|-------------|---------------------------------|
| 200         | The host list has been queried. |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.1.6 Terminating a Cluster

### Function

This API is used to terminate a cluster after data processing and analysis are complete or the cluster is abnormal. This API is compatible with Sahara.

Clusters in any of the following states cannot be terminated:

- scaling-out
- scaling-in

- starting
- terminating
- terminated
- failed

## Constraints

None

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

- Format  
DELETE /v1.1/{project\_id}/clusters/{cluster\_id}
- Parameter description

**Table 7-44** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                   |
|------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID For details about how to obtain the cluster ID, see <a href="#">Obtaining the MRS Cluster Information</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

None

Example Request

```
DELETE /v1.1/{project_id}/clusters/{cluster_id}
```

Example Response

None

Status Codes

[Table 7-45](#) describes the status codes.

**Table 7-45** Status codes

| Status Code | Description                      |
|-------------|----------------------------------|
| 200         | The request is executed.         |
| 204         | The cluster has been terminated. |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 7.2 Auto Scaling APIs

## 7.2.1 Configuring an Auto Scaling Rule

### Function

This API is used to configure auto scaling rules.

The API used for cluster creation and job execution can also be used to create an auto scaling rule.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
POST /v1.1/{project\_id}/autoscaling-policy/{cluster\_id}
- Parameter description

**Table 7-46** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                   |
|------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID For details about how to obtain the cluster ID, see <a href="#">Obtaining the MRS Cluster Information</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 7-47** Request body parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                   |
|------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| node_group | Yes       | String | <b>Explanation</b><br>Type of the node to which an auto scaling rule applies. Currently, only task nodes support auto scaling rules.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li><b>task_node_default_group</b>: Task node</li></ul> <b>Default value</b><br>N/A |

| Parameter           | Mandatory | Type                     | Description                                                                                                                                                                                    |
|---------------------|-----------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_policy | Yes       | AutoScalingPolicy object | <b>Explanation</b><br>The auto scaling policy. <a href="#">Table 7-48</a> describes these parameters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-48** AutoScalingPolicy

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                      |
|---------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| auto_scaling_enable | Yes       | Boolean | <b>Explanation</b><br>Whether to enable the auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: Enable the auto scaling rule.</li><li>• <b>false</b>: Disable the autoscaling rule.</li></ul> <b>Default value</b><br>N/A |
| min_capacity        | Yes       | Integer | <b>Explanation</b><br>Minimum number of nodes left in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                 |

| Parameter       | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_capacity    | Yes       | Integer | <b>Explanation</b><br>Maximum number of nodes in the node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                                                   |
| resources_plans | No        | List    | <b>Explanation</b><br>Resource plan list. For details, see <a href="#">Table 7-49</a> . If this parameter is left blank, the resource plan is disabled.<br><b>Constraints</b><br>When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| exec_scripts    | No        | List    | <b>Explanation</b><br>List of custom scaling automation scripts. For details, see <a href="#">Table 7-50</a> . If this parameter is left blank, a hook script is disabled.<br><b>Constraints</b><br>The number of records cannot exceed 10.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                       |

| Parameter | Mandatory | Type | Description                                                                                                                                                                                                                                                                                                                   |
|-----------|-----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rules     | No        | List | <b>Explanation</b><br>List of auto scaling rules. For details, see <a href="#">Table 7-51</a> .<br><b>Constraints</b><br>When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured. The number of records cannot exceed 10.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-49** ResourcesPlan

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                      |
|-------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| period_type | Yes       | String | <b>Explanation</b><br>Cycle type of a resource plan. This parameter can be set to <b>daily</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| start_time  | Yes       | String | <b>Explanation</b><br>Start time of a resource plan. The value is in the format of <b>hour:minute</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                             |
|--------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| end_time     | Yes       | String  | <b>Explanation</b><br>End time of a resource plan. The format is the same as that of <b>start_time</b> .<br><b>Constraints</b><br>The value cannot be earlier than the <b>start_time</b> , and the interval between <b>start_time</b> and <b>start_time</b> cannot be less than 30 minutes.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| min_capacity | Yes       | Integer | <b>Explanation</b><br>Minimum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                              |
| max_capacity | Yes       | Integer | <b>Explanation</b><br>Maximum number of the preserved nodes in a node group in a resource plan.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0-500<br><b>Default value</b><br>N/A                                                                                                                                                              |

**Table 7-50** ScaleScript

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | Yes       | String | <b>Explanation</b><br>Names of custom scaling automation scripts.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The names in the same cluster must be unique.<br>The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and must not start with a space.<br>The value can contain 1 to 64 characters.<br><b>Default value</b><br>N/A                                                                                               |
| uri       | Yes       | String | <b>Explanation</b><br>Path of a custom automation script. Set this parameter to an OBS bucket path or a local VM path. <ul style="list-style-type: none"><li>• OBS bucket path: Enter a script path manually, for example, <b>s3a://XXX/scale.sh</b>.</li><li>• Local VM path: Enter a script path. The script path must start with a slash (/) and end with <b>.sh</b>.</li></ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| parameters | No        | String | <p><b>Explanation</b></p> <p>Parameters of a custom automation script.</p> <ul style="list-style-type: none"><li>• Multiple parameters are separated by space.</li><li>• The following predefined system parameters can be transferred:<ul style="list-style-type: none"><li>– <i>\${mrs_scale_node_num}</i>: Number of the nodes to be added or removed</li><li>– <i>\${mrs_scale_type}</i>: Scaling type. The value can be <b>scale_out</b> or <b>scale_in</b>.</li><li>– <i>\$</i><br/><i>{mrs_scale_node_hostnames}</i>: Host names of the nodes to be added or removed</li><li>– <i>\${mrs_scale_node_ips}</i>: IP addresses of the nodes to be added or removed</li><li>– <i>\${mrs_scale_rule_name}</i>: Name of the rule that triggers auto scaling</li></ul></li><li>• Other user-defined parameters are used in the same way as those of common shell scripts. Parameters are separated by space.</li></ul> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter     | Mandatory | Type             | Description                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------|-----------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nodes         | Yes       | Array of strings | <b>Explanation</b><br>Type of a node where the custom automation script is executed. The node type can be Master, Core, or Task.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                            |
| active_master | No        | Boolean          | <b>Explanation</b><br>Whether the custom automation script runs only on the active Master node.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>true</b>: The custom automation script runs only on the active Master nodes.</li><li>• <b>false</b>: The custom automation script can run on all Master nodes.</li></ul> <b>Default value</b><br>false |
| action_stage  | Yes       | String           | <b>Explanation</b><br>Time when a script is executed.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>before_scale_out</b>: before scale-out</li><li>• <b>before_scale_in</b>: before scale-in</li><li>• <b>after_scale_out</b>: after scale-out</li><li>• <b>after_scale_in</b>: after scale-in</li></ul> <b>Default value</b><br>N/A                 |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| fail_action | Yes       | String | <p><b>Explanation</b></p> <p>Whether to continue to execute subsequent scripts and create a cluster after the custom automation script fails to be executed.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>continue</b>: Continue to execute subsequent scripts.</li> <li>• <b>errorout</b>: Stop the action.</li> </ul> <p><b>Default value</b></p> <p>N/A</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• You are advised to set this parameter to <b>continue</b> in the commissioning phase so that the cluster can continue to be installed and started no matter whether the custom automation script is executed successfully.</li> <li>• The scale-in operation cannot be undone. Therefore, <b>fail_action</b> must be set to <b>continue</b> for the scripts that are executed after scale-in.</li> </ul> |

**Table 7-51** Rule

| Parameter       | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                    |
|-----------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name            | Yes       | String | <b>Explanation</b><br>Name of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A cluster name can contain only 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.<br>Rule names must be unique in a node group.<br><b>Default value</b><br>N/A |
| description     | No        | String | <b>Explanation</b><br>Description about an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A string of 1 to 1024 characters<br><b>Default value</b><br>N/A                                                                                                                            |
| adjustment_type | Yes       | String | <b>Explanation</b><br>Adjustment type of an auto scaling rule.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>scale_out</b>: cluster scale-out</li><li>• <b>scale_in</b>: cluster scale-in</li></ul> <b>Default value</b><br>N/A                                |

| Parameter          | Mandatory | Type           | Description                                                                                                                                                                                                                                                                                                   |
|--------------------|-----------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cool_down_minutes  | Yes       | Integer        | <b>Explanation</b><br>Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>0 to 10080. <b>10080</b> indicates the number of minutes in a week.<br><b>Default value</b><br>N/A |
| scaling_adjustment | Yes       | Integer        | <b>Explanation</b><br>Number of nodes that can be adjusted once.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-100<br><b>Default value</b><br>N/A                                                                                                                                                   |
| trigger            | Yes       | Trigger object | <b>Explanation</b><br>Condition for triggering a rule. For details, see <a href="#">Table 7-52</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                 |

Table 7-52 Trigger

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metric_name         | Yes       | String | <b>Explanation</b><br>Metric name.<br>This triggering condition makes a judgment according to the value of the metric.<br>For details about metric names, see <a href="#">Configuring Auto Scaling for an MRS Cluster</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value contains a maximum of 64 characters.<br><b>Default value</b><br>N/A |
| metric_value        | Yes       | String | <b>Explanation</b><br>Metric threshold to trigger a rule<br>The value must be an integer or a number with two decimal places.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>Only integers or numbers with two decimal places are allowed.<br><b>Default value</b><br>N/A                                                                                |
| comparison_operator | No        | String | <b>Explanation</b><br>Metric judgment logic operator.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>LT</b>: less than</li><li>• <b>GT</b>: greater than</li><li>• <b>LTOE</b>: less than or equal to</li><li>• <b>GTOE</b>: greater than or equal to</li></ul> <b>Default value</b><br>N/A                      |

| Parameter          | Mandatory | Type    | Description                                                                                                                                                                                            |
|--------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| evaluation_periods | Yes       | Integer | <b>Explanation</b><br>Number of consecutive five-minute periods, during which a metric threshold is reached<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1-200<br><b>Default value</b><br>N/A |

## Response Parameters

Status code: 200

Table 7-53 Response body parameter

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                     |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| result    | String | <b>Explanation</b><br>Operation result<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>succeeded</b>: The operation is successful.</li><li>• <b>Error Codes</b> describes the error codes returned upon operation failures.</li></ul> <b>Default value</b><br>N/A |

## Example Request

Configure an auto scaling policy for the MRS cluster.

POST https://{endpoint}/v1.1/{project\_id}/autoscaling-policy/{cluster\_id}

```
{
 "node_group": "task_node_analysis_group",
 "auto_scaling_policy": {
 "auto_scaling_enable": "true",
 "min_capacity": "1",
 "max_capacity": "3",
 "resources_plans": [{
 "period_type": "daily",
 "start_time": "9:50",
```

```
"end_time" : "10:20",
"min_capacity" : "2",
"max_capacity" : "3"
}, {
 "period_type" : "daily",
 "start_time" : "10:20",
 "end_time" : "12:30",
 "min_capacity" : "0",
 "max_capacity" : "2"
}],
"exec_scripts" : [{
 "name" : "before_scale_out",
 "uri" : "s3a://XXX/zeppelin_install.sh",
 "parameters" : "${mrs_scale_node_num} ${mrs_scale_type} xxx",
 "nodes" : ["master_node_default_group", "core_node_analysis_group", "task_node_analysis_group"],
 "active_master" : "true",
 "action_stage" : "before_scale_out",
 "fail_action" : "continue"
}, {
 "name" : "after_scale_out",
 "uri" : "s3a://XXX/storm_rebalance.sh",
 "parameters" : "${mrs_scale_node_hostnames} ${mrs_scale_node_ips}",
 "nodes" : ["master_node_default_group", "core_node_analysis_group", "task_node_analysis_group"],
 "active_master" : "true",
 "action_stage" : "after_scale_out",
 "fail_action" : "continue"
}],
"rules" : [{
 "name" : "default-expand-1",
 "adjustment_type" : "scale_out",
 "cool_down_minutes" : "5",
 "scaling_adjustment" : "1",
 "trigger" : {
 "metric_name" : "YARNMemoryAvailablePercentage",
 "metric_value" : "25",
 "comparison_operator" : "LT",
 "evaluation_periods" : "10"
 }
}, {
 "name" : "default-shrink-1",
 "adjustment_type" : "scale_in",
 "cool_down_minutes" : "5",
 "scaling_adjustment" : "1",
 "trigger" : {
 "metric_name" : "YARNMemoryAvailablePercentage",
 "metric_value" : "70",
 "comparison_operator" : "GT",
 "evaluation_periods" : "10"
 }
}]
}
```

#### NOTE

A new auto scaling rule will overwrite the auto scaling rule saved in the original database. If you want to modify the original rule, query the original rule first, modify the rule, and submit a modification task. For details, see [Querying Cluster Details](#).

## Example Response

**Status code: 200**

The operation is successful.

```
{
 "result" : "succeeded"
}
```

## Status Codes

[Table 7-54](#) describes the status code.

**Table 7-54** Status code

| Status Code | Description                   |
|-------------|-------------------------------|
| 200         | The cluster has been created. |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 7.3 Tag Management APIs

## 7.3.1 Adding Tags to a Specified Cluster

### Function

This API is used to add tags to a specified cluster.

A cluster has a maximum of 20 tags. This API is idempotent. If a tag to be created has the same key as an existing tag, the tag will overwrite the existing one.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
POST /v1.1/{project\_id}/clusters/{cluster\_id}/tags
- Parameter description

Table 7-55 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 7-56** Request body parameter

| Parameter | Mandatory | Type              | Description                                                                                                                 |
|-----------|-----------|-------------------|-----------------------------------------------------------------------------------------------------------------------------|
| tag       | Yes       | <b>Tag</b> object | <b>Explanation</b><br>Cluster tag.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-57** tags parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• The value can contain a maximum of 128 characters and cannot be an empty string.</li><li>• The tag key of a resource must be unique.</li><li>• A tag key can contain letters, digits, spaces, and special characters ( _.:+=-@ ), but cannot start or end with a space or start with _sys_.</li></ul> <b>Default value</b><br>N/A |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | Yes       | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The value can contain a maximum of 255 characters and can be an empty string.</li><li>A tag value can contain letters, digits, spaces, and special characters ( _.:+=-@ ), but cannot start or end with a space or start with _sys_.</li></ul> <b>Default value</b><br>N/A |

## Response Parameters

None

## Example Request

Add a tag to a specified cluster.

```
{
 "tag":
 {
 "key": "DEV",
 "value": "DEV1"
 }
}
```

## Example response

None

## Status Codes

[Table 7-58](#) describes the status code.

**Table 7-58** Status code

| Status Code | Description                  |
|-------------|------------------------------|
| 204         | The operation is successful. |

## Error Codes

See [Error Codes](#).

## 7.3.2 Querying Tags of a Specified Cluster

### Function

This API is used to query tags of a specified cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

GET /v1.1/{project\_id}/clusters/{cluster\_id}/tags

**Table 7-59** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

Request Parameters

None

Response Parameters

Status code: 200

Table 7-60 Response parameter

| Parameter | Type                      | Description                                                                                                                                                            |
|-----------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags      | Array of TagPlain objects | <b>Explanation</b><br>Tag list. For details, see <a href="#">Table 7-61</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-61 TagPlain parameters

| Parameter | Type   | Description                                                                                                                                                                                                                                                          |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag key can contain letters, digits, spaces, and special characters ( _.:+=+@ ), but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A     |
| value     | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag value can contain letters, digits, spaces, and special characters ( _.:+=+@ ), but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A |

Example Request

```
GET /v1.1/{project_id}/clusters/{cluster_id}/tags
```

Example Response

Status code: 200  
The operation is successful.

```
{
 "tags": [{
 "key": "key1",
 "value": "value1"
 }, {
 "key": "key2",
 "value": "value3"
 }]
}
```

Status Codes

Table 7-62 describes the status code.

**Table 7-62** Status code

| Status Code | Description                  |
|-------------|------------------------------|
| 200         | The operation is successful. |

## Error Codes

See [Error Codes](#).

## 7.3.3 Deleting Tags from a Specified Cluster

### Function

This API is used to delete tags from a specified cluster.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
DELETE /v1.1/{project\_id}/clusters/{cluster\_id}/tags/{key}
- Parameter description

Table 7-63 URI parameters

| Parameter  | Mandator<br>y | Type   | Description                                                                                                                                                                                                                                                                                                                    |
|------------|---------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes           | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                         |
| cluster_id | Yes           | String | <b>Explanation</b><br>Cluster ID For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |
| key        | Yes           | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                        |

Request Parameters

None

## Response Parameters

None

## Example Request

```
DELETE /v1.1/{project_id}/clusters/{cluster_id}/tags/{key}
```

## Example Response

None

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 7.3.4 Adding Tags to a Cluster in Batches

## Function

This API is used to add tags to a specified cluster in batches.

A cluster can have a maximum of 20 tags.

This API is idempotent. If a tag to be created has the same key as an existing tag in a cluster, the tag will overwrite the existing one.

## Constraints

None

## Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

## URI

POST /v1.1/{project\_id}/clusters/{cluster\_id}/tags/action

Table 7-64 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |

Request Parameters

Table 7-65 Request parameters

| Parameter | Mandato<br>ry | Type                 | Description                                                                                                                                                                                                                                          |
|-----------|---------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action    | Yes           | String               | <b>Explanation</b><br>Operation to be performed. The value can be <b>create</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br><ul style="list-style-type: none"><li><b>create</b>: Create a tag.</li></ul> <b>Default value</b><br>N/A |
| tags      | Yes           | Array of tag objects | <b>Explanation</b><br>Tag list. For details, see <a href="#">Table 7-66</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                               |

Table 7-66 tags parameters

| Parameter | Mandato<br>ry | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------|---------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes           | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The value can contain a maximum of 128 characters and cannot be an empty string.</li><li>The tag key of a resource must be unique.</li><li>A tag key can contain letters, digits, spaces, and special characters ( _.:+=-@ ), but cannot start or end with a space or start with _sys_.</li></ul> <b>Default value</b><br>N/A |
| value     | Yes           | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>The value can contain a maximum of 255 characters and can be an empty string.</li><li>A tag value can contain letters, digits, spaces, and special characters ( _.:+=-@ ), but cannot start or end with a space or start with _sys_.</li></ul> <b>Default value</b><br>N/A                                                  |

Response Parameters

None

Example Request

Add tags to a cluster in batches.

```
POST /v1.1/{project_id}/clusters/{cluster_id}/tags/action
{
 "action": "create",
 "tags": [{
 "key": "DEV1",
 "value": "DEV1"
 }, {
 "key": "DEV2",
 "value": "DEV2"
 }]
}
```

## Example Response

None

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.3.5 Deleting Tags from a Cluster in Batches

### Function

This API is used to delete tags from a specified cluster in batches.

A cluster can have a maximum of 20 tags.

This API is idempotent.

- When tags are being deleted and some tags do not exist, the operation is considered to be successful by default. The character set of the tags will not be checked. A key and a value can respectively contain up to 128 and 255 Unicode characters. The tags structure cannot be missing. The key cannot be empty or an empty string.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

POST /v1.1/{project\_id}/clusters/{cluster\_id}/tags/action

Table 7-67 URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A                                                                                                                                     |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

**Table 7-68** Request body parameters

| Parameter | Mandatory | Type                 | Description                                                                                                                                                                                                                                            |
|-----------|-----------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action    | Yes       | String               | <b>Explanation</b><br>Operation to be performed.<br>The value can be <b>delete</b> only.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>delete</b>: Delete a tag.</li></ul> <b>Default value</b><br>N/A |
| tags      | Yes       | Array of tag objects | <b>Explanation</b><br>The tag list. For details about the parameter, see <a href="#">Table 7-69</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                         |

**Table 7-69** Tag

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes       | String | Tag key. <ul style="list-style-type: none"><li>• The value can contain a maximum of 128 characters and cannot be an empty string.</li><li>• The tag key of a resource must be unique.</li><li>• A tag key can contain letters, digits, spaces, and special characters (<code>_</code>:<code>+=</code><code>-@</code>), but cannot start or end with a space or start with <code>_sys_</code>.</li></ul> |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | Yes       | String | <p><b>Explanation</b><br/>Tag key.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• The value can contain a maximum of 128 characters and cannot be an empty string.</li><li>• The tag key of a resource must be unique.</li><li>• A tag key can contain letters, digits, spaces, and special characters ( _.:=-@ ), but cannot start or end with a space or start with _sys_.</li></ul> <p><b>Default value</b><br/>N/A</p> <p><b>Explanation</b><br/>Tag value.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"><li>• The value can contain a maximum of 255 characters and can be an empty string.</li><li>• A tag value can contain letters, digits, spaces, and special characters ( _.:=-@ ), but cannot start or end with a space or start with _sys_.</li></ul> <p><b>Default value</b><br/>N/A</p> |

Response Parameters

None

Example Request

Delete tags from a cluster in batches.

```
POST /v1.1/{project_id}/clusters/{cluster_id}/tags/action
{
 "action": "delete",
 "tags": [{
 "key": "DEV1",
 "value": "DEV1"
 }, {
 "key": "DEV2",
 "value": "DEV2"
 }]
}
```

## Example Response

None

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.3.6 Querying All Tags

### Function

This API is used to query all tags of a specified region.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

GET /v1.1/{project\_id}/clusters/tags

**Table 7-70** URI parameter

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

Status code: 200

**Table 7-71** Response parameter

| Parameter | Type                               | Description                                                                                                                                                            |
|-----------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags      | Array of TagWithMultiValue objects | <b>Explanation</b><br>Tag list. For details, see <a href="#">Table 7-72</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-72 tags parameters

| Parameter | Type             | Description                                                                                                                                                                                                                                                          |
|-----------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | String           | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag key can contain letters, digits, spaces, and special characters ( _.:+=+@ ), but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A     |
| values    | Array of strings | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>A tag value can contain letters, digits, spaces, and special characters ( _.:+=+@ ), but cannot start or end with a space or start with _sys_.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Query all tags.

GET https://{endpoint}/v1.1/{project\_id}/clusters/tags

Example Response

Status code: 200

The operation is successful.

```
{
 "tags" : [{
 "key" : "key1",
 "values" : ["value1", "value2"]
 }, {
 "key" : "key2",
 "values" : ["value1", "value2"]
 }]
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.3.7 Querying a List of Clusters with Specified Tags

### Function

This API is used to filter clusters by tag.

By default, clusters and tags are sorted in descending order of creation time.

### Constraints

None

### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and provide the sample SDK code debugging.

### URI

- Format  
POST /v1.1/{project\_id}/clusters/resource\_instances/action
- Parameter description

**Table 7-73** URI parameter

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

Request Parameters

Table 7-74 Request body parameters

| Parameter | Mandato<br>ry | Type                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|---------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags      | No            | Array of TagWith MultiValu e objects | <b>Explanation</b><br>The returned result contains the resources corresponding to all tags in this parameter.<br><b>Constraints</b><br>The structure body is mandatory. A maximum of 10 tag keys are allowed in each query operation. The tag key cannot be left blank or set to the empty string. One tag key can have up to 10 tag values. For details about the parameters, see <a href="#">Table 7-75</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                        |
| tags_any  | No            | Array of TagWith MultiValu e objects | <b>Explanation</b><br>The returned result contains the resources corresponding to any tag in this parameter.<br><b>Constraints</b><br>The structure body is mandatory. A maximum of 10 tag keys are allowed in each query operation. The tag key cannot be left blank or set to the empty string. One tag key can have up to 10 tag values. Keys must be unique and values of a key must be unique. For details about the parameters, see <a href="#">Table 7-75</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|-----------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| not_tags     | No        | Array of TagWithMultiValue objects | <b>Explanation</b><br>The returned result does not contain the resources corresponding to all tags in this parameter.<br><b>Constraints</b><br>The structure body is mandatory. A maximum of 10 tag keys are allowed in each query operation. The tag key cannot be left blank or set to the empty string. One tag key can have up to 10 tag values. Keys must be unique and values of a key must be unique. For details about the parameters, see <a href="#">Table 7-75</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| not_tags_any | No        | Array of TagWithMultiValue objects | <b>Explanation</b><br>The returned result does not contain the resources corresponding to any tag in this parameter.<br><b>Constraints</b><br>The structure body is mandatory. A maximum of 10 tag keys are allowed in each query operation. The tag key cannot be left blank or set to the empty string. One tag key can have up to 10 tag values. Keys must be unique and values of a key must be unique. For details about the parameters, see <a href="#">Table 7-75</a> .<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit     | No        | Integer | <b>Explanation</b><br>Number of query records.<br><b>Constraints</b><br>If you set <b>action</b> to <b>count</b> , this parameter is not required. If <b>action</b> is set to <b>filter</b> , the default value of this parameter is <b>1000</b> .<br><b>Value range</b><br>1-1000<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                        |
| offset    | No        | Integer | <b>Explanation</b><br>Index position. The query starts from the next data record indexed by this parameter. You do not need to specify this parameter when you query resources on the first page. When you query resources on subsequent pages, set this parameter to the location returned in the response body for the previous query.<br><b>Constraints</b><br>If you set <b>action</b> to <b>count</b> , this parameter is not required. If <b>action</b> is set to <b>filter</b> , the default value is <b>0</b> .<br><b>Value range</b><br>$\geq 0$<br><b>Default value</b><br>N/A |

| Parameter | Mandatory | Type                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action    | Yes       | String                 | <b>Explanation</b><br>Operation ID (only <b>filter</b> and <b>count</b> is available). <b>filter</b> : The query is paginated. <b>count</b> : The total number of records is returned by search condition.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>filter</b>: Perform pagination query.</li><li>• <b>count</b>: Query the total number of resources.</li></ul> <b>Default value</b><br>N/A                                                                                                                                       |
| matches   | No        | Array of Match objects | <b>Explanation</b><br>Search field. <b>key</b> indicates the field to be matched, for example, <b>resource_name</b> . <b>value</b> indicates the matched value. This field is a fixed dictionary value. Determine whether fuzzy match is required based on different fields. For example, if <b>key</b> is <b>resource_name</b> , fuzzy search is used by default. If <b>value</b> is an empty string, exact match is used. For details about the parameters, see <a href="#">Table 7-76</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-75 TagWithMultiValue

| Parameter | Mandato<br>ry | Type             | Description                                                                                                                                                                                                                                                          |
|-----------|---------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | Yes           | String           | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag key can contain letters, digits, spaces, and special characters ( _.:+=-@ ), but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A     |
| values    | No            | Array of strings | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>A tag value can contain letters, digits, spaces, and special characters ( _.:+=-@ ), but cannot start or end with a space or start with _sys_.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-76** Match

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | No        | String | <b>Explanation</b><br>Key. Currently, only <b>resource_name</b> is available, indicating the cluster name. Other keys will be supported later.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters.<br><b>Default value</b><br>N/A |
| value     | No        | String | <b>Explanation</b><br>Value. A value can contain a maximum of 64 Unicode characters.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 0 to 64 characters.<br><b>Default value</b><br>N/A                                                           |

## Response Parameters

**Table 7-77** Response parameters

| Parameter | Type                         | Description                                                                                                                                                                    |
|-----------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resources | Array of MRSResource objects | <b>Explanation</b><br>Resource details. For details, see <a href="#">Table 7-78</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter   | Type    | Description                                                                                                                               |
|-------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------|
| total_count | Integer | <b>Explanation</b><br>Total number of resources.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-78 MRSResource

| Parameter       | Type   | Description                                                                                                                      |
|-----------------|--------|----------------------------------------------------------------------------------------------------------------------------------|
| resource_detail | String | <b>Explanation</b><br>Resource details.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| resource_id     | String | <b>Explanation</b><br>Resource ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| resource_name   | String | <b>Explanation</b><br>Resource name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |

| Parameter | Type                      | Description                                                                                                                                                            |
|-----------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tags      | Array of TagPlain objects | <b>Explanation</b><br>Tag list. For details, see <a href="#">Table 7-79</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-79 TagPlain

| Parameter | Type   | Description                                                                                                                                                                                                                                                          |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| key       | String | <b>Explanation</b><br>Tag key.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag key can contain letters, digits, spaces, and special characters ( _.:+=+@ ), but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A     |
| value     | String | <b>Explanation</b><br>Tag value.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A tag value can contain letters, digits, spaces, and special characters ( _.:+=+@ ), but cannot start or end with a space or start with _sys_.<br><b>Default value</b><br>N/A |

Example Request

- Query the cluster list when **action** is set to **filter**.  
POST `https://{endpoint}/v1.1/{project_id}/{resource_type}/resource_instances/action`

```
{
 "offset": "100",
 "limit": "100",
 "action": "filter",
 "matches": [{
 "key": "resource_name",
 "value": "clusterA"
 }],
 "not_tags": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 "tags": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 "tags_any": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 "not_tags_any": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }]
}
```

- Query the cluster list when **action** is set to **count**.

POST [https://{endpoint}/v1.1/{project\\_id}/{resource\\_type}/resource\\_instances/action](https://{endpoint}/v1.1/{project_id}/{resource_type}/resource_instances/action)

```
{
 "action": "count",
 "not_tags": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 "tags": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 {
 "key": "key2",
 "values": ["value1", "value2"]
 }],
 "tags_any": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 "not_tags_any": [{
 "key": "key1",
 "values": ["value1", "value2"]
 }],
 "matches": [{
 "key": "resource_name",
 "value": "clusterA"
 }]
}
```

## Example Response

**Status code: 200**

The operation is successful.

```
{
 "resources": [{
 "resource_detail": null,
 "resource_id": "cdfs_cefs_wesas_12_dsad",
 "resource_name": "clusterA",
 "tags": [{
 "key": "key1",
```

```
 "value" : "value1"
 }, {
 "key" : "key2",
 "value" : "value1"
 }
],
"total_count" : "1000"
}
```

## Status Codes

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

# 7.4 Availability Zones

## 7.4.1 Querying AZ Information

### Function

This API is used to query the availability zone (AZ) ID used when you create a cluster.

### URI

GET /v1.1/{region\_id}/available-zones

**Table 7-80** URI parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                     |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| region_id | Yes       | String | <b>Explanation</b><br>Region ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 255 characters.<br><b>Default value</b><br>N/A |

**Table 7-81** Query parameters

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                               |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| scope     | No        | String | <b>Explanation</b><br>AZ scope.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>Center:</b> central AZ</li><li>• <b>Edge:</b> edge AZ</li></ul> <b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

**Status code:** 200

**Table 7-82** Response body parameter

| Parameter       | Type                             | Description                                                                                                                                                                                         |
|-----------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| available_zones | Array of AvailableZoneV2 objects | <b>Explanation</b><br>AZ list. For details about <b>AvailableZoneV2</b> , see <a href="#">Table 7-83</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| default_az_code | String                           | <b>Explanation</b><br>Default AZ code<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                      |

| Parameter                 | Type    | Description                                                                                                                                                                                                                                                                                                                     |
|---------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| support_physical_az_group | Boolean | <b>Explanation</b><br>Whether physical AZ group is supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>True:</b> Physical availability groups are supported.</li><li>• <b>False:</b> Physical availability groups are not supported.</li></ul> <b>Default value</b><br>N/A |

Table 7-83 AvailableZoneV2

| Parameter | Type   | Description                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------|
| id        | String | <b>Explanation</b><br>ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A       |
| az_code   | String | <b>Explanation</b><br>AZ code.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                               |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------|
| az_name   | String | <b>Explanation</b><br>AZ name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| az_id     | String | <b>Explanation</b><br>AZ ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| status    | String | <b>Explanation</b><br>AZ status<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| region_id | String | <b>Explanation</b><br>Region ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter   | Type                | Description                                                                                                                                                                                                                                                                                  |
|-------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| az_group_id | String              | <b>Explanation</b><br>AZ group ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                  |
| az_type     | String              | <b>Explanation</b><br>AZ type.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>• Core</li> <li>• Satellite</li> <li>• Dedicated</li> <li>• Virtual</li> <li>• Edge</li> <li>• Edgecentral: central and edge</li> </ul> <b>Default value</b><br>N/A |
| az_tags     | AvailableTag object | <b>Explanation</b><br>AZ tag. For details about <b>AvailableTag</b> , see <a href="#">Table 7-84</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                              |

Table 7-84 AvailableTag

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                |
|---------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| mode                | String | <b>Explanation</b><br>Resource mode, which can be <b>dedicated</b> or <b>shared</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>dedicated</b>: dedicated AZ.</li><li>• <b>shared</b>: shared AZ.</li></ul> <b>Default value</b><br>N/A |
| alias               | String | <b>Explanation</b><br>Alias of an AZ.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                             |
| public_border_group | String | <b>Explanation</b><br>Group to which the AZ belongs. The default value is <b>center</b> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                         |

Example Request

None

Example Response

**Status code: 200**  
Query AZ information.

```
{
 "available_zones" : [{
 "id" : "xxx",
```

```
"az_code" : "xxx",
"az_name" : "AZ 1",
"az_id" : "xxx",
"status" : "Running",
"region_id" : "xxx",
"az_type" : "Dedicated",
"az_group_id" : "",
"az_tags" : {
 "mode" : null,
 "alias" : null,
 "public_border_group" : "center"
}, {
 "id" : "xxx",
 "az_code" : "xxx",
 "az_name" : "AZ 2",
 "az_id" : "xxx",
 "status" : "Running",
 "region_id" : "xxx",
 "az_type" : "Dedicated",
 "az_tags" : {
 "mode" : null,
 "alias" : null,
 "public_border_group" : "center"
 }
}, {
 "id" : "xxx",
 "az_code" : "xxx",
 "az_name" : "AZ 3",
 "az_id" : "xxx",
 "status" : "Running",
 "region_id" : "xxx",
 "az_type" : "Dedicated",
 "az_tags" : {
 "mode" : null,
 "alias" : null,
 "public_border_group" : "center"
 }
}],
"default_az_code" : "xxx",
"support_physical_az_group" : true
}
```

## Status Code

See [Table 7-85](#).

**Table 7-85** Status Code

| Status Code | Description    |
|-------------|----------------|
| 200         | AZ information |

See [Status Codes](#).

## Error Codes

See [Error Codes](#).

## 7.5 Version Metadata

### 7.5.1 Querying the Metadata of a Cluster Version

#### Function

This API is used to query the metadata of a cluster version. If the cluster ID is specified, the latest metadata of the cluster that has been patched can be queried.

#### Debugging

You can debug this API in API Explorer. Automatic authentication is supported. API Explorer can automatically generate sample SDK code and support sample SDK code debugging.

#### URI

GET /v1.1/{project\_id}/metadata/versions/{version\_name}

**Table 7-86** URI parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                            |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | String | <b>Explanation</b><br>Project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value must consist of 1 to 64 characters. Only letters and digits are allowed.<br><b>Default value</b><br>N/A |

| Parameter    | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                    |
|--------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| version_name | Yes       | String | <b>Explanation</b><br>The cluster version, for example: MRS 3.1.0. If the request client does not support automatic escape, escape the space to %20, for example, MRS %203.1.0.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters.<br><b>Default value</b><br>N/A |

**Table 7-87** Query parameter

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cluster_id | No        | String | <b>Explanation</b><br>Cluster ID. If this parameter is specified, the latest metadata of the cluster that has been patched will be obtained. For details about how to obtain the cluster ID, see <a href="#">Obtaining a Cluster ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>The value can contain 1 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

**Status code: 200**

Table 7-88 Response body parameters

| Parameter     | Type               | Description                                                                                                                       |
|---------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| other         | Map<String,Object> | <b>Explanation</b><br>Other<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A              |
| name          | String             | <b>Explanation</b><br>Image version name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| template_type | String             | <b>Explanation</b><br>Template type<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| image_id      | String             | <b>Explanation</b><br>Image ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A          |

| Parameter     | Type             | Description                                                                                                                    |
|---------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| status        | String           | <b>Explanation</b><br>Version status.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| features      | Array of strings | <b>Explanation</b><br>Feature list.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| cluster_types | Array of strings | <b>Explanation</b><br>Cluster types.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| version_type  | String           | <b>Explanation</b><br>Version type<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |

| Parameter            | Type                              | Description                                                                                                                                                                                             |
|----------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| components           | Array of VersionComponent objects | <b>Explanation</b><br>Components. For details, see <a href="#">Table 7-89</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                |
| resource_requirement | Array of strings                  | <b>Explanation</b><br>Description of required resources, such as IP addresses<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                  |
| constraints          | VersionConstraint object          | <b>Explanation</b><br>Version restrictions. For details about the parameters, see <a href="#">Table 7-91</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| flavors              | FlavorLists object                | <b>Explanation</b><br>Specifications. For details, see <a href="#">Table 7-94</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                            |

| Parameter        | Type                            | Description                                                                                                                                                                                                 |
|------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| role_deploy_meta | Array of RoleDeployMeta objects | <b>Explanation</b><br>Role deployment policy of component instances. For details, see <a href="#">Table 7-95</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-89** VersionComponent

| Parameter | Type               | Description                                                                                                                        |
|-----------|--------------------|------------------------------------------------------------------------------------------------------------------------------------|
| other     | Map<String,Object> | <b>Explanation</b><br>Other<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A               |
| name      | String             | <b>Explanation</b><br>Component name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A     |
| version   | String             | <b>Explanation</b><br>Supported versions.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter               | Type                                         | Description                                                                                                                                                                        |
|-------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| depend_on               | Array of strings                             | <b>Explanation</b><br>Component dependencies.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                             |
| description             | String                                       | <b>Explanation</b><br>Component description.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                              |
| available_cluster_types | Array of strings                             | <b>Explanation</b><br>Cluster types that support the component.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                           |
| external_data_sources   | Array of ComponentExternalDatasource objects | <b>Explanation</b><br>External data source. For details, see <a href="#">Table 7-90</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter            | Type             | Description                                                                                                                                                                                                                   |
|----------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resource_requirement | Array of strings | <b>Explanation</b><br>Description of required resources, such as IP addresses.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                       |
| valid_roles          | Array of strings | <b>Explanation</b><br>Valid roles.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                   |
| visible              | Boolean          | <b>Explanation</b><br>Visible or not.<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• <b>True:</b> visible</li><li>• <b>False:</b> invisible</li></ul> <b>Default value</b><br>N/A |
| children_components  | Array of strings | <b>Explanation</b><br>Sub-components<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                 |

| Parameter               | Type   | Description                                                                                                                                   |
|-------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| multi_az_support_status | String | <b>Explanation</b><br>Whether multi-AZ is supported.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-90** ComponentExternalDatasource

| Parameter | Type             | Description                                                                                                                                      |
|-----------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | String           | <b>Explanation</b><br>Name of the external data source.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| types     | Array of strings | <b>Explanation</b><br>Type of the external data source.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-91 VersionConstraint

| Parameter                             | Type                   | Description                                                                                                                                                                                         |
|---------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| other                                 | Map<String,Object>     | <b>Explanation</b><br>Other restrictions<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                   |
| node_constraint                       | NodeConstraints object | <b>Explanation</b><br>Node restrictions. For details, see <a href="#">Table 7-92</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                     |
| safe_mode_kerberos_exclude_components | Array of strings       | <b>Explanation</b><br>Components excluded from clusters in security mode (Kerberos authentication enabled)<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 7-92 NodeConstraints

| Parameter | Type                  | Description                                                                                                                                                                                                                         |
|-----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| other     | Map<String,Object>    | <b>Explanation</b><br>Restrictions on other nodes, including the number of nodes and disks<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                 |
| master    | NodeConstraint object | <b>Explanation</b><br>Restrictions on Master nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| core      | NodeConstraint object | <b>Explanation</b><br>Restrictions on Core nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |

| Parameter     | Type                  | Description                                                                                                                                                                                                                                                                         |
|---------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| task          | NodeConstraint object | <b>Explanation</b><br>Restrictions on Task nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                   |
| core_separate | NodeConstraint object | <b>Explanation</b><br>Core node restrictions when management and control nodes are different nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| core_combine  | NodeConstraint object | <b>Explanation</b><br>Core node restrictions when management and control nodes are the same nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |

| Parameter       | Type                  | Description                                                                                                                                                                                                                                                                         |
|-----------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| task_separate   | NodeConstraint object | <b>Explanation</b><br>Task node restrictions when management and control nodes are different nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| task_combine    | NodeConstraint object | <b>Explanation</b><br>Task node restrictions when management and control nodes are the same nodes, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| node_group_task | NodeConstraint object | <b>Explanation</b><br>Restrictions on task node groups, including the number of nodes and disks. For details, see <a href="#">Table 7-93</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                             |

**Table 7-93** NodeConstraint

| Parameter    | Type                | Description                                                                                                                             |
|--------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| other        | Map<String,Object>  | <b>Explanation</b><br>Other restrictions.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| min_node_num | Integer             | <b>Explanation</b><br>Minimum number of nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| max_node_num | Integer             | <b>Explanation</b><br>Maximum number of nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| min_core_num | Map<String,Integer> | <b>Explanation</b><br>Minimum number of cores.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter                  | Type                | Description                                                                                                                                  |
|----------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| min_mem_size               | Map<String,Integer> | <b>Explanation</b><br>Minimum memory.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A               |
| min_disk_size              | Integer             | <b>Explanation</b><br>Minimum disk capacity.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A        |
| max_node_group_num         | Integer             | <b>Explanation</b><br>Maximum number of nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A      |
| min_data_volume_total_size | Map<String,Integer> | <b>Explanation</b><br>Minimum data volume capacity.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter            | Type               | Description                                                                                                                                                                                     |
|----------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| disk_type_constraint | Map<String,String> | <b>Explanation</b><br>Disk type restrictions, including the types supported by the current node group.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| min_root_disk_size   | Integer            | <b>Explanation</b><br>Minimum system disk size.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                        |

Table 7-94 FlavorLists

| Parameter | Type             | Description                                                                                                                                              |
|-----------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| master    | Array of strings | <b>Explanation</b><br>Specifications supported by Master nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type             | Description                                                                                                                                            |
|-----------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| core      | Array of strings | <b>Explanation</b><br>Specifications supported by Core nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| task      | Array of strings | <b>Explanation</b><br>Specifications supported by Task nodes.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 7-95** RoleDeployMeta

| Parameter | Type               | Description                                                                                                                      |
|-----------|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| other     | Map<String,Object> | <b>Explanation</b><br>Other properties.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| name      | String             | <b>Explanation</b><br>Role name.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A        |

| Parameter       | Type   | Description                                                                                                                                         |
|-----------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| code_name       | String | <b>Explanation</b><br>Short name of the role.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A              |
| component       | String | <b>Explanation</b><br>Component to which the role belongs.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| node_preference | String | <b>Explanation</b><br>Node deployment preference.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A          |
| count           | String | <b>Explanation</b><br>Maximum number of roles.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A             |

| Parameter       | Type    | Description                                                                                                                                         |
|-----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| affinity        | String  | <b>Explanation</b><br>Affinity.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                            |
| affinity_target | String  | <b>Explanation</b><br>Target in the affinity relationship.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| multi_instance  | Integer | <b>Explanation</b><br>Multi-instance.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                      |
| role_kind       | String  | <b>Explanation</b><br>Role type.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                           |

| Parameter              | Type             | Description                                                                                                                                                                                                                                                                                                                   |
|------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| constraints            | Array of strings | <p><b>Explanation</b><br/>Role restrictions, including function restrictions of the current component role, for example, "no_scale_in".</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                           |
| multi_az_placement     | String           | <p><b>Explanation</b><br/>Multi-AZ deployment.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                    |
| arbitration_deployment | Boolean          | <p><b>Explanation</b><br/>Whether to use arbitration deployment.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Use arbitration deployment.</li> <li>• <b>false</b>: Do not use arbitration deployment.</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| support_elb            | Boolean          | <p><b>Explanation</b><br/>Whether ELB is supported.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: ELB is supported.</li> <li>• <b>false</b>: ELB is not supported.</li> </ul> <p><b>Default value</b><br/>N/A</p>                                     |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                                            |
|-----------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| multi_affinity_group_enable | Boolean | <p><b>Explanation</b><br/>Whether to enable the multi-affinity groups.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Enable multi-affinity groups.</li> <li>• <b>false</b>: Disable multi-affinity groups.</li> </ul> <p><b>Default value</b><br/>N/A</p>      |
| local_disks_anti_affinity   | Boolean | <p><b>Explanation</b><br/>Whether to enable local disk anti-affinity.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>true</b>: Enable local disk anti-affinity.</li> <li>• <b>false</b>: Disable local disk anti-affinity.</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| multi_instance_name_pattern | String  | <p><b>Explanation</b><br/>Multi-instance name pattern.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                     |
| private_ip                  | String  | <p><b>Explanation</b><br/>Private IP addresses.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                            |

| Parameter | Type   | Description                                                                                                            |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------|
| weight    | String | <b>Explanation</b><br>Weight.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Example Request

Obtain the metadata of MRS 3.1.0

```
GET /v1.1/{project_id}/metadata/versions/MRS%203.1.0
```

## Example Response

**Status code: 200**

Version metadata details. Some contents are omitted in this example. For details, call the API.

```
{
 "other" : { },
 "name" : "MRS 3.1.0",
 "template_type" : "clusterFusion",
 "image_id" : "ECS:X86:deda7c89-6069-46d3-af7c-4afc31eec0d9,ECS:ARM:d5f0087b-9fd7-4977-b9c8-
d07262f452d6,BMS:ks1ne:bf071a00-d1d6-472f-943b-22f733248f36,BMS:d2:a9a1a279-85c9-4c05-
bd0a-4cb786937a09",
 "status" : "GA",
 "features" : ["anti_affinity", "auto_scaling", "bootstrap_scripts", "bootstrap_support_obs", "custom_config",
"custom_topology", "datasource_manager", "decouple_install", "elastic_ip", "fi_cluster", "fi_cluster_v2",
"iam_user_sync", "log_collect", "log_collect_v2", "master_scale_up", "mrs_ecs_agency", "multi_disks",
"multi_login_mode", "obs_integration", "obs_user_policy", "opensource_port_matrix", "ops_channel",
"password_policy_v2", "random_passwd_for_install", "register_dns_server", "resize", "resources_plans",
"safe_mode", "scale_scripts", "security_job_submit", "smn_alarm", "spark_sql_validation_in_executor",
"support_obs_protocol", "task_node", "unified_management_ui", "sql_execution", "multi_az",
"weak_multi_az_deployment_constraint", "multi_master_scale_up", "omm_random_pwd", "metric_monitor",
"auth_manager", "cluster_patch", "hw_domain_name", "fi_custom_config", "force_scale_up",
"skip_fi_evs_expand", "detach_node"],
 "cluster_types" : ["analysis", "streaming", "mixed", "custom"],
 "version_type" : "basic",
 "components" : [{
 "other" : { },
 "name" : "Hadoop",
 "version" : "3.1.1",
 "depend_on" : ["ZooKeeper", "Ranger"],
 "description" : "A framework that allows for the distributed processing of large data sets across clusters.",
 "available_cluster_types" : ["analysis", "mixed", "custom"],
 "external_datasources" : null,
 "resource_requirement" : ["privatelp:1"],
 "valid_roles" : ["NameNode", "Zkfc", "JournalNode", "DataNode", "ResourceManager", "NodeManager",
"JobHistoryServer", "TimelineServer", "HttpFS"],
 "visible" : true,
 "children_components" : ["HDFS", "Mapreduce", "Yarn"],
 "multi_az_support_status" : "multi_az_ha"
 }, {
```

```
"other" : { },
"name" : "Spark2x",
"version" : "2.4.5",
"depend_on" : ["HDFS", "Yarn", "Hive", "KrbClient", "KrbServer", "ZooKeeper"],
"description" : "Apache Spark2x is a fast and general engine based on open source Spark2.x for large-scale data processing.",
"available_cluster_types" : ["analysis", "mixed", "custom"],
"external_datasources" : null,
"resource_requirement" : null,
"valid_roles" : ["JobHistory2x", "JDBCServer2x", "SparkResource2x", "IndexServer2x"],
"visible" : true,
"children_components" : ["Spark2x"],
"multi_az_support_status" : "multi_az_ha"
}, {
 "other" : { },
 "name" : "HBase",
 "version" : "2.2.3",
 "depend_on" : ["HDFS", "Yarn", "KrbServer", "ZooKeeper"],
 "description" : "A scalable, distributed database that supports structured data storage for large tables.",
 "available_cluster_types" : ["analysis", "mixed", "custom"],
 "external_datasources" : null,
 "resource_requirement" : null,
 "valid_roles" : ["HMaster", "RegionServer", "ThriftServer", "Thrift1Server", "RESTServer", "RegionServer_1"],
 "visible" : true,
 "children_components" : ["HBase"],
 "multi_az_support_status" : "multi_az_ha"
}, {
 "other" : { },
 "name" : "Hive",
 "version" : "3.1.0",
 "depend_on" : ["HDFS", "Mapreduce", "Yarn", "DBService", "ZooKeeper"],
 "description" : "A data warehouse infrastructure that provides data summarization and ad hoc querying.",
 "available_cluster_types" : ["analysis", "mixed", "custom"],
 "external_datasources" : [{
 "name" : "hive_metastore",
 "types" : ["RDS_MYSQL", "DLCATALOG"]
 }],
 "resource_requirement" : null,
 "valid_roles" : ["MetaStore", "WebHCat", "HiveServer"],
 "visible" : true,
 "children_components" : ["Hive"],
 "multi_az_support_status" : "multi_az_ha"
}, {
 "other" : { },
 "name" : "ZooKeeper",
 "version" : null,
 "depend_on" : ["KrbClient", "KrbServer"],
 "description" : null,
 "available_cluster_types" : ["analysis", "streaming", "mixed", "custom"],
 "external_datasources" : null,
 "resource_requirement" : null,
 "valid_roles" : ["quorumpeer"],
 "visible" : true,
 "children_components" : ["ZooKeeper"],
 "multi_az_support_status" : "multi_az_ha"
}],
"resource_requirement" : ["privateIp:2"],
"constraints" : {
 "other" : { },
 "node_constraint" : {
 "other" : { },
 "master" : {
 "other" : { },
 "min_node_num" : 2,
 "max_node_num" : 9,
 "min_core_num" : null,
 "min_mem_size" : null,
 "min_disk_size" : 600,
```

```
"max_node_group_num" : 1,
"min_data_volume_total_size" : null,
"disk_type_constraint" : null,
"min_root_disk_size" : 480
},
"core" : {
 "other" : { },
 "min_node_num" : 3,
 "max_node_num" : 500,
 "min_core_num" : null,
 "min_mem_size" : null,
 "min_disk_size" : 600,
 "max_node_group_num" : null,
 "min_data_volume_total_size" : null,
 "disk_type_constraint" : null,
 "min_root_disk_size" : 480
},
"task" : null,
"core_separate" : null,
"core_combine" : null,
"task_separate" : null,
"task_combine" : null,
"node_group_task" : {
 "other" : { },
 "min_node_num" : 2,
 "max_node_num" : 10000,
 "min_core_num" : null,
 "min_mem_size" : null,
 "min_disk_size" : 600,
 "max_node_group_num" : 9,
 "min_data_volume_total_size" : null,
 "disk_type_constraint" : null,
 "min_root_disk_size" : 480
}
},
"safe_mode_kerberos_exclude_components" : ["Presto", "Pulsar"]
},
"flavors" : {
 "master" : ["ac7.4xlarge.4", "ac7.8xlarge.4", "ac7.16xlarge.4", "ac7.32xlarge.4", "ac7.8xlarge.2",
"ac7.16xlarge.2", "ac7.32xlarge.2", "am7.2xlarge.8", "am7.4xlarge.8", "am7.8xlarge.8", "c3ne.4xlarge.4",
"c3ne.8xlarge.4", "c3ne.15xlarge.4"],
 "core" : ["ac7.4xlarge.4", "ac7.8xlarge.4", "ac7.16xlarge.4", "ac7.32xlarge.4", "ac7.8xlarge.2",
"ac7.16xlarge.2", "ac7.32xlarge.2", "am7.2xlarge.8", "am7.4xlarge.8", "am7.8xlarge.8", "c3ne.4xlarge.4",
"c3ne.8xlarge.4", "c3ne.15xlarge.4", "c6.4xlarge.4", "c6.8xlarge.2", "c6.8xlarge.4", "c6.16xlarge.2"],
 "task" : ["ac7.4xlarge.4", "ac7.8xlarge.4", "ac7.16xlarge.4", "ac7.32xlarge.4", "ac7.8xlarge.2",
"ac7.16xlarge.2", "ac7.32xlarge.2", "am7.2xlarge.8", "am7.4xlarge.8", "am7.8xlarge.8", "c3ne.4xlarge.4",
"c3ne.8xlarge.4", "c3ne.15xlarge.4"]
},
"role_deploy_meta" : [{
 "other" : { },
 "name" : "OMSServer",
 "code_name" : "OMS",
 "component" : "OMSServer",
 "node_preference" : "MASTER",
 "count" : "2",
 "affinity" : null,
 "affinity_target" : null,
 "multi_instance" : null,
 "role_kind" : null,
 "constraints" : null,
 "multi_az_placement" : "AT_LEAST_2",
 "arbitration_deployment" : false,
 "support_elb" : false,
 "multi_affinity_group_enable" : false,
 "local_disks_anti_affinity" : false,
 "multi_instance_name_pattern" : null,
 "private_ip" : null,
 "weight" : null
}, {
```

```
"other" : { },
"name" : "NameNode",
"code_name" : "NN",
"component" : "HDFS",
"node_preference" : "MASTER",
"count" : "2",
"affinity" : null,
"affinity_target" : null,
"multi_instance" : null,
"role_kind" : null,
"constraints" : null,
"multi_az_placement" : "AT_LEAST_2",
"arbitration_deployment" : false,
"support_elb" : false,
"multi_affinity_group_enable" : false,
"local_disks_anti_affinity" : false,
"multi_instance_name_pattern" : null,
"private_ip" : null,
"weight" : null
}, {
 "other" : { },
 "name" : "Zkfc",
 "code_name" : "ZKFC",
 "component" : "HDFS",
 "node_preference" : null,
 "count" : null,
 "affinity" : "JUST_COLOCATE",
 "affinity_target" : "NameNode",
 "multi_instance" : null,
 "role_kind" : null,
 "constraints" : null,
 "multi_az_placement" : "AT_LEAST_2",
 "arbitration_deployment" : false,
 "support_elb" : false,
 "multi_affinity_group_enable" : false,
 "local_disks_anti_affinity" : false,
 "multi_instance_name_pattern" : null,
 "private_ip" : null,
 "weight" : null
}, {
 "other" : { },
 "name" : "HttpFS",
 "code_name" : "HFS",
 "component" : "HDFS",
 "node_preference" : "MASTER",
 "count" : "[0-10]",
 "affinity" : null,
 "affinity_target" : null,
 "multi_instance" : null,
 "role_kind" : null,
 "constraints" : null,
 "multi_az_placement" : "AT_LEAST_2",
 "arbitration_deployment" : false,
 "support_elb" : false,
 "multi_affinity_group_enable" : false,
 "local_disks_anti_affinity" : false,
 "multi_instance_name_pattern" : null,
 "private_ip" : null,
 "weight" : null
}, {
 "other" : { },
 "name" : "JournalNode",
 "code_name" : "JN",
 "component" : "HDFS",
 "node_preference" : "MASTER",
 "count" : "[3-60],step=2",
 "affinity" : null,
 "affinity_target" : null,
 "multi_instance" : null,
```

```
"role_kind" : null,
"constraints" : null,
"multi_az_placement" : "QUORUM_LIKE",
"arbitration_deployment" : true,
"support_elb" : false,
"multi_affinity_group_enable" : false,
"local_disks_anti_affinity" : false,
"multi_instance_name_pattern" : null,
"private_ip" : null,
"weight" : null
}, {
 "other" : { },
 "name" : "DataNode",
 "code_name" : "DN",
 "component" : "HDFS",
 "node_preference" : "NO_LIMIT",
 "count" : "[3-10000]",
 "affinity" : null,
 "affinity_target" : null,
 "multi_instance" : null,
 "role_kind" : "stateful",
 "constraints" : null,
 "multi_az_placement" : "AT_LEAST_2",
 "arbitration_deployment" : false,
 "support_elb" : false,
 "multi_affinity_group_enable" : false,
 "local_disks_anti_affinity" : false,
 "multi_instance_name_pattern" : null,
 "private_ip" : null,
 "weight" : null
}, {
 "other" : { },
 "name" : "ResourceManager",
 "code_name" : "RM",
 "component" : "Yarn",
 "node_preference" : "MASTER",
 "count" : "2",
 "affinity" : null,
 "affinity_target" : null,
 "multi_instance" : null,
 "role_kind" : null,
 "constraints" : null,
 "multi_az_placement" : "AT_LEAST_2",
 "arbitration_deployment" : false,
 "support_elb" : false,
 "multi_affinity_group_enable" : false,
 "local_disks_anti_affinity" : false,
 "multi_instance_name_pattern" : null,
 "private_ip" : null,
 "weight" : null
}, {
 "other" : { },
 "name" : "NodeManager",
 "code_name" : "NM",
 "component" : "Yarn",
 "node_preference" : "NO_LIMIT",
 "count" : "[3-10000]",
 "affinity" : null,
 "affinity_target" : null,
 "multi_instance" : null,
 "role_kind" : "stateless",
 "constraints" : null,
 "multi_az_placement" : "AT_LEAST_2",
 "arbitration_deployment" : false,
 "support_elb" : false,
 "multi_affinity_group_enable" : false,
 "local_disks_anti_affinity" : false,
 "multi_instance_name_pattern" : null,
 "private_ip" : null,
```

```
"weight" : null
}]
}
```

## Status Codes

For details, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

# 8 Out-of-Date APIs

## 8.1 Job API Management (Deprecated)

### 8.1.1 Adding and Executing a Job (Deprecated)

#### Function

This API is used to add a job to an MRS cluster and execute the job. This API is incompatible with Sahara.

#### URI

- Format  
POST /v1.1/{project\_id}/jobs/submit-job
- Parameter description

Table 8-1 URI parameter

| Parameter  | Mandatory | Description                                                                                                                                                                                                                 |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Request Parameters

Table 8-2 Request body parameters

| Parameter  | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                 |
|------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_name   | Yes       | String | <b>Explanation</b><br>Job name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A cluster name can contain 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. Identical job names are allowed but not recommended.<br><b>Default value</b><br>N/A |
| cluster_id | Yes       | String | <b>Explanation</b><br>Cluster ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                   |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| jar_path  | No        | String | <p><b>Explanation</b><br/>Path of the <b>.jar</b> file or <b>.sql</b> file to be executed.</p> <p><b>Constraints</b><br/>The <b>jar_path</b> parameter is mandatory for MapReduce or Spark jobs.</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>The path can contain a maximum of 1,023 characters, excluding special characters such as ; &amp;&gt;&lt;'\$. The address cannot be empty or full of spaces.</li> <li>This path must start with "/" or "s3a://". The OBS path does not support files or programs encrypted by KMS.</li> <li>Spark Script must end with <b>.sql</b> while MapReduce and Spark JAR must end with <b>.jar</b>. <b>sql</b> and <b>jar</b> are case-insensitive.</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| input     | No        | String | <p><b>Explanation</b><br/>Address for inputting data</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>This path must start with "/" or "s3a://". Set this parameter to a correct OBS path. The OBS path does not support files or programs encrypted by KMS.</p> <p>The value can contain a maximum of 1,023 characters, excluding special characters such as ; &amp;&gt;'&lt;\$, and can be left blank.</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                 |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| output    | No        | String | <p><b>Explanation</b><br/>Address for outputting data</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>This path must start with "/" or "s3a://". A correct OBS path is required. If the path does not exist, the system automatically creates it.<br/>The value can contain a maximum of 1,023 characters and can be left blank. Special characters such as ; &amp;&gt;'&lt;\$ are not allowed.</p> <p><b>Default value</b><br/>N/A</p> |
| job_log   | No        | String | <p><b>Explanation</b><br/>Path for storing job logs that record job status.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>This path must start with "/" or "s3a://".<br/>The value can contain a maximum of 1,023 characters and can be left blank. Special characters such as ; &amp;&gt;'&lt;\$ are not allowed.</p> <p><b>Default value</b><br/>N/A</p>                                                                            |

| Parameter   | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type    | Yes       | Integer | <p><b>Explanation</b><br/>Job type code</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• 1: MapReduce</li> <li>• 2: Spark</li> <li>• 3: Hive Script</li> <li>• 4: HiveSQL (not supported currently)</li> <li>• 5: DistCp, importing and exporting data</li> <li>• 6: Spark Script</li> <li>• 7: Spark SQL, submitting SQL statements (not supported currently)</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| file_action | No        | String  | <p><b>Explanation</b><br/>File operation type.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• export: Export data from HDFS to OBS.</li> <li>• import: Import data from OBS to HDFS.</li> </ul> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                         |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| arguments | No        | String | <p><b>Explanation</b></p> <p>Key parameters for program execution.</p> <p><b>Constraints</b></p> <p>This parameter is specified by a function in your program. MRS is responsible for passing the parameter only.</p> <p><b>Value range</b></p> <p>The value can contain a maximum of 150,000 characters. Special characters (; &amp;&gt;'&lt;\$!"\) are not allowed. This parameter can be left blank. When entering a parameter containing sensitive information (for example, login password), add an at sign (@) before the parameter name to encrypt the parameter value. This prevents the sensitive information from being persisted in plaintext. Therefore, when you view job information on the MRS, sensitive information will be displayed as asterisks (*). Example: username=xxx @password=yyy</p> <p><b>Default value</b></p> <p>N/A</p> |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hql       | No        | String | <p><b>Explanation</b></p> <p>Spark SQL statement.</p> <p><b>Constraints</b></p> <p>The statement needs Base64 encoding and decoding.<br/><b>ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/</b> is a standard encoding table. MRS uses this table for Base64 encoding. The value of the <b>hql</b> parameter is generated by adding any letter to the beginning of the encoded character string. The Spark SQL statement is generated by decoding the value in the background. Example:</p> <ol style="list-style-type: none"><li>1. Enter Spark SQL statement <b>show tables;</b></li><li>2. Encode it using <b>ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/</b>, and obtain the encoded string <b>c2hvdYB0YWlsZXM7</b>.</li><li>3. Prefix the <b>c2hvdYB0YWlsZXM7</b> string with a random letter (for example, g), and then you get <b>gc2hvdYB0YWlsZXM7</b>.</li><li>4. The backend automatically decodes <b>gc2hvdYB0YWlsZXM7</b> and you obtain Spark SQL statement <b>show tables;</b></li></ol> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hive_script_path | No        | String | <b>Explanation</b><br>Path of the SQL program.<br><b>Constraints</b><br>This parameter is required only for Spark Script and Hive Script jobs.<br><b>Value range</b> <ul style="list-style-type: none"><li>• The path can contain a maximum of 1,023 characters, excluding special characters such as ; &amp;&gt;&lt;'\$. The address cannot be empty or full of spaces.</li><li>• The path must start with / or s3a://. The OBS path does not support files or programs encrypted by KMS.</li><li>• The path must end with .sql. sql is case-insensitive.</li></ul> <b>Default value</b><br>N/A |

## Parameters

Status code: 200

Table 8-3 Response body parameter

| Parameter | Type    | Description                                                                                                                                                                  |
|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| templated | Boolean | <b>Explanation</b><br>Whether job execution objects are generated by job templates.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter  | Type   | Description                                                                                                                                                                                                                 |
|------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| created_at | Long   | <b>Explanation</b><br>Creation time, which is a 10-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                  |
| updated_at | Long   | <b>Explanation</b><br>Update time, which is a 10-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                    |
| id         | String | <b>Explanation</b><br>The job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                  |
| tenant_id  | String | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                 |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_id    | String | <b>Explanation</b><br>Job application ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                           |
| job_name  | String | <b>Explanation</b><br>Job name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>A cluster name can contain 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. Identical job names are allowed but not recommended.<br><b>Default value</b><br>N/A |
| input_id  | String | <b>Explanation</b><br>Data input ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                |
| output_id | String | <b>Explanation</b><br>Data output ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                               |

| Parameter     | Type   | Description                                                                                                                                                                                     |
|---------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| start_time    | Long   | <p><b>Explanation</b><br/>Start time of job execution, which is a 10-bit timestamp.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |
| end_time      | Long   | <p><b>Explanation</b><br/>End time of job execution, which is a 10-bit timestamp.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>   |
| cluster_id    | String | <p><b>Explanation</b><br/>Cluster ID</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                |
| engine_job_id | String | <p><b>Explanation</b><br/>Workflow ID of Oozie</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                      |

| Parameter    | Type    | Description                                                                                                                                                                               |
|--------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| return_code  | String  | <b>Explanation</b><br>Returned code for an execution result<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                      |
| is_public    | Boolean | <b>Explanation</b><br>Whether a job is public<br><b>Constraints</b><br>The current version does not support this function.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A    |
| is_protected | Boolean | <b>Explanation</b><br>Whether a job is protected<br><b>Constraints</b><br>The current version does not support this function.<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| group_id     | String  | <b>Explanation</b><br>Group ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                          |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| jar_path  | String | <p><b>Explanation</b><br/>Path of the <b>.jar</b> file or <b>.sql</b> file to be executed.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>The path can contain a maximum of 1,023 characters, excluding special characters such as ; &amp;&gt;&lt;'\$. The address cannot be empty or full of spaces.</li> <li>This path must start with / or <b>s3a://</b>. The OBS path does not support files or programs encrypted by KMS.</li> <li>Spark Script must end with <b>.sql</b> while MapReduce and Spark JAR must end with <b>.jar</b>. <b>sql</b> and <b>jar</b> are case-insensitive.</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| input     | String | <p><b>Explanation</b><br/>Address for inputting data</p> <p><b>Constraints</b><br/>Set this parameter to a correct OBS path. The OBS path does not support files or programs encrypted by KMS.</p> <p><b>Value range</b><br/>This path must start with / or <b>s3a://</b>.<br/>The value can contain a maximum of 1,023 characters and can be left blank. Special characters such as ; &amp;&gt;'&lt;\$ are not allowed.</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                               |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| output    | String | <p><b>Explanation</b><br/>Address for outputting data</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>This path must start with / or s3a://. A correct OBS path is required. If the path does not exist, the system automatically creates it.<br/>The value can contain a maximum of 1,023 characters and can be left blank. Special characters such as ; &amp;&gt;'&lt;\$ are not allowed.</p> <p><b>Default value</b><br/>N/A</p> |
| job_log   | String | <p><b>Explanation</b><br/>Path for storing job logs that record job running status.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>This path must start with / or s3a://.<br/>The value can contain a maximum of 1,023 characters and can be left blank. Special characters such as ; &amp;&gt;'&lt;\$ are not allowed.</p> <p><b>Default value</b><br/>N/A</p>                                                                    |

| Parameter   | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type    | Integer | <p><b>Explanation</b><br/>Job type code</p> <p><b>Constraints</b><br/>Spark and Hive jobs can be added to only clusters that include Spark and Hive components.</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• 1: MapReduce</li> <li>• 2: Spark</li> <li>• 3: Hive Script</li> <li>• 4: HiveSQL (not supported currently)</li> <li>• 5: DistCp, importing and exporting data</li> <li>• 6: Spark Script</li> <li>• 7: Spark SQL, submitting SQL statements (not supported currently)</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| file_action | String  | <p><b>Explanation</b><br/>File operation type</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• <b>export</b>: Export data from HDFS to OBS.</li> <li>• <b>import</b>: Import data from OBS to HDFS.</li> </ul> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                  |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| arguments | String | <p><b>Explanation</b><br/>Key parameters for program execution.</p> <p><b>Constraints</b><br/>This parameter is specified by a function in your program. MRS is responsible for passing the parameter only.</p> <p><b>Value range</b><br/>The value can contain a maximum of 150,000 characters. Special characters (; &amp;&gt;'&lt;\$!'") are not allowed. This parameter can be left blank. When entering a parameter containing sensitive information (for example, login password), add an at sign (@) before the parameter name to encrypt the parameter value. This prevents the sensitive information from being persisted in plaintext. Therefore, when you view job information on the MRS, sensitive information will be displayed as asterisks (*). For example, username=admin @password=***</p> <p><b>Default value</b><br/>N/A</p> |
| hql       | String | <p><b>Explanation</b><br/>Hive&amp;Spark SQL statement.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                      |
|------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_state        | Integer | <p><b>Explanation</b><br/>Job status code</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• -1: Terminated</li> <li>• 1: Starting</li> <li>• 2: Running</li> <li>• 3: Completed</li> <li>• 4: Abnormal</li> <li>• 5: Error</li> </ul> <p><b>Default value</b><br/>N/A</p> |
| job_final_status | Integer | <p><b>Explanation</b><br/>Final job status</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• 0: unfinished</li> <li>• 1: terminated due to an execution error</li> <li>• 2: executed successfully</li> <li>• 3: canceled</li> </ul> <p><b>Default value</b><br/>N/A</p>   |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hive_script_path | String  | <b>Explanation</b><br>Path of the SQL program.<br><b>Constraints</b><br>This parameter is required only for Spark Script and Hive Script jobs.<br><b>Value range</b> <ul style="list-style-type: none"><li>• The path can contain a maximum of 1,023 characters, excluding special characters such as ; &amp;&gt;&lt;'\$. The address cannot be empty or full of spaces.</li><li>• The path must start with / or s3a://. The OBS path does not support files or programs encrypted by KMS.</li><li>• The path must end with .sql. sql is case-insensitive.</li></ul> <b>Default value</b><br>N/A |
| create_by        | String  | <b>Explanation</b><br>User ID for creating jobs<br>This parameter is not used in the current version, but is retained for compatibility with earlier versions.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                          |
| finished_step    | Integer | <b>Explanation</b><br>Number of completed steps<br>This parameter is not used in the current version, but is retained for compatibility with earlier versions.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                                                                                                          |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                    |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_main_id | String | <p><b>Explanation</b><br/>Main ID of a job<br/>This parameter is not used in the current version, but is retained for compatibility with earlier versions.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                         |
| job_step_id | String | <p><b>Explanation</b><br/>Step ID of a job<br/>This parameter is not used in the current version, but is retained for compatibility with earlier versions.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                         |
| postpone_at | Long   | <p><b>Explanation</b><br/>Delay time, which is a 10-bit timestamp.<br/>This parameter is not used in the current version, but is retained for compatibility with earlier versions.</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p> |

| Parameter | Type    | Description                                                                                                                                                                                                                                                                             |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| step_name | String  | <p><b>Explanation</b></p> <p>Step name of a job</p> <p>This parameter is not used in the current version, but is retained for compatibility with earlier versions.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p> |
| step_num  | Integer | <p><b>Explanation</b></p> <p>Number of steps</p> <p>This parameter is not used in the current version, but is retained for compatibility with earlier versions.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p>    |
| task_num  | Integer | <p><b>Explanation</b></p> <p>Number of tasks. This parameter is not used in the current version, but is retained for compatibility with earlier versions.</p> <p><b>Constraints</b></p> <p>N/A</p> <p><b>Value range</b></p> <p>N/A</p> <p><b>Default value</b></p> <p>N/A</p>          |

| Parameter   | Type               | Description                                                                                                                                                                                                                                             |
|-------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| update_by   | String             | <b>Explanation</b><br>User ID for updating jobs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                |
| credentials | String             | <b>Explanation</b><br>Token, which is not supported in the current version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                    |
| user_id     | String             | <b>Explanation</b><br>User ID for creating jobs<br>This parameter is not used in the current version, but is retained for compatibility with earlier versions.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| job_configs | Map<String,Object> | <b>Explanation</b><br>Key-value pair set for saving job running configurations<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                 |

| Parameter        | Type               | Description                                                                                                                                                                               |
|------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| extra            | Map<String,Object> | <b>Explanation</b><br>Authentication information, which is not supported in the current version.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| data_source_urls | Map<String,Object> | <b>Explanation</b><br>Data source URL<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                            |
| info             | Map<String,Object> | <b>Explanation</b><br>Key-value pair set, containing job running information returned by Oozie.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |

## Example request

- Example request of a MapReduce job  
POST https://{endpoint}/v1.1/{project\_id}/jobs/submit-job

```
{
 "job_type" : 1,
 "job_name" : "mrs_test_jobone_20170602_141106",
 "cluster_id" : "e955a7a3-d334-4943-a39a-994976900d56",
 "jar_path" : "s3a://mrs-opsadm/jarpath/hadoop-mapreduce-examples-2.7.2.jar",
 "arguments" : "wordcount",
 "input" : "s3a://mrs-opsadm/input/",
 "output" : "s3a://mrs-opsadm/output/",
 "job_log" : "s3a://mrs-opsadm/log/",
 "file_action" : "",
 "hql" : "",
 "hive_script_path" : ""
}
```

- Example request of a Spark job

POST https://{endpoint}/v1.1/{project\_id}/jobs/submit-job

```
{
 "job_type": 2,
 "job_name": "mrs_test_sparkjob_20170602_141106",
 "cluster_id": "e955a7a3-d334-4943-a39a-994976900d56",
 "jar_path": "s3a://mrs-opsadm/jarpath/spark-test.jar",
 "arguments": "org.apache.spark.examples.SparkPi 10",
 "input": "",
 "output": "s3a://mrs-opsadm/output/",
 "job_log": "s3a://mrs-opsadm/log/",
 "file_action": "",
 "hql": "",
 "hive_script_path": ""
}
```

- Example request of a Hive Script job

POST https://{endpoint}/v1.1/{project\_id}/jobs/submit-job

```
{
 "job_type": 3,
 "job_name": "mrs_test_SparkScriptJob_20170602_141106",
 "cluster_id": "e955a7a3-d334-4943-a39a-994976900d56",
 "jar_path": "s3a://mrs-opsadm/jarpath/Hivescript.sql",
 "arguments": "",
 "input": "s3a://mrs-opsadm/input/",
 "output": "s3a://mrs-opsadm/output/",
 "job_log": "s3a://mrs-opsadm/log/",
 "file_action": "",
 "hql": "",
 "hive_script_path": "s3a://mrs-opsadm/jarpath/Hivescript.sql"
}
```

- Example request for importing a DistCp job

POST https://{endpoint}/v1.1/{project\_id}/jobs/submit-job

```
{
 "job_type": 5,
 "job_name": "mrs_test_importjob_20170602_141106",
 "cluster_id": "e955a7a3-d334-4943-a39a-994976900d56",
 "input": "s3a://mrs-opsadm/jarpath/hadoop-mapreduce-examples-2.7.2.jar",
 "output": "/user",
 "file_action": "import"
}
```

- Example request for exporting a DistCp job

POST https://{endpoint}/v1.1/{project\_id}/jobs/submit-job

```
{
 "job_type": 5,
 "job_name": "mrs_test_exportjob_20170602_141106",
 "cluster_id": "e955a7a3-d334-4943-a39a-994976900d56",
 "input": "/user/hadoop-mapreduce-examples-2.7.2.jar",
 "output": "s3a://mrs-opsadm/jarpath/",
 "file_action": "export"
}
```

- Example request of a Spark Script job

POST https://{endpoint}/v1.1/{project\_id}/jobs/submit-job

```
{
 "job_type": 6,
 "job_name": "mrs_test_sparkscriptjob_20170602_141106",
 "cluster_id": "e955a7a3-d334-4943-a39a-994976900d56",
 "jar_path": "s3a://mrs-opsadm/jarpath/sparkscript.sql",
 "arguments": "",
 "input": "s3a://mrs-opsadm/input/",
 "output": "s3a://mrs-opsadm/output/",
 "job_log": "s3a://mrs-opsadm/log/",
 "file_action": ""
}
```

```
"hql" : "",
"hive_script_path" : "s3a://mrs-opsadm/jarpath/sparkscript.sql"
}
```

## Example Response

**Status code: 200**

The job has been added.

```
{
 "job_execution" : {
 "templated" : "false",
 "created_at" : "1496387588",
 "updated_at" : "1496387588",
 "id" : "12ee9ae4-6ee1-48c6-bb84-fb0b4f76cf03",
 "tenant_id" : "c71ad83a66c5470496c2ed6e982621cc",
 "job_id" : "",
 "job_name" : "mrs_test_jobone_20170602_141106",
 "input_id" : null,
 "output_id" : null,
 "start_time" : "1496387588",
 "end_time" : null,
 "cluster_id" : "e955a7a3-d334-4943-a39a-994976900d56",
 "engine_job_id" : null,
 "return_code" : null,
 "is_public" : null,
 "is_protected" : null,
 "group_id" : "12ee9ae4-6ee1-48c6-bb84-fb0b4f76cf03",
 "jar_path" : "s3a://mrs-opsadm/jarpath/hadoop-mapreduce-examples-2.7.2.jar",
 "input" : "s3a://mrs-opsadm/input/",
 "output" : "s3a://mrs-opsadm/output/",
 "job_log" : "s3a://mrs-opsadm/log/",
 "job_type" : "1",
 "file_action" : "",
 "arguments" : "wordcount",
 "hql" : "",
 "job_state" : "2",
 "job_final_status" : "0",
 "hive_script_path" : "",
 "create_by" : "b67132be2f054a45b247365647e05af0",
 "finished_step" : "0",
 "job_main_id" : "",
 "job_step_id" : "",
 "postpone_at" : "1496387588",
 "step_name" : "",
 "step_num" : "0",
 "task_num" : "0",
 "update_by" : "b67132be2f054a45b247365647e05af0",
 "credentials" : "",
 "user_id" : "b67132be2f054a45b247365647e05af0",
 "job_configs" : null,
 "extra" : null,
 "data_source_urls" : null,
 "info" : null
 }
}
```

## Status Codes

[Table 8-4](#) describes the status code.

**Table 8-4** Status code

| Status Code | Description             |
|-------------|-------------------------|
| 200         | The job has been added. |

See [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

## 8.1.2 Querying the exe Object List of Jobs (Deprecated)

### Function

This API is used to query the exe object list of all jobs. This API is incompatible with Sahara.

### URI

- Format  
GET /v1.1/{project\_id}/job-exes
- Parameter description

**Table 8-5** URI parameter

| Parameter  | Mandatory | Description                                                                                                                                                                                                                 |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Request Parameters

Table 8-6 Request parameters

| Parameter    | Mandato<br>ry | Type   | Description                                                                                                                                                    |
|--------------|---------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| page_size    | No            | String | <b>Explanation</b><br>Maximum number of jobs displayed on a page<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>1 to 100<br><b>Default value</b><br>N/A |
| current_page | No            | String | <b>Explanation</b><br>Current page number<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                             |
| job_name     | No            | String | <b>Explanation</b><br>Job name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                        |
| cluster_id   | Yes           | String | <b>Explanation</b><br>Cluster ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                      |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                             |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| state     | No        | String | <b>Explanation</b><br>Job status code<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• -1: Terminated</li><li>• 2: Running</li><li>• 3: Completed</li><li>• 4: Abnormal</li></ul> <b>Default value</b><br>N/A |
| id        | No        | String | <b>Explanation</b><br>Job execution object ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                  |

## Response Parameters

**Table 8-7** Response parameters

| Parameter   | Type    | Description                                                                                                                                              |
|-------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| totalRecord | Integer | <b>Explanation</b><br>The total number of jobs in the job list.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter      | Type  | Description                                                                                                                                                                       |
|----------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_executions | Array | <b>Explanation</b><br>Job list parameter<br>For details, see <a href="#">Table 8-8</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Table 8-8 job\_executions parameters

| Parameter | Type   | Description                                                                                                                                                |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | <b>Explanation</b><br>Job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                     |
| create_at | Long   | <b>Explanation</b><br>Creation time, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                 |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| update_at | Long   | <b>Explanation</b><br>Update time, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                    |
| tenant_id | String | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| job_id    | String | <b>Explanation</b><br>Job ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                       |
| job_name  | String | <b>Explanation</b><br>Job name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                     |

| Parameter  | Type   | Description                                                                                                                                                              |
|------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| start_time | Long   | <b>Explanation</b><br>Start time of job execution, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| end_time   | Long   | <b>Explanation</b><br>End time of job execution, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| cluster_id | String | <b>Explanation</b><br>Cluster ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                       |
| group_id   | String | <b>Explanation</b><br>Group ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                         |

| Parameter | Type   | Description                                                                                                                                                                           |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| jar_path  | String | <b>Explanation</b><br>Path of the <b>.jar</b> file or <b>.sql</b> file for program execution<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| input     | String | <b>Explanation</b><br>Address for inputting data<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                             |
| output    | String | <b>Explanation</b><br>Address for outputting data<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                            |
| job_log   | String | <b>Explanation</b><br>Address for storing job logs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                           |

| Parameter   | Type    | Description                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_type    | Integer | <b>Explanation</b><br>Job type code<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"><li>• 1: MapReduce</li><li>• 2: Spark</li><li>• 3: Hive Script</li><li>• 4: HiveSQL (not supported currently)</li><li>• 5: DistCp</li><li>• 6: Spark Script</li><li>• 7: Spark SQL (not supported in this API currently)</li></ul> <b>Default value</b><br>N/A |
| file_action | String  | <b>Explanation</b><br>Data import and export<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                                   |
| arguments   | String  | <b>Explanation</b><br>Key parameters for program execution.<br><b>Constraints</b><br>This parameter is specified by a function in your program. MRS is responsible for passing the parameter only.<br><b>Value range</b><br>This parameter can be empty.<br><b>Default value</b><br>N/A                                                                                                 |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                  |
|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| hql              | String  | <b>Explanation</b><br>HiveQL statement<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                              |
| job_state        | Integer | <b>Explanation</b><br>Job status code<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>• -1: Terminated</li> <li>• 2: Running</li> <li>• 3: Completed</li> <li>• 4: Abnormal</li> </ul> <b>Default value</b><br>N/A                                                 |
| job_final_status | Integer | <b>Explanation</b><br>Final job status <ul style="list-style-type: none"> <li>• 0: unfinished</li> <li>• 1: terminated due to an execution error</li> <li>• 2: executed successfully</li> <li>• 3: canceled</li> </ul> <b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter        | Type    | Description                                                                                                                               |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------|
| hive_script_path | String  | <b>Explanation</b><br>Address of the Hive script<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| create_by        | String  | <b>Explanation</b><br>User ID for creating jobs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| finished_step    | Integer | <b>Explanation</b><br>Number of completed steps<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A  |
| job_main_id      | String  | <b>Explanation</b><br>Main ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A           |

| Parameter   | Type    | Description                                                                                                                                             |
|-------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_step_id | String  | <b>Explanation</b><br>Step ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| postpone_at | Long    | <b>Explanation</b><br>Delay time, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| step_name   | String  | <b>Explanation</b><br>Step name of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                       |
| step_num    | Integer | <b>Explanation</b><br>Number of steps<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                          |

| Parameter  | Type    | Description                                                                                                                                        |
|------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| task_num   | Integer | <b>Explanation</b><br>Number of tasks<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                     |
| update_by  | String  | <b>Explanation</b><br>User ID for updating jobs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A           |
| spend_time | Float   | <b>Explanation</b><br>Duration of job execution (unit: s)<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| step_seq   | Integer | <b>Explanation</b><br>Step sequence of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A              |

| Parameter | Type   | Description                                                                                                                           |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| progress  | String | <b>Explanation</b><br>Job execution progress<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example Request

Query the exe object list of jobs.

```
GET https://{endpoint}/v1.1/{project_id}/job-exes?
page_size=10¤t_page=1&state=3&job_name=myfirstjob&clusterId=20ca8601-72a2-4570-
b788-2a20fec81a95
```

Example Response

Status code: 200

The exe object list of jobs is queried.

```
{
 "totalRecord": "14",
 "job_executions": [{
 "id": "669476bd-89d2-45aa-8f1a-872d16de377e",
 "create_at": "1484641003707",
 "update_at": "1484641003707",
 "tenant_id": "3f99e3319a8943ceb15c584f3325d064",
 "job_id": "",
 "job_name": "myfirstjob",
 "start_time": "1484641003707",
 "end_time": null,
 "cluster_id": "2b460e01-3351-4170-b0a7-57b9dd5ffef3",
 "group_id": "669476bd-89d2-45aa-8f1a-872d16de377e",
 "jar_path": "s3a://jp-test1/program/hadoop-mapreduce-examples-2.4.1.jar",
 "input": "s3a://jp-test1/input/",
 "output": "s3a://jp-test1/output/",
 "job_log": "s3a://jp-test1/joblogs/",
 "job_type": "1",
 "file_action": "",
 "arguments": "wordcount",
 "hql": "",
 "job_state": "2",
 "job_final_status": "1",
 "hive_script_path": null,
 "create_by": "3f99e3319a8943ceb15c584f3325d064",
 "finished_step": "0",
 "job_main_id": "",
 "job_step_id": "",
 "postpone_at": "1484641003174",
 "step_name": "",
 "step_num": "0",
 "task_num": "0",
 "update_by": "3f99e3319a8943ceb15c584f3325d064",
 "spend_time": null,
 }
]
```

```
"step_seq" : "222",
"progress" : "first progress"
}]
}
```

## Status Codes

[Table 8-9](#) describes the status code.

**Table 8-9** Status code

| Status Code | Description                             |
|-------------|-----------------------------------------|
| 200         | The exe object list of jobs is queried. |

See [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

### 8.1.3 Querying exe Object Details (Deprecated)

#### Function

This API is used to query detailed information about the exe object of a job. This API is incompatible with Sahara.

#### URI

- Format  
GET /v1.1/{project\_id}/job-exes/{job\_exe\_id}
- Parameter description

**Table 8-10** URI parameters

| Parameter  | Mandatory | Description                                                                                                                                                                                                                 |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id | Yes       | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter  | Mandatory | Description                                                                                                                |
|------------|-----------|----------------------------------------------------------------------------------------------------------------------------|
| job_exe_id | Yes       | <b>Explanation</b><br>The job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

## Request Parameters

None

## Response Parameters

**Table 8-11** Response parameter

| Parameter     | Type   | Description                                                                                                                                                               |
|---------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_execution | Object | <b>Explanation</b><br>Job details. For details, see <a href="#">Table 8-12</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

**Table 8-12** job\_execution parameters

| Parameter | Type   | Description                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------|
| id        | String | <b>Explanation</b><br>Job ID<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type   | Description                                                                                                                                                                                                                 |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| create_at | Long   | <b>Explanation</b><br>Creation time, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                  |
| update_at | Long   | <b>Explanation</b><br>Update time, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                    |
| tenant_id | String | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| job_id    | String | <b>Explanation</b><br>The job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                  |

| Parameter  | Type   | Description                                                                                                                                                              |
|------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_name   | String | <b>Explanation</b><br>Job name<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                  |
| start_time | Long   | <b>Explanation</b><br>Start time of job execution, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| end_time   | Long   | <b>Explanation</b><br>End time of job execution, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A   |
| cluster_id | String | <b>Explanation</b><br>Cluster ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                       |

| Parameter | Type   | Description                                                                                                                                                                           |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| group_id  | String | <b>Explanation</b><br>Group ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                      |
| jar_path  | String | <b>Explanation</b><br>Path of the <b>.jar</b> file or <b>.sql</b> file for program execution<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| input     | String | <b>Explanation</b><br>Address for inputting data<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                             |
| output    | String | <b>Explanation</b><br>Address for outputting data<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                            |

| Parameter   | Type    | Description                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_log     | String  | <b>Explanation</b><br>Address for storing job logs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                       |
| job_type    | Integer | <b>Explanation</b><br>Job type code<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>1: MapReduce</li> <li>2: Spark</li> <li>3: Hive Script</li> <li>4: HiveSQL (not supported currently)</li> <li>5: DistCp</li> <li>6: Spark Script</li> <li>7: Spark SQL (not supported in this API currently)</li> </ul> <b>Default value</b><br>N/A |
| file_action | String  | <b>Explanation</b><br>Data import and export<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                                                                                                             |

| Parameter | Type    | Description                                                                                                                                                                                                                                                                                                    |
|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| arguments | String  | <p><b>Explanation</b><br/>Key parameters for program execution.</p> <p><b>Constraints</b><br/>This parameter is specified by a function in your program. MRS is responsible for passing the parameter only.</p> <p><b>Value range</b><br/>This parameter can be empty.</p> <p><b>Default value</b><br/>N/A</p> |
| hql       | String  | <p><b>Explanation</b><br/>HiveQL statement</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b><br/>N/A</p> <p><b>Default value</b><br/>N/A</p>                                                                                                                                                         |
| job_state | Integer | <p><b>Explanation</b><br/>Job status code</p> <p><b>Constraints</b><br/>N/A</p> <p><b>Value range</b></p> <ul style="list-style-type: none"> <li>• -1: Terminated</li> <li>• 2: Running</li> <li>• 3: Completed</li> <li>• 4: Abnormal</li> </ul> <p><b>Default value</b><br/>N/A</p>                          |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                   |
|------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_final_status | Integer | <b>Explanation</b><br>Final job status<br><b>Constraints</b><br>N/A<br><b>Value range</b> <ul style="list-style-type: none"> <li>0: unfinished</li> <li>1: terminated due to an execution error</li> <li>2: executed successfully</li> <li>3: canceled</li> </ul> <b>Default value</b><br>N/A |
| hive_script_path | String  | <b>Explanation</b><br>Address of the Hive script<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                     |
| create_by        | String  | <b>Explanation</b><br>User ID for creating jobs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                      |
| finished_step    | Integer | <b>Explanation</b><br>Number of completed steps<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                                                                      |

| Parameter   | Type   | Description                                                                                                                                             |
|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| job_main_id | String | <b>Explanation</b><br>Main ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| job_step_id | String | <b>Explanation</b><br>Step ID of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                         |
| postpone_at | Long   | <b>Explanation</b><br>Delay time, which is a 13-bit timestamp.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| step_name   | String | <b>Explanation</b><br>Step name of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                       |

| Parameter  | Type    | Description                                                                                                                                        |
|------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| step_num   | Integer | <b>Explanation</b><br>Number of steps<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                     |
| task_num   | Integer | <b>Explanation</b><br>Number of tasks<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                     |
| update_by  | String  | <b>Explanation</b><br>User ID for updating jobs<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A           |
| spend_time | Float   | <b>Explanation</b><br>Duration of job execution (unit: s)<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

| Parameter | Type    | Description                                                                                                                           |
|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| step_seq  | Integer | <b>Explanation</b><br>Step sequence of a job<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| progress  | String  | <b>Explanation</b><br>Job execution progress<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |

Example request

Query the execution object details.

```
GET https://{endpoint}/v1.1/{project_id}/job-exes/{job_exe_id}
```

Example Response

Status code: 200

The exe object details are queried.

```
{
 "job_execution" : {
 "id" : "632863d5-15d4-4691-9dc1-1a72340cb097",
 "create_at" : "1484240559176",
 "update_at" : "1484240559176",
 "tenant_id" : "3f99e3319a8943ceb15c584f3325d064",
 "job_id" : "632863d5-15d4-4691-9dc1-1a72340cb097",
 "job_name" : "hive_script",
 "start_time" : "1484240559176",
 "end_time" : null,
 "cluster_id" : "8b1d55f6-150e-45e2-8347-b2ca608d366b",
 "group_id" : "632863d5-15d4-4691-9dc1-1a72340cb097",
 "jar_path" : "s3a://jp-test1/program/Hivescript.sql",
 "input" : "s3a://jp-test1/input/",
 "output" : "s3a://jp-test1/output/",
 "job_log" : "s3a://jp-test1/joblogs/",
 "job_type" : "3",
 "file_action" : "",
 "arguments" : "wordcount",
 "hql" : null,
 "job_state" : "3",
 "job_final_status" : "1",
```

```
"hive_script_path" : "s3a://jp-test1/program/Hivescript.sql",
"create_by" : "3f99e3319a8943ceb15c584f3325d064",
"finished_step" : "0",
"job_main_id" : "",
"job_step_id" : "",
"postpone_at" : "1484240558705",
"step_name" : "",
"step_num" : "0",
"task_num" : "0",
"update_by" : "3f99e3319a8943ceb15c584f3325d064",
"spend_time" : null,
"step_seq" : "222",
"progress" : "first progress"
}
```

## Status Code

[Table 8-13](#) describes the status code of this API.

**Table 8-13** Status code

| Status code | Description                                      |
|-------------|--------------------------------------------------|
| 200         | The exe object details are queried successfully. |

For the description about error status codes, see [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

## 8.1.4 Deleting a Job Execution Object (Deprecated)

### Function

This API is used to delete a job execution object. This API is compatible with Sahara.

### URI

- Format  
DELETE /v1.1/{project\_id}/job-executions/{job\_execution\_id}
- Parameter description

Table 8-14 URI parameters

| Parameter        | Mandatory | Description                                                                                                                                                                                                                 |
|------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| project_id       | Yes       | <b>Explanation</b><br>The project ID. For details about how to obtain the project ID, see <a href="#">Obtaining a Project ID</a> .<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A |
| job_execution_id | Yes       | <b>Explanation</b><br>The job ID.<br><b>Constraints</b><br>N/A<br><b>Value range</b><br>N/A<br><b>Default value</b><br>N/A                                                                                                  |

Request Parameters

None

Response Parameters

None

Example Request

Delete a job execution object.

```
DELETE https://{endpoint}/v1.1/{project_id}/job-executions/{job_execution_id}
```

Example Response

None

Status Codes

[Table 8-15](#) describes the status code.

**Table 8-15** Status code

| Status Code | Description                          |
|-------------|--------------------------------------|
| 204         | The job execution object is deleted. |

See [Status Codes](#).

## Error Codes

For details, see [Error Codes](#).

# 9 Permissions Policies and Supported Actions

---

## 9.1 Introduction

Create IAM users and assign permissions to the users so you can perform fine-grained permissions management for your MRS resources. If your Huawei Cloud account meets service requirements, you do not need to create IAM users. In this case, skip this section.

By default, new IAM users do not have permissions assigned. You need to add them to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

You can grant users permissions by using roles and policies. Roles are a type of coarse-grained authorization mechanism that defines permissions related to user responsibilities. Policies define API-based permissions for operations on specific resources under certain conditions, allowing for more fine-grained, secure access control of cloud resources.

### NOTE

Policy-based authorization is useful if you want to allow or deny the access to an API.

Each account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. The permissions required for calling an API are determined by the actions supported by the API. Only users who have been granted permissions allowing the actions can call the API successfully. For example, if an IAM user queries MRS clusters using an API, the user must have been granted permissions that allow the **mrs:cluster:list** action.

## Supported Actions

MRS provides system-defined policies that can be directly used in IAM. MRS cluster administrators can also create custom policies and use them to supplement system-defined policies, implementing more refined access control. Operations supported by policies are specific to APIs. The following are common concepts related to policies:

- **Permission:** A statement in a policy that allows or denies certain operations.
- **API:** REST APIs that can be called by a user who has been granted specific permissions.
- **Action:** Specific operations that are allowed or denied.
- **Dependencies:** actions on which a specific action depends. When allowing an action for a user, you also need to allow any existing action dependencies for that user.
- **IAM or enterprise projects:** Type of projects for which an action will take effect. Policies that contain actions for both IAM and enterprise projects can be used and take effect for both IAM and Enterprise Management. Policies that only contain actions for IAM projects can be used and only take effect for IAM.

 **NOTE**

The check mark (√) indicates that an action takes effect. The cross mark (x) indicates that an action does not take effect.

**Table 9-1** Actions

| Permissions                                                  | API                                                | Action             | IAM Project | Enterprise Project |
|--------------------------------------------------------------|----------------------------------------------------|--------------------|-------------|--------------------|
| Creating a Cluster and Executing a Job (V1)                  | POST /v1.1/{project_id}/run-job-flow               | mrs:cluster:create | √           | √                  |
| Creating a Cluster (V2)                                      | POST/v2/{project_id}/clusters                      |                    | √           | √                  |
| Querying a Cluster List (V1)                                 | GET /v1.1/{project_id}/cluster_infos               | mrs:cluster:list   | √           | √                  |
| Obtaining a Cluster List (V2)<br>(Obtaining Cluster Details) | GET/v2/{project_id}/clusters                       |                    | √           | √                  |
| Deleting a Cluster                                           | DELETE /v1.1/{project_id}/clusters/{cluster_id}    | mrs:cluster:delete | √           | √                  |
| Querying a Host List (V1)                                    | GET /v1.1/{project_id}/clusters/{cluster_id}/hosts | mrs:host:list      | √           | √                  |
| Querying a File List (V2)                                    | GET/v2/{project_id}/clusters/{cluster_id}/files    | mrs:file:list      | √           | √                  |

| Permissions                               | API                                                                                     | Action         | IAM Project | Enterprise Project |
|-------------------------------------------|-----------------------------------------------------------------------------------------|----------------|-------------|--------------------|
| Adding and Executing a Job (V1)           | POST /v1.1/{project_id}/jobs/submit-job                                                 | mrs:job:submit | √           | √                  |
| Adding and Executing a Job (V2)           | POST /v2/{project_id}/clusters/{cluster_id}/job-executions                              |                | √           | √                  |
| Querying the exe Object List of Jobs (V1) | GET /v1.1/{project_id}/job-exes                                                         | mrs:job:list   | √           | √                  |
| Querying Information About a Job (V2)     | GET /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}            |                | √           | √                  |
| Querying a List of Jobs (V2)              | GET /v2/{project_id}/clusters/{cluster_id}/job-executions                               |                | √           | √                  |
| Obtaining the SQL Result (V2)             | GET /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/sql-result |                | √           | √                  |
| Querying exe Object Details (V1)          | GET /v1.1/{project_id}/job-exes/{job_exe_id}                                            | mrs:job:get    | √           | √                  |
| Querying User Agent Information           | GET/v2/{project_id}/clusters/{cluster_id}/agency-mapping                                |                | √           | √                  |
| Querying Job Log Details                  | GET/v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/log-detail  |                | √           | √                  |
| Querying Tags of a Specified Cluster      | GET /v1.1/{project_id}/clusters/{cluster_id}/tags                                       | mrs:tag:list   | √           | √                  |
| Querying All Tags                         | GET /v1.1/{project_id}/clusters/tags                                                    |                | √           | √                  |
| Creating a Tag for a Cluster              | POST/v1.1/{project_id}/clusters/{cluster_id}/tags                                       | mrs:tag:create | √           | √                  |

| Permissions                                     | API                                                                                | Action                | IAM Project | Enterprise Project |
|-------------------------------------------------|------------------------------------------------------------------------------------|-----------------------|-------------|--------------------|
| Adding or Deleting Cluster Tags in Batches      | POST /v1.1/{project_id}/clusters/{cluster_id}/tags/action                          | mrs:tag:batch Operate | √           | √                  |
| Querying a List of Clusters with Specified Tags | POST /v1.1/{project_id}/clusters/resource_instances/action                         | mrs:tag:listResource  | √           | ×                  |
| Terminating a Job (V2)                          | POST /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/kill | mrs:job:stop          | √           | √                  |
| Deleting Jobs in Batches (V2)                   | POST /v2/{project_id}/clusters/{cluster_id}/job-executions/batch-delete            | mrs:job:batch Delete  | √           | √                  |
| Canceling SQL Execution                         | POST/v2/{project_id}/clusters/{cluster_id}/sql-execution/{sql_id}/cancel           | mrs:sql:cancel        | √           | √                  |
| Submitting a SQL Statement                      | POST/v2/{project_id}/clusters/{cluster_id}/sql-execution                           | mrs:sql:execute       | √           | √                  |
| Obtaining All auto scaling Policies             | GET/v2/{project_id}/autoscaling-policy/{cluster_id}                                | mrs:cluster:policy    | √           | √                  |
| Configuring an Auto Scaling Rule                | POST /v1.1/{project_id}/autoscaling-policy/{cluster_id}                            |                       | √           | √                  |
| Updating User Agent Information                 | PUT/v2/{project_id}/clusters/{cluster_id}/agency-mapping                           | mrs:cluster:syncUser  | √           | √                  |
| Obtaining Job Execution Results                 | GET/v2/{project_id}/clusters/{cluster_id}/sql-execution/{sql_id}                   | mrs:sql:get           | √           | √                  |

# 10 Appendix

---

## 10.1 ECS Specifications Used by MRS

MRS uses ECSs of the following types in different application scenarios.

- General computing-plus: C3, C3ne, C6, and C6s
- Memory-optimized: M3, and M6
- Ultra-high I/O: I3 and IR3
- Kunpeng general computing-plus: KC1

### ECS Flavor Naming Rules

AB.C.D

Example: m2.8xlarge.8

In the preceding flavor:

- **A** specifies the ECS type. For example, **s** indicates a general-purpose ECS, **c** a computing ECS, and **m** a memory-optimized ECS.
- **B** specifies the type ID. For example, the **1** in **s1** indicates a general-purpose first-generation ECS, and the **2** in **s2** indicates a general-purpose second-generation ECS.
- **C** specifies a flavor size and can be any of the following options: medium, large, and xlarge.
- **D** specifies the ratio of memory to vCPUs expressed in a digit. For example, value **4** indicates that the ratio of memory to vCPUs is 4.

## Specifications

**Table 10-1** General computing-plus (C) ECS specifications

| Type | vCPU | Memory (GB) | Flavor          | Virtualization Type |
|------|------|-------------|-----------------|---------------------|
| C3   | 32   | 64          | c3.8xlarge.2    | KVM                 |
| C3   | 16   | 64          | c3.4xlarge.4    | KVM                 |
| C3   | 32   | 128         | c3.8xlarge.4    | KVM                 |
| C3   | 60   | 256         | c3ne.15xlarge.4 | KVM                 |
| C3ne | 32   | 64          | c3ne.8xlarge.2  | KVM                 |
| C3ne | 16   | 64          | c3ne.4xlarge.4  | KVM                 |
| C3ne | 32   | 128         | c3ne.8xlarge.4  | KVM                 |
| C3ne | 60   | 256         | c3ne.15xlarge.4 | KVM                 |
| C6   | 32   | 64          | c6.8xlarge.2    | KVM                 |
| C6   | 64   | 128         | c6.16xlarge.2   | KVM                 |
| C6   | 16   | 64          | c6.4xlarge.4    | KVM                 |
| C6   | 32   | 128         | c6.8xlarge.4    | KVM                 |
| C6   | 64   | 256         | c6.16xlarge.4   | KVM                 |
| C6s  | 32   | 64          | c6s.8xlarge.2   | KVM                 |
| C6s  | 64   | 128         | c6s.16xlarge.2  | KVM                 |

**Table 10-2** Memory-optimized ECS specifications

| Type | vCPU | Memory (GB) | Flavor        | Virtualization Type |
|------|------|-------------|---------------|---------------------|
| M3   | 8    | 64          | m3.2xlarge.8  | KVM                 |
| M3   | 16   | 128         | m3.4xlarge.8  | KVM                 |
| M3   | 32   | 256         | m3.8xlarge.8  | KVM                 |
| M3   | 60   | 512         | m3.15xlarge.8 | KVM                 |
| M6   | 8    | 64          | m6.2xlarge.8  | KVM                 |
| M6   | 16   | 128         | m6.4xlarge.8  | KVM                 |
| M6   | 32   | 256         | m6.8xlarge.8  | KVM                 |

| Type | vCPU | Memory (GB) | Flavor        | Virtualization Type |
|------|------|-------------|---------------|---------------------|
| M6   | 64   | 512         | m6.16xlarge.8 | KVM                 |

**Table 10-3** Ultra-high I/O ECS specifications

| Type | vCPU | Memory (GB) | Flavor        | Virtualization Type |
|------|------|-------------|---------------|---------------------|
| I3   | 8    | 64          | i3.2xlarge.8  | KVM                 |
| I3   | 16   | 128         | i3.4xlarge.8  | KVM                 |
| I3   | 32   | 256         | i3.8xlarge.8  | KVM                 |
| I3   | 64   | 512         | i3.16xlarge.8 | KVM                 |
| IR3  | 16   | 64          | ir3.4xlarge.4 | KVM                 |
| IR3  | 32   | 128         | ir3.8xlarge.4 | KVM                 |

## 10.2 BMS Specifications Used by MRS

MRS uses BMSs of the following types in different application scenarios.

- Disk-intensive (D2)
- I/O-optimized (IO2)

### ECS Flavor Naming Rules

AB.C.D

Example: m2.8xlarge.8

In the preceding flavor:

- **A** specifies the ECS type. For example, **s** indicates a general-purpose ECS, **c** a computing ECS, and **m** a memory-optimized ECS.
- **B** specifies the type ID. For example, the **1** in **s1** indicates a general-purpose first-generation ECS, and the **2** in **s2** indicates a general-purpose second-generation ECS.
- **C** specifies a flavor size and can be any of the following options: medium, large, and xlarge.
- **D** specifies the ratio of memory to vCPUs expressed in a digit. For example, value **4** indicates that the ratio of memory to vCPUs is 4.

## Specifications

**Table 10-4** Specifications of I/O-optimized (IO2) BMSs

| Flavor/ID           | CPU                                           | Memory (GB)       | Local Disk                              | Extended Configuration |
|---------------------|-----------------------------------------------|-------------------|-----------------------------------------|------------------------|
| physical.io2.xlarge | 2 x 22 Core Intel Xeon Gold 6161 V5 (2.2 GHz) | 384 DDR4 RAM (GB) | 2 x 800 GB SSD RAID 1 + 10 x 800 GB SSD | 2 x 2 x 10GE           |

**Table 10-5** Specifications of disk-intensive (D2) BMSs

| Flavor/ID         | CPU                                           | Memory (GB)       | Local Disk                                          | Extended Configuration |
|-------------------|-----------------------------------------------|-------------------|-----------------------------------------------------|------------------------|
| physical.d2.large | 2 x 12 Core Intel Xeon Gold 5118 V5 (2.3 GHz) | 192 DDR4 RAM (GB) | 2 x 600 GB SAS System Disk RAID 1 + 12 x 10 TB SATA | 2 x 2 x 10GE           |

## 10.3 Status Codes

**Table 10-6** describes status codes.

**Table 10-6** Status codes

| Status Code | Message             | Description                                                                                                                                                                                                |
|-------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 100         | Continue            | The client should continue with its request.<br><br>This interim response is used to inform the client that the initial part of the request has been received and has not yet been rejected by the server. |
| 101         | Switching Protocols | The protocol should be switched. The protocol can only be switched to a newer protocol.<br><br>For example, the current HTTPS protocol is switched to a later version.                                     |
| 200         | OK                  | The request has been fulfilled.                                                                                                                                                                            |

| Status Code | Message                       | Description                                                                                                                                                                                                                       |
|-------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 201         | Created                       | The request has been fulfilled and a new resource has been created.                                                                                                                                                               |
| 202         | Accepted                      | The request has been accepted, but the processing has not been completed.                                                                                                                                                         |
| 203         | Non-Authoritative Information | The server has successfully processed the request, but is returning information that may be from another source.                                                                                                                  |
| 204         | NoContent                     | The request has been fulfilled, but the HTTPS response does not contain a response body.<br>The status code is returned in response to an HTTPS 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 the partial 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 a user terminal (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.<br>It can be retrieved by 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 is available only through a proxy.                                                                                                                                                                         |

| Status Code | Message                       | Description                                                                                                                                                    |
|-------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 306         | Unused                        | The HTTPS status code is no longer used.                                                                                                                       |
| 400         | BadRequest                    | The request is invalid.<br>The client should not repeat the request without modifications.                                                                     |
| 401         | Unauthorized                  | This 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 server understood the request, but is refusing to fulfill it.<br>The client should not repeat the request without modifications.                           |
| 404         | NotFound                      | The requested resource cannot be found.<br>The client should not repeat the request without modifications.                                                     |
| 405         | MethodNotAllowed              | A request method is not supported for the requested resource.<br>The client should not repeat the request without modifications.                               |
| 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 indicates that the client must first authenticate itself with the proxy.                                               |
| 408         | Request Time-out              | The server has timed out waiting for the request.<br>The client may repeat the request without modifications at a later time.                                  |

| Status Code | Message                         | Description                                                                                                                                                                                                                                                                                                                                |
|-------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 409         | Conflict                        | <p>The request could not be processed due to a conflict with the current state of the resource.</p> <p>This status code indicates that the resource that the client is attempting to create already exists, or that the request has failed to be processed because of the update of the conflict request.</p>                              |
| 410         | Gone                            | <p>The requested resource has been deleted permanently and is no longer available.</p>                                                                                                                                                                                                                                                     |
| 411         | Length Required                 | <p>The server is refusing to process the request without a defined <b>Content-Length</b>.</p>                                                                                                                                                                                                                                              |
| 412         | Precondition Failed             | <p>The server did not meet one of the preconditions that the requester put on the request.</p>                                                                                                                                                                                                                                             |
| 413         | Request Entity Too Large        | <p>The server is refusing to process a request because the request entity is too large for the server to process. The server may close the connection to prevent the client from continuing the request. If the server is only temporarily unable to process the request, the response will contain a <b>Retry-After</b> header field.</p> |
| 414         | Request-URI Too Large           | <p>The Request-URI is too long for the server to process.</p>                                                                                                                                                                                                                                                                              |
| 415         | Unsupported Media Type          | <p>The server is unable to process the media format in the request.</p>                                                                                                                                                                                                                                                                    |
| 416         | Requested range not satisfiable | <p>The requested range is invalid.</p>                                                                                                                                                                                                                                                                                                     |
| 417         | Expectation Failed              | <p>The server has failed to meet the requirements of the <b>Expect</b> request-header field.</p>                                                                                                                                                                                                                                           |
| 422         | UnprocessableEntity             | <p>The request is well-formed but is unable to be processed due to semantic errors.</p>                                                                                                                                                                                                                                                    |

| Status Code | Message                     | 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 the request but unable to understand it.                                                                                                                                                                                                                                                                                                                                       |
| 501         | Not Implemented             | The server does not support the function required to fulfill the request.                                                                                                                                                                                                                                                                                                                                    |
| 502         | Bad Gateway                 | The server was acting as a gateway or proxy and received an invalid request from the remote server.                                                                                                                                                                                                                                                                                                          |
| 503         | ServiceUnavailable          | The requested service is invalid.<br>The client should not repeat the request without modifications.                                                                                                                                                                                                                                                                                                         |
| 504         | ServerTimeout               | The request cannot be fulfilled within a given time. This status code is returned to the client only if the <b>Timeout</b> parameter is specified in the request.                                                                                                                                                                                                                                            |
| 505         | HTTPS Version not supported | The server does not support the HTTPS protocol version used in the request.                                                                                                                                                                                                                                                                                                                                  |

## 10.4 Error Codes

If an error code starting with **APIGW** is returned after you call an API, rectify the fault by referring to [Error Codes](#).

| Status Code | Error Code | Error Message                                           | Description                                                       | Measure                                                                                                                                                                           |
|-------------|------------|---------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 400         | 0023       | Failed to obtain cluster details.                       | Failed to obtain cluster details.                                 | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. Check whether the EIP exists and use a correct EIP. |
| 400         | 0056       | Jobs cannot be submitted to a cluster in the xxx state. | Failed to submit the job because the cluster is in the xxx state. | Wait until the cluster task is complete and the status changes to <b>Running</b> .                                                                                                |
| 400         | 0057       | Spark jobs cannot be submitted.                         | Spark jobs cannot be submitted.                                   | Check whether the Spark service exists and whether the Spark service is normal.                                                                                                   |
| 400         | 0093       | Metadata of version xxx not found.                      | Failed to find version metadata.<br>Version: xxx.                 | Check whether the cluster version is correct.                                                                                                                                     |
| 400         | 0160       | Failed to kill the job.                                 | Failed to terminate a job.                                        | Call the API again, contact technical support, or check whether the cluster is normal.                                                                                            |

| Status Code | Error Code | Error Message                       | Description                         | Measure                                                                                |
|-------------|------------|-------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------|
| 400         | 0161       | Failed to delete jobs in batches.   | Failed to delete jobs in batches.   | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 0162       | Failed to query the job.            | Failed to query the job.            | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 0165       | Failed to verify the SQL statement. | Failed to verify the SQL statement. | Inspect the SQL statement.                                                             |
| 400         | 0166       | Failed to query a job list.         | Failed to query the jobs.           | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 0167       | The v2 job API cannot be accessed.  | The v2 job APIs cannot be accessed. | Use the v1 APIs.                                                                       |
| 400         | 0168       | Hive jobs cannot be submitted.      | Failed to submit the Hive job.      | Check whether the Hive service exists and whether the Hive service is normal.          |
| 400         | 0169       | Flink jobs cannot be submitted.     | Failed to submit the Flink job.     | Check whether the Flink service exists and whether the Flink service is normal.        |

| Status Code | Error Code | Error Message                                              | Description                                              | Measure                                                                                                                       |
|-------------|------------|------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 0170       | Failed to collect job log directory information.           | Failed to collect job log directory information.         | Call the API again, contact technical support, or check whether the cluster is normal.                                        |
| 400         | 0171       | Failed to collect job log details.                         | Failed to collect job log details.                       | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 0172       | Failed to collect the SQL job result.                      | Failed to obtain the SQL statement execution result.     | Call the API again, contact technical support, or check whether the cluster is normal.                                        |
| 400         | 0173       | Failed to submit the job (cluster ID: xxx; job name: xxx). | Failed to submit the job. Cluster ID: xxx, job name: xxx | Call the API again, contact technical support, or check whether the cluster is normal.                                        |
| 400         | 0174       | Failed to query the job.                                   | Failed to query the job.                                 | Call the API again, contact technical support, or check whether the cluster is normal.                                        |

| Status Code | Error Code | Error Message                                                | Description                                                  | Measure                                                                                |
|-------------|------------|--------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 400         | 0175       | Failed to kill the job.                                      | Failed to terminate a job.                                   | Initiate the call again or contact technical support.                                  |
| 400         | 0176       | The job does not exist.                                      | Job not exist.                                               | Modify the request parameters based on the error message.                              |
| 400         | 0177       | The number of jobs running in each cluster cannot exceed 10. | The number of running jobs in each cluster cannot exceed 10. | Modify the request parameters based on the error message.                              |
| 400         | 0178       | The job ID cannot be left blank.                             | The job ID cannot be left blank.                             | Modify the request parameters based on the error message.                              |
| 400         | 0179       | The job type must be SparkSql or SparkScript.                | The job type must be SparkSql or SparkScript.                | Modify the request parameters based on the error message.                              |
| 400         | 0180       | The job is being submitted.                                  | The job is being submitted.                                  | Perform the operation after the current operation is complete.                         |
| 400         | 0181       | The SQL job result collection is empty.                      | The SQL job result is empty.                                 | Call the API again, contact technical support, or check whether the cluster is normal. |

| Status Code | Error Code | Error Message                                              | Description                                                | Measure                                                                                |
|-------------|------------|------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 400         | 0182       | Failed to read the SQL job result.                         | Failed to read the result of the SQL job.                  | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 0183       | The job is running.                                        | The job is running.                                        | Perform the operation after the current operation is complete.                         |
| 400         | 0185       | The log type does not exist.                               | Log type not exist.                                        | Modify the request parameters based on the error message.                              |
| 400         | 0187       | The log aggregation path is empty. Logs cannot be queried. | The log aggregation path is empty. Logs cannot be queried. | Check whether the job log path is correct.                                             |
| 400         | 0188       | The job query result is empty. Logs cannot be obtained.    | The job query result is empty. Logs cannot be obtained.    | Check whether the job log path is correct.                                             |
| 400         | 0189       | Failed to delete the job list.                             | Failed to delete the jobs.                                 | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 0190       | The user who submits the job cannot be empty.              | The user who submits the job cannot be empty.              | Modify the request parameters based on the error message.                              |

| Status Code | Error Code | Error Message                                                                                                                                                     | Description                                                                                                                                                  | Measure                                                   |
|-------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 400         | 0190       | The user who submits the job cannot be empty.                                                                                                                     | The user who submits the job cannot be empty.                                                                                                                | Modify the request parameters based on the error message. |
| 400         | 0191       | Failed to query the user who submits the job on MRS Manager.                                                                                                      | Failed to query the user who submits a job on MRS manager.                                                                                                   | Modify the request parameters based on the error message. |
| 400         | 0192       | The current user does not exist on MRS Manager. Grant the user sufficient permissions on IAM and then perform IAM user synchronization on the Dashboard tab page. | The current user does not exist on MRS Manager. Escalate privileges for the user and then perform IAM user synchronization on the <b>Dashboard</b> tab page. | Rectify the fault based on the error message.             |
| 400         | 0193       | Failed to operate the database job records.                                                                                                                       | Failed to operate the database job records.                                                                                                                  | Initiate the call again or contact technical support.     |
| 400         | 0194       | Failed to start the launcher and submit the job.                                                                                                                  | Failed to start the job and to submit the job.                                                                                                               | Initiate the call again or contact technical support.     |
| 400         | 0199       | Failed to delete the jobs.                                                                                                                                        | Failed to delete the job.                                                                                                                                    | Initiate the call again or contact technical support.     |

| Status Code | Error Code | Error Message                                                                                                                                                                     | Description                                                                                                                                                                         | Measure                                                                  |
|-------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 400         | 0200       | Failed to kill the jobs on Yarn.                                                                                                                                                  | Failed to terminate a job on Yarn.                                                                                                                                                  | Initiate the call again or contact technical support.                    |
| 400         | 0201       | The job does not exist.                                                                                                                                                           | Job not exist.                                                                                                                                                                      | Modify the request parameters based on the error message.                |
| 400         | 0202       | Too many jobs are being submitted, please try again later.                                                                                                                        | Too many jobs are submitted. Please try again later.                                                                                                                                | Initiate the call again or contact technical support.                    |
| 400         | 0211       | The maximum number of bound security groups has been reached. A maximum of four security groups can be bound, excluding the default security group that is automatically created. | The number of bound security groups exceeded the upper limit. A maximum of four security groups can be bound, excluding the default security groups that are automatically created. | Modify the request parameters based on the error message.                |
| 400         | 12000002   | The parameter is invalid.                                                                                                                                                         | Invalid parameter.                                                                                                                                                                  | Check whether the parameters are correct according to the API reference. |
| 400         | 12000003   | The cluster does not exist.                                                                                                                                                       | Cluster not exist.                                                                                                                                                                  | Check whether the cluster exists.                                        |

| Status Code | Error Code | Error Message                                                                                                                                                                                                | Description                                                                                                                                                                                             | Measure                                                                            |
|-------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 400         | 12000009   | The parameter is invalid.                                                                                                                                                                                    | Invalid parameter.                                                                                                                                                                                      | Check whether the parameters are correct according to the API document.            |
| 400         | 12000012   | Tasks are being executed in the cluster. Subcontract period cluster is not allowed for clusters that are in this state. Scale-out or scale-in is not allowed for clusters that are not in the running state. | Task being executed in the cluster. Switching to the yearly/ monthly cluster is not allowed in this status. Scale-out or scale-in is not allowed for clusters that are not in the <b>Running</b> state. | Wait until the cluster task is complete and the status changes to <b>Running</b> . |
| 400         | 12000013   | Failed to scale in the cluster (ID: xxx). The type and the quantity of nodes to be deleted are xxx and xxx, respectively. The task node does not exist.                                                      | The task node does not exist.                                                                                                                                                                           | Check whether the node exists.                                                     |
| 400         | 12000014   | Failed to scale out the cluster (ID: xxx). The type and the quantity of nodes to be added are xxx and xxx, respectively.                                                                                     | Failed to scale out the cluster. Cluster ID: xxx, node type: xxx, and number of nodes: xxx                                                                                                              | Initiate the call again or contact technical support.                              |

| Status Code | Error Code | Error Message                                                              | Description                                                          | Measure                                                                                                                       |
|-------------|------------|----------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000018   | Scale-out or scale-in cannot be performed again because it is in progress. | Scale-out or scale-in cannot be performed because it is in progress. | Wait until the cluster task is complete and the status changes to <b>Running</b> .                                            |
| 400         | 12000019   | Failed to obtain hosts of the cluster.                                     | Failed to obtain hosts of the cluster.                               | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000020   | Failed to terminate the cluster.                                           | Failed to terminate the cluster.                                     | Initiate the call again or contact technical support.                                                                         |
| 400         | 12000021   | Clusters in the xxx state cannot be terminated.                            | Clusters in the xxx state cannot be terminated.                      | Wait until the cluster task is complete and the status changes to <b>Running</b> .                                            |
| 400         | 120000212  | Failed to obtain the AZs that you have permission to access.               | Failed to obtain the authorized AZ.                                  | Try to call the API again.                                                                                                    |
| 400         | 120000213  | The region [xxx] does not exist.                                           | The specified region [xxx] does not exist.                           | Modify the request parameters based on the error message.                                                                     |

| Status Code | Error Code | Error Message                                                                   | Description                                                                 | Measure                                                                                                                       |
|-------------|------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 120000214  | No permission to access the AZs [xxx]. The following AZs [xxx] can be accessed. | You do not have the permission to access AZ [xxx]. You can access AZ [xxx]. | Modify the request parameters based on the error message.                                                                     |
| 400         | 12000023   | Failed to obtain cluster details.                                               | Failed to obtain cluster details.                                           | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000024   | Yearly/Monthly clusters cannot be terminated.                                   | Yearly/Monthly clusters cannot be terminated.                               | Do not perform this operation.                                                                                                |
| 400         | 12000027   | Failed to verify the subnet when creating the cluster xxx.                      | Failed to create cluster xxx. The subnet verification failed.               | Check whether the number of available subnets meets the requirements for creating a cluster.                                  |
| 400         | 12000028   | The cluster has a maximum of xxx Core and Task nodes.                           | The total number of cores and task nodes in a cluster cannot exceed xxx.    | Try to reduce the number of nodes required in the request.                                                                    |
| 400         | 12000029   | Failed to obtain the quota.                                                     | Failed to obtain the quota.                                                 | Try to call the API again.                                                                                                    |

| Status Code | Error Code | Error Message                                                             | Description                                                                 | Measure                                                                       |
|-------------|------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 400         | 12000030   | The requested number of nodes in the cluster exceeds the available quota. | The total number of nodes to be added to the cluster exceeds the quota.     | Try to reduce the amount of resources requested or increase available quotas. |
| 400         | 12000031   | The requested number of vCPUs in the cluster exceeds the available quota. | The total number of CPU cores to be added to the cluster exceeds the quota. | Try to reduce the amount of resources requested or increase available quotas. |
| 400         | 12000032   | The requested memory of the cluster exceeds the available quota.          | The total memory to be added to the cluster exceeds the quota.              | Try to reduce the amount of resources requested or increase available quotas. |
| 400         | 12000033   | The requested number of disks in the cluster exceeds the available quota. | The total number of disks to be added to the cluster exceeds the quota.     | Try to reduce the amount of resources requested or increase available quotas. |
| 400         | 12000034   | The requested disk capacity of the cluster exceeds the available quota.   | The total disk capacity to be expanded exceeds the quota.                   | Try to reduce the amount of resources requested or increase available quotas. |
| 400         | 12000036   | Failed to obtain product information.                                     | Failed to obtain product information.                                       | Try to call the API again.                                                    |
| 400         | 12000038   | Failed to obtain the security group.                                      | Failed to obtain the security group.                                        | Try to call the API again.                                                    |

| Status Code | Error Code | Error Message                                  | Description                                                     | Measure                                                                                                                       |
|-------------|------------|------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000041   | Failed to obtain the cluster list.             | Failed to obtain the cluster list.                              | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000042   | Failed to create a cluster.                    | Failed to create the cluster.                                   | Initiate the call again, or check whether the parameters are correct according to the API reference.                          |
| 400         | 12000043   | Duplicate cluster name: xxx.                   | Cluster name xxx already exists.                                | Use another cluster name.                                                                                                     |
| 400         | 12000044   | The minimum memory of a Master node is xxx GB. | The minimum memory of the Master node in the cluster is xxx GB. | Increase the memory size of the Master node.                                                                                  |
| 400         | 12000045   | Insufficient quota of the security group.      | Insufficient security group quota.                              | Increase the security group quota.                                                                                            |
| 400         | 12000046   | Insufficient quota of the security group rule. | Insufficient security group rule quota.                         | Increase the security group rule quota or delete unnecessary security group rules.                                            |
| 400         | 12000048   | Product specification xxx does not exist.      | Product specification xxx does not exist.                       | Change the product specifications or AZ.                                                                                      |

| Status Code | Error Code | Error Message                                             | Description                                                   | Measure                                                                   |
|-------------|------------|-----------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------|
| 400         | 12000050   | Incorrect certificate.                                    | Incorrect certificate.                                        | Replace the certificate with a correct one.                               |
| 400         | 12000052   | No access rights.                                         | Unauthorized access.                                          | Check whether the permission meets the requirements.                      |
| 400         | 12000053   | Invalid billing type.                                     | Invalid order type                                            | Check whether the parameters are correct according to the API document.   |
| 400         | 12000054   | The operation is not supported.                           | Operation not supported.                                      | Do not perform this operation.                                            |
| 400         | 12000055   | Failed to open the file.                                  | Failed to open the file.                                      | Initiate the call again or contact technical support.                     |
| 400         | 12000059   | Key pair xxx does not exist.                              | User key pair xxx does not exist.                             | Check whether the key pair exists. If yes, replace it with a correct one. |
| 400         | 12000060   | The number of running jobs per cluster cannot exceed xxx. | The number of running jobs in each cluster cannot exceed xxx. | Modify the request parameters based on the error message.                 |

| Status Code | Error Code | Error Message                                                                             | Description                                                                      | Measure                                                                                                                       |
|-------------|------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000061   | Failed to submit the job (cluster ID: xxx; job name: xxx; job ID: xxx).                   | Failed to submit the job. Cluster ID: xxx, job name: xxx, and job ID: xxx        | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000062   | Jobs cannot be submitted to a cluster in the xxx state.                                   | Failed to submit the job because the cluster is in the xxx state.                | Wait until the cluster task is complete and the status changes to <b>Running</b> .                                            |
| 400         | 12000063   | Spark jobs cannot be submitted.                                                           | Spark jobs cannot be submitted.                                                  | Check whether the Spark service exists and whether the Spark service is normal.                                               |
| 400         | 12000064   | Jobs cannot be submitted or inquired to a security cluster by API.                        | This API is not supported for security clusters for submitting or querying jobs. | Submit the job using a non-security cluster or a client.                                                                      |
| 400         | 12000065   | Scale-out or scale-in is not available for Yearly/Monthly clusters.                       | Scale-out or scale-in is not available for Yearly/Monthly clusters.              | Do not perform this operation.                                                                                                |
| 400         | 12000068   | If the job type is Hive or Spark Script, the value of the mains should not be left blank. | When the job type is Hive or Spark Script, <b>mains</b> cannot be empty.         | Modify the request parameters based on the error message.                                                                     |

| Status Code | Error Code | Error Message                                                                          | Description                                                      | Measure                                                                                                                       |
|-------------|------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000069   | If the job type is MapReduce or Spark, the value of the libs should not be left blank. | When the job type is Hive or Spark, <b>libs</b> cannot be empty. | Modify the request parameters based on the error message.                                                                     |
| 400         | 12000070   | An error occurred while accessing Knox.                                                | An exception occurred when accessing KNOX.                       | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000071   | The Executor server has an internal error.                                             | Internal Executor error.                                         | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000073   | Failed to access the HDFS directory.                                                   | Failed to connect to an HDFS directory.                          | Call the API again, contact technical support, or check whether the HDFS service of the cluster is normal.                    |

| Status Code | Error Code | Error Message                                                                                                                                                                                                                                                                                                                      | Description                                                                                                                                                                                                                                                                           | Measure                                                   |
|-------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 400         | 12000077   | The password of [xxx] must meet the following requirements:<br>1.must be xxx to xxx characters long. 2.at least contain [xxx] types of the following characters: uppercase letters, lowercase letters, digits, and special characters(`~!@#\$% ^&*()-_+= []{};,:<.>?). 3.cannot be the username or the username spelled backwards. | The password xxx must:<br>- Contain xxx to xxx characters.<br>- Contain at least xxx of the following character types: uppercase letters, lowercase letters, digits, and special characters `~!@#\$%^&*()-_+= []{};,:<.>?<br>- Not be the username or the username spelled backwards. | Modify the request parameters based on the error message. |
| 400         | 12000080   | The status of some nodes is not running in the cluster. Try again later.                                                                                                                                                                                                                                                           | Some nodes are not running in the cluster. Try again later.                                                                                                                                                                                                                           | Try to call the API again.                                |
| 400         | 12000081   | The jar_path parameter cannot be left blank if the job type is MapReduce or Spark.                                                                                                                                                                                                                                                 | If the job type is MapReduce or Spark, the <b>jar_path</b> parameter cannot be empty.                                                                                                                                                                                                 | Added the <b>jar_path</b> parameter.                      |

| Status Code | Error Code | Error Message                                                                                                                                           | Description                                                                                                                                              | Measure                                                                            |
|-------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 400         | 12000082   | Node groups cannot be deleted in the cluster that is being scaled in or scaled out.                                                                     | Node groups cannot be deleted from a cluster that is being scaled in or out.                                                                             | Wait until the cluster task is complete and the status changes to <b>Running</b> . |
| 400         | 12000085   | This interface does not support the cluster of this version. Please use the /v2/{project_id}/clusters/{cluster_id}/job-executions job submit interface. | This API does not support clusters of this version. Use the /v2/{project_id}/clusters/{cluster_id}/job-executions to submit jobs.                        | Use a new API that meets the cluster version requirements.                         |
| 400         | 12000086   | This cluster version not support s3[an]: schema. Please use the obs: schema.                                                                            | The cluster does not support file paths starting with <b>s3a://</b> or <b>s3n://</b> . Use a file path supported by the cluster, such as <b>obs://</b> . | Use a protocol that matches the cluster version.                                   |
| 400         | 12000087   | Failed to get billing records.                                                                                                                          | Failed to obtain CDR files.                                                                                                                              | Try to call the API again.                                                         |
| 400         | 12000090   | Products of the xxx specifications are no longer available in selected AZ.                                                                              | The product specification xxx has been removed from the selected AZ.                                                                                     | Change the product specifications or AZ.                                           |
| 400         | 12000092   | Failed to get metadata of version xxx.                                                                                                                  | Failed to obtain version metadata. Version: xxx.                                                                                                         | Try to call the API again.                                                         |

| Status Code | Error Code | Error Message                                                                    | Description                                                                                   | Measure                                                                                               |
|-------------|------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 400         | 12000093   | Metadata of version xxx not found.                                               | Failed to find version metadata.<br>Version: xxx.                                             | Check whether the cluster version is correct and use the correct version.                             |
| 400         | 12000094   | The xxx in xxx version does not support the xxx flavor.                          | The xxx node does not support the xxx flavor in the xxx version.                              | Use another flavor.                                                                                   |
| 400         | 12000095   | Patch xxx is unavailable.                                                        | Patch xxx is unavailable.                                                                     | Check whether the patch version is correct.                                                           |
| 400         | 12000099   | Topology template of version xxx not found.                                      | Information about the topology template cannot be found.<br>Version: xxx.                     | Check whether the cluster version is correct.                                                         |
| 400         | 12000100   | Failed to stop the cluster.<br>Only running or abnormal clusters can be stopped. | Failed to stop the cluster.<br>Only clusters in the running or abnormal state can be stopped. | Wait until the cluster task is complete and the status changes to <b>Running</b> or <b>Abnormal</b> . |
| 400         | 12000101   | Failed to start the cluster.<br>Only stopped clusters can be started.            | Failed to start the cluster.<br>Only clusters in the stopped state can be started.            | Wait until the cluster task is complete and the status changes to <b>Stopped</b> .                    |

| Status Code | Error Code | Error Message                                           | Description                                                | Measure                                                                                                                       |
|-------------|------------|---------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000102   | Failed to stop the cluster.                             | Failed to stop the cluster.                                | Call the API again, contact technical support, or check whether the cluster is normal.                                        |
| 400         | 12000103   | Failed to start the cluster.                            | Failed to start the cluster.                               | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 400         | 12000104   | VPC ECS DSS DCC OpenStack service error.                | VPC ECS DSS DCC OpenStack service error.                   | Try to call the API again.                                                                                                    |
| 400         | 12000105   | VPC xxx does not exist.                                 | VPC xxx not exist.                                         | Check whether the VPC exists.                                                                                                 |
| 400         | 12000106   | Key pair xxx does not exist.                            | User key pair xxx not exist.                               | Check whether the key pair exists and replace it with a correct one.                                                          |
| 400         | 12000107   | Invalid project ID: xxx.                                | Invalid project ID: xxx.                                   | Use a correct project ID.                                                                                                     |
| 400         | 12000108   | Failed to verify the EIP when creating the cluster xxx. | Failed to create cluster xxx. The EIP verification failed. | Check whether the EIP exists and use a correct EIP.                                                                           |

| Status Code | Error Code | Error Message                                                           | Description                                                             | Measure                                                                                                                                                                           |
|-------------|------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000109   | Failed to bind the EIP to cluster xxx.                                  | Failed to bind an EIP to cluster xxx.                                   | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. Check whether the EIP exists and use a correct EIP. |
| 400         | 12000110   | Failed to unbind the EIP from cluster xxx.                              | Failed to unbind the EIP from cluster xxx.                              | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal.                                                     |
| 400         | 12000111   | Failed to bind the EIP. The EIP xxx has been bound to another resource. | Failed to bind the EIP. The EIP xxx has been bound to another resource. | Use another EIP that is not in use.                                                                                                                                               |
| 400         | 12000112   | The EIP xxx does not exist.                                             | EIP xxx not exist.                                                      | Check whether the EIP exists and use a correct EIP.                                                                                                                               |
| 400         | 12000113   | Failed to update the EIP.                                               | Failed to update the EIP.                                               | Check whether the EIP exists and use a correct EIP.                                                                                                                               |

| Status Code | Error Code | Error Message                                                                               | Description                                                                                    | Measure                                                              |
|-------------|------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 400         | 12000114   | The hive_script_path parameter cannot be left blank if the job type is Hive or SparkScript. | If the job type is Hive or SparkScript, the <b>hive_script_path</b> parameter cannot be empty. | Add the missing parameters as prompted.                              |
| 400         | 12000115   | The ECS group quota is insufficient.                                                        | Insufficient ECS group quota.                                                                  | Increase the quota.                                                  |
| 400         | 12000116   | The VPC quota is insufficient. Select the existing VPC or increase the quota.               | Insufficient VPC quota. Select an existing VPC or apply for more quotas.                       | Increase the quota.                                                  |
| 400         | 12000117   | The subnet quota is insufficient. Select the existing subnet or increase the quota.         | Insufficient subnet quota. Select an existing subnet or apply for more quotas.                 | Increase the quota.                                                  |
| 400         | 12000118   | Failed to create the security group rule.                                                   | Failed to add a security group rule.                                                           | Check whether the security group exists or try again later.          |
| 400         | 12000119   | The security group rule already exists.                                                     | The security group rule already exists.                                                        | Do not perform this operation or manually modify the security group. |

| Status Code | Error Code | Error Message                                                                                                                                                                              | Description                                                                                                                                                                                              | Measure                                                                            |
|-------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 400         | 12000121   | Failed to submit a request to scale out the Yearly/Monthly cluster. Scale-out is not allowed because the cluster has an unpaid order. Scale out the cluster again after you pay the order. | Failed to submit the request for scaling out a yearly/monthly subscribed cluster. Scale-out is not allowed because the cluster has an unpaid order. Scale out the cluster again after you pay the order. | Complete the order before performing the operation.                                |
| 400         | 12000122   | EPS service error.                                                                                                                                                                         | EPS error.                                                                                                                                                                                               | Try to call the API again.                                                         |
| 400         | 12000123   | Failed to update Task node information because the number of Task nodes is not 0.                                                                                                          | Failed to update task node information because the number of task nodes is not 0.                                                                                                                        | Remove all nodes from the node group.                                              |
| 400         | 12000124   | In the cluster xxx, the number of Task nodes can be adjusted only using auto scaling.                                                                                                      | Cluster xxx supports only auto scaling to adjust the number of task nodes.                                                                                                                               | Rectify the fault based on the error message.                                      |
| 400         | 12000125   | Failed to update Task node information, because the cluster state is scaling out or scaling in.                                                                                            | Failed to update task node information because the cluster is in the scale-out or scale-in state.                                                                                                        | Wait until the cluster task is complete and the status changes to <b>Running</b> . |

| Status Code | Error Code | Error Message                                                                                  | Description                                                                                                      | Measure                                                                            |
|-------------|------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 400         | 12000126   | Failed to obtain authentication information.                                                   | Failed to obtain authentication information.                                                                     | Try to call the API again.                                                         |
| 400         | 12000127   | Failed to lock cluster operation.                                                              | Failed to lock cluster operations.                                                                               | Try to call the API again.                                                         |
| 400         | 12000128   | Failed to unlock cluster operation.                                                            | Failed to unlock cluster operations.                                                                             | Try to call the API again.                                                         |
| 400         | 12000129   | Master node specifications cannot be scaled up for a cluster that is not in the running state. | The specifications of the Master node cannot be upgraded because the cluster is not in the <b>Running</b> state. | Wait until the cluster task is complete and the status changes to <b>Running</b> . |
| 400         | 12000130   | Specifications available for scale-up not found.                                               | Failed to find the node specifications that can be upgraded.                                                     | Use another flavor.                                                                |
| 400         | 12000131   | Master node specifications cannot be scaled up for a non-HA cluster.                           | The Master node in a non-HA cluster cannot be upgraded.                                                          | Rectify the fault based on the error message.                                      |
| 400         | 12000132   | vCPUs and memory cannot be reduced in the specification scale-up.                              | The number of vCPUs or memory cannot be reduced during node specification upgrade.                               | Rectify the fault based on the error message.                                      |
| 400         | 12000133   | Specification scale-up is not available for this type of nodes.                                | This node type is not supported for specification upgrade.                                                       | Rectify the fault based on the error message.                                      |

| Status Code | Error Code | Error Message                                                                                         | Description                                                                                           | Measure                                                        |
|-------------|------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 400         | 12000134   | Failed to scale up the Master node specifications.                                                    | Failed to upgrade the specifications of the Master node.                                              | Try to call the API again.                                     |
| 400         | 12000135   | Master nodes available for specification scale-up not found                                           | Failed to find the Master node that can be upgraded.                                                  | Check whether the node exists.                                 |
| 400         | 12000138   | Failed to get max server Group members.                                                               | Failed to query the maximum number of VMs in an ECS anti-affinity group.                              | Try to call the API again.                                     |
| 400         | 12000139   | All evs volume type is sellout, please try again later.                                               | All EVS disks have been sold out. Please try again later.                                             | Try to call the API again.                                     |
| 400         | 12000140   | Evs volume type:xxx is sellout, please try again later.                                               | EVS disk xxx has been sold out. Please try again later.                                               | Try to call the API again.                                     |
| 400         | 12000141   | The disk size of a node cannot be less than {value} GB.                                               | The node disk cannot be less than {value} GB.                                                         | Rectify the fault based on the error message.                  |
| 400         | 12000142   | The disk size cannot exceed 32,000 GB.                                                                | The disk cannot be greater than 32,000 GB.                                                            | Rectify the fault based on the error message.                  |
| 400         | 12000154   | IAM synchronization is in progress and cannot be triggered again in the same cluster. Cluster ID: xxx | IAM synchronization is in progress and cannot be triggered again in the same cluster. Cluster ID: xxx | Perform the operation after the current operation is complete. |

| Status Code | Error Code | Error Message                           | Description                                   | Measure                                                                                |
|-------------|------------|-----------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------|
| 400         | 12000156   | Failed to query iam group               | Failed to query the IAM user group.           | Initiate the call again or contact technical support.                                  |
| 400         | 12000157   | Failed to query iam user or role        | Failed to query the IAM role and user.        | Initiate the call again or contact technical support.                                  |
| 400         | 12000163   | Failed to query Manager user.           | Failed to query the Manager user.             | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 12000164   | Failed to query Manager user group.     | Failed to query the Manager user group.       | Call the API again, contact technical support, or check whether the cluster is normal. |
| 400         | 12000209   | Either a VPC ID or name is required.    | Either the VPC ID or the name is required.    | Rectify the fault based on the error message.                                          |
| 400         | 12000210   | Either a subnet ID or name is required. | Either the subnet ID or the name is required. | Rectify the fault based on the error message.                                          |

| Status Code | Error Code | Error Message                                                                                                                                                                                        | Description                                                                                                                             | Measure                                                                                                                                           |
|-------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 400         | 12000233   | Insufficient resources for flavor xxx. Reduce the purchase quantity and try again. Alternatively, select another instance type or flavor, or switch the AZ or region to select your desired product. | Insufficient resources for specification xxx. Reduce the quantity, change service types and specifications, or change the region or AZ. | Reduce the purchase quantity and try again. Alternatively, select another instance with different types and flavors, or change the region and AZ. |
| 400         | 12000234   | Insufficient resources for the flavor xxx of the node to be scaled out. Reduce the purchase quantity and try again.                                                                                  | Insufficient resources for specification xxx. Reduce the quantity and try again.                                                        | Reduce the purchase quantity and try again, or change the specifications.                                                                         |
| 400         | 12000360   | Cluster name cannot be updated for a cluster that is in the terminating or terminated state.                                                                                                         | The name of a cluster in the <b>Deleting</b> or <b>Deleted</b> state cannot be changed.                                                 | Wait until the cluster task is complete and the status changes to <b>Running</b> .                                                                |
| 400         | 12000361   | Only offline cluster is allowed to modify manager access ip.                                                                                                                                         | The IP address for accessing FusionInsight Manager cannot be changed for a non-managed cluster.                                         | Rectify the fault based on the error message.                                                                                                     |

| Status Code | Error Code | Error Message                                                                                                                           | Description                                                                                                                 | Measure                                                    |
|-------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 400         | 12000362   | Cluster ID already exists or is not in UUID format.                                                                                     | The cluster ID already exists or is not in UUID format.                                                                     | Use correct request parameters based on the error message. |
| 400         | 12000363   | The offline cluster with same management node IPs[xxx] already exists.                                                                  | A management cluster with the same management node IP address [xxx] already exists.                                         | Modify the request parameters based on the error message.  |
| 400         | 12000405   | The number of nodes where the xxx role is deployed must be greater than or equal to xxx and less than or equal to xxx. The step is xxx. | The number of nodes to be deployed with the xxx role must be no less than xxx and no more than xxx. The step length is xxx. | Modify the request parameters based on the error message.  |
| 400         | 12000406   | The number of nodes where the xxx role is deployed must be greater than or equal to xxx and less than or equal to xxx.                  | The number of nodes to be deployed with the xxx role must be no less than xxx and no more than xxx.                         | Modify the request parameters based on the error message.  |
| 400         | 12000407   | The xxx role must be deployed on xxx nodes.                                                                                             | Role xxx must be deployed on xxx node(s).                                                                                   | Modify the request parameters based on the error message.  |

| Status Code | Error Code | Error Message                                                          | Description                                                                       | Measure                                                                            |
|-------------|------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 400         | 12003001   | The service xxx was installed.                                         | The xxx service has been installed.                                               | Modify the request parameters based on the error message.                          |
| 400         | 12003002   | The service xxx is not in version metadata.                            | The xxx service is not described in metadata.                                     | Initiate the call again or contact technical support.                              |
| 400         | 12003003   | The group %s is not exist                                              | Node group %s does not exist.                                                     | Use an existing node group in the cluster.                                         |
| 400         | 12003004   | The cluster does not support add components.                           | Failed to add the service.                                                        | Initiate the call again or contact technical support.                              |
| 400         | 12003005   | The role xxx is not belong to the service xxx.                         | The xxx role does not belong to the xxx service.                                  | Modify the request parameters based on the error message.                          |
| 400         | 12003006   | The cluster is not in the [ running ] state.                           | The cluster is not in Running state.                                              | Wait until the cluster task is complete and the status changes to <b>Running</b> . |
| 400         | 12003008   | Occur service xxx that depend on xxx, can not add or delete.           | Adding or deleting is not allowed because xxx depends on xxx.                     | Modify the request parameters based on the error message.                          |
| 400         | 12003009   | Can not add services for nodegroup xxx that doesn't have normal hosts. | Failed to add services to node group xxx because all hosts are in abnormal state. | Initiate the call again or contact technical support.                              |

| Status Code | Error Code | Error Message                                                                                                                                                                         | Description                                                                                                                                       | Measure                                                   |
|-------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 400         | 12003012   | xxx can not deploy to abnormal host, please check.                                                                                                                                    | xxx cannot be deployed on hosts in abnormal state. Please check.                                                                                  | Modify the request parameters based on the error message. |
| 400         | 12003013   | Can not deploy xxx to xxx, the host state is not normal.                                                                                                                              | Failed to deploy xxx on the host xxx because the host is in abnormal state.                                                                       | Modify the request parameters based on the error message. |
| 400         | 12003021   | Can not add the stateful roles [xxx] to the group whose type is task                                                                                                                  | Roles in xxx state cannot be added to Task node groups.                                                                                           | Check the node group type or role status.                 |
| 400         | 12003022   | There are multiple roles [xxx] whose local_disks_anti_affinity is true. In strict anti-affinity mode, a node group can have only one role with local_disks_anti_affinity set to true. | Roles whose <b>local_disks_anti_affinity</b> is <b>true</b> : xxx. In strict anti-affinity mode, only one such role can be added to a node group. | Modify the request parameters based on the error message. |
| 400         | 12003023   | The following components [xxx] cannot be added to the security cluster where Kerberos authentication is enabled.                                                                      | Components cannot be added to Kerberos authenticated security clusters: xxx                                                                       | Check the component or cluster type.                      |

| Status Code | Error Code | Error Message                                                                                                                                                          | Description                                                                                                                    | Measure                                                   |
|-------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 400         | 12003054   | The xxx role is missing. Check the request parameters.                                                                                                                 | Role xxx required. Check the request parameters.                                                                               | Modify the request parameters based on the error message. |
| 400         | 12003090   | The index must be greater than zero and an integer.                                                                                                                    | The role index must be an integer greater than 0.                                                                              | Modify the request parameters based on the error message. |
| 400         | 12005001   | The number of tags in one cluster must not exceed xxx.                                                                                                                 | The number of tags in a cluster cannot exceed xxx.                                                                             | Modify the request parameters based on the error message. |
| 400         | 12005002   | Tag xxx does not comply with the specifications. The tag key and value cannot start or end with a space and cannot contain any of the following characters: =*<>\\, /. | Invalid tag: xxx. The key and value of the tag cannot start or end with spaces or contain the following characters: =*<>\\, /. | Modify the request parameters based on the error message. |
| 400         | 130000002  | The token is invalid.                                                                                                                                                  | Invalid token.                                                                                                                 | Update the token or check whether the token is correct.   |
| 400         | 13000046   | Security group xxx does not exist.                                                                                                                                     | Security group xxx does not exist.                                                                                             | Check whether the security group exists.                  |

| Status Code | Error Code   | Error Message                                                             | Description                                                                      | Measure                                                   |
|-------------|--------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------|
| 400         | MRS.00005045 | Role xxx must be deployed on the master node.                             | Role xxx must be deployed on master nodes.                                       | Modify the request parameters based on the error message. |
| 400         | MRS.00005058 | Current cluster version: xxx does not support config clickhouse password. | The ClickHouse password cannot be configured in the current cluster version xxx. | Modify the request parameters based on the error message. |
| 400         | MRS.00005059 | Security Cluster does not support config clickhouse password.             | The ClickHouse password cannot be configured for a security cluster.             | Modify the request parameters based on the error message. |
| 400         | MRS.00005060 | Current Service: xxx does not support config password.                    | The password cannot be configured in the current service xxx.                    | Modify the request parameters based on the error message. |
| 400         | MRS.00005061 | Clickhouse user password or default user password can not be empty.       | The password of ClickHouse or the default user cannot be left blank.             | Modify the request parameters based on the error message. |
| 400         | MRS.00005094 | Role xxx must be deployed on the non-master node.                         | Role xxx must be deployed on non-master nodes.                                   | Modify the request parameters based on the error message. |
| 400         | MRS.00005095 | Role xxx must be deployed on all nodes.                                   | Role xxx must be deployed on all nodes.                                          | Modify the request parameters based on the error message. |

| Status Code | Error Code   | Error Message                                                                                      | Description                                      | Measure                                                   |
|-------------|--------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|
| 400         | MRS.00005096 | The role metadata is abnormal.                                                                     | Role metadata is abnormal.                       | Initiate the call again or contact technical support.     |
| 400         | MRS.00005097 | The number of xxx role instances must be greater than or equal to 0 and less than or equal to xxx. | Role xxx must be deployed on 0 to xxx instances. | Modify the request parameters based on the error message. |

| Status Code | Error Code | Error Message        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Measure                                                  |
|-------------|------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| 400         | MRS.0010   | Dataconnector error. | Invalid connector name. The name can contain only uppercase and lowercase letters, digits, hyphens (-), and underscores(_). The connector ID cannot be empty.<br>Unsupported data type: xxx.<br>Unsupported component type: xxx. The data connection (ID: xxx) is not found.<br>The mapping between the cluster (ID: xxx) and the data connection is not found.<br>The mapping between the cluster (connection ID: xxx) and the data connection mapping is not found.<br>The RDS instance ID cannot be left blank. The instance ID, database name, username, | Locate and rectify the fault based on the error message. |

| Status Code | Error Code | Error Message | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Measure |
|-------------|------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|             |            |               | and password of RDS cannot be left blank. The AccessKey, SecretKey, and directory of OBS cannot be left blank. The IP address, port, database, username, and password of JDBC cannot be left blank. The driver that can be used by xxx is not found. Data connection type mismatch. The input type is xxx, but the actual data connection type is xxx. The VPC ID xxx of the RDS instance is inconsistent with the VPC ID xxx of the cluster. The subnet ID xxx of the RDS instance is inconsistent with the subnet ID xxx of the cluster. The security group ID xxx of the RDS instance is inconsistent |         |

| Status Code | Error Code | Error Message | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Measure |
|-------------|------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|             |            |               | with the security group ID xxx of the cluster. A data connection (xxx) with the same location already exists in the cluster. The data connection has been used by another cluster (xxx). Data connection xxx already exists. The cluster cannot connect to the database of the RDS instance. Check the network, database name, username, and password. RDS instance (ID: xxx) cannot found. RDS instance xxx is abnormal. The status is xxx. Failed to synchronize data connection parameters to the cluster. |         |

| Status Code | Error Code | Error Message                                                                                                                                                                                                                                                                                    | Description                                                                                                                                                                                                                                                                                                                                                          | Measure                                                                                             |
|-------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 400         | MRS.0011   | SQL typed xxx can not run on the cluster which not installed dependent components. Cannot execute SQL on a cluster in the xxx state. Not support sql execution in cluster version xxx. Request with multiple SQL is not support. Failed to submit the SQL request to Executor (cluster ID: xxx). | Statement (SQL type: xxx) cannot run in the clusters where related dependent components are not installed. The cluster is in the xxx state. The SQL statement cannot be executed. The cluster (version xxx) does not support the SQL API. Multiple SQL statements can be submitted at a time. Failed to submit the SQL statement to Executor. The cluster ID is xxx. | Modify the request parameters based on the error message.                                           |
| 400         | MRS.0015   | The scaling operation failed due to not meeting the scaling conditions.                                                                                                                                                                                                                          | The scaling request fails because the scaling conditions are not met.                                                                                                                                                                                                                                                                                                | Check the cause details in the response body or contact technical support.                          |
| 400         | MRS.0016   | The request failed due to restrictions related to the cluster node group.                                                                                                                                                                                                                        | The request fails because the cluster node group does not meet a specific condition.                                                                                                                                                                                                                                                                                 | Rectify the fault based on the error information in the response body or contact technical support. |

| Status Code | Error Code | Error Message                                             | Description                                                            | Measure                                                        |
|-------------|------------|-----------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------|
| 400         | MRS.0020   | The cluster does not support add components.              | The cluster does not support the function of adding components.        | Check the cluster version or type.                             |
| 400         | MRS.0205   | Failed to sync agency mapping configuration to cluster.   | Failed to synchronize the agency mapping configuration to the cluster. | Check whether the agency is correct.                           |
| 400         | MRS.0206   | Updating agency mapping task is running.                  | Updating the mapping configuration task...                             | Perform the operation after the current operation is complete. |
| 400         | MRS.0207   | Parse Json format failed.                                 | Failed to parse the JSON file.                                         | Check whether the JSON file is correct.                        |
| 400         | MRS.0208   | Create or modify policy failed.                           | Failed to create or modify the policy.                                 | Check whether the policy is correct.                           |
| 400         | MRS.0209   | Assign policy to agency failed.                           | Failed to assign the policy to the agency.                             | Check whether the agency is correct.                           |
| 400         | MRS.0210   | No secu_admin policy.                                     | The secu_admin permission is required.                                 | Obtain related permissions based on the error message.         |
| 400         | MRS.0211   | Failed to obtain new agency or new agency does not exist. | Failed to obtain the new agency or the agency does not exist.          | Check whether the agency is correct.                           |

| Status Code | Error Code | Error Message                                                                                    | Description                                                                                     | Measure                                                                 |
|-------------|------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 400         | MRS.0212   | Updating ECS agency task is running.                                                             | Updating the ECS agency...                                                                      | Initiate the call again or contact technical support.                   |
| 400         | MRS.0216   | Failed to update ECS metadata.                                                                   | Failed to update ECS metadata.                                                                  | Initiate the call again or contact technical support.                   |
| 400         | MRS.0217   | Failed to unbind policy.                                                                         | Failed to unbind the policy.                                                                    | Check whether the policy is correct.                                    |
| 400         | MRS.0218   | Failed to check whether policies exist.                                                          | Failed to verify that the policy exists.                                                        | Check whether the policy is correct.                                    |
| 400         | MRS.1010   | The RDS instance whose ID is xxx is not found. The status (xxx) of RDS instance xxx is abnormal. | The RDS instance whose ID is xxx is not found. RDS instance xxx is abnormal. The status is xxx. | Rectify the fault based on the error message.                           |
| 401         | 12000001   | Invalid authentication                                                                           | Authentication failed                                                                           | Check whether the account status and authentication content are normal. |

| Status Code | Error Code | Error Message                                                                            | Description                                                                                                                 | Measure                                                                                                                       |
|-------------|------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 401         | 12000136   | Permission denied. Error message: Policy doesn't allow bss:order:update to be performed. | You do not have permission to perform this operation. Error message: Policy doesn't allow bss:order:update to be performed. | Obtain related permissions based on the error message.                                                                        |
| 404         | 12000057   | Failed to obtain the file list.                                                          | Failed to obtain the file list.                                                                                             | Check whether the MRS cluster status, Master node status, cluster network communication, and security group rules are normal. |
| 404         | 12005003   | The tag key xxx does not exist in cluster xxx.                                           | Tag key xxx does not exist in cluster xxx.                                                                                  | Modify the request parameters based on the error message.                                                                     |
| 500         | 12000004   | Internal server error.                                                                   | Internal server error.                                                                                                      | Initiate the call again or contact technical support.                                                                         |

## 10.5 Obtaining a Project ID

### Obtaining a Project ID from the Management Console

A project ID (**project\_id**) is required for some URLs when an API is called. To obtain a project ID, perform the following operations:

1. Log in to the management console.
2. Click the username and choose **My Credentials** from the drop-down list.

On the **API Credentials** page, view project IDs in the project list.

If there are multiple projects in one region, expand **Region** and view subproject IDs in the **Project ID** column.

## Obtaining a Project ID by Calling an API

You can obtain the project ID by calling the API used for [querying project information](#).

The API for obtaining a project ID is **GET https://{Endpoint}/v3/projects/**. **{Endpoint}** indicates the endpoint of IAM. For details, see [Endpoints](#).

The following is an example response. The value of **id** under **projects** is the project ID of the region specified by **name**.

```
{
 "projects": [
 {
 "domain_id": "65382450e8f64ac0870cd180d14e684b",
 "is_domain": false,
 "parent_id": "65382450e8f64ac0870cd180d14e684b",
 "name": "region_id",
 "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"
 }
}
```

## 10.6 Obtaining Account ID

An account ID (**domain-id**) is required for some URLs when an API is called. To obtain an account ID on the management console, perform the following steps:

1. Log in to the management console.
2. Click the username and choose **My Credentials** from the drop-down list.

On the displayed **API Credentials** page, view **Account ID**.

## 10.7 Obtaining the MRS Cluster Information

### Components Supported by MRS

- MRS 3.2.0-LTS.1 supports the following components:
  - An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Loader, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, and Guardian.

- A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger.
- A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Loader, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, Kafka, Flume, and Guardian.
- A custom cluster contains the following components: CDL, Hadoop, Spark2x, HBase, Hive, Hue, IoTDB, Loader, Kafka, Flume, Flink, Oozie, ZooKeeper, HetuEngine, Ranger, Tez, and ClickHouse, and Guardian.
- MRS 3.1.5 supports the following components:
  - An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Sqoop, and Guardian
  - A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger.
  - A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Sqoop, Guardian, Kafka, and Flume.
  - A custom cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Kafka, Flume, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, ClickHouse, Kudu, Sqoop, and Guardian.
- MRS 3.1.0 supports the following components:
  - An analysis cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, and Kudu.
  - A streaming cluster contains the following components: Kafka, Flume, ZooKeeper, and Ranger.
  - A hybrid cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, Kudu, Kafka, and Flume.
  - A custom cluster contains the following components: Hadoop, Spark2x, HBase, Hive, Hue, Kafka, Flume, Flink, Oozie, ZooKeeper, Ranger, Tez, Impala, Presto, ClickHouse, and Kudu.
- MRS 1.9.2 supports the following components:
  - An analysis cluster contains the following components: Presto, Hadoop, Spark, HBase, OpenTSDB, Hive, Hue, Loader, Tez, Flink, Alluxio, and Ranger.
  - A streaming cluster contains the following components: Kafka, KafkaManager, Storm, and Flume.

## Obtaining a Cluster ID

A cluster ID (**cluster\_id**) is required for some URLs when an API is called. To obtain a cluster ID, perform the following operations:

1. Log in to the MRS management console.
2. On the **Active Clusters** page, and click the name of the cluster to be operated. The cluster details page is displayed.
3. Click the **Dashboard** tab and obtain the cluster ID in the **Basic Information** area.

## Obtaining a Job ID

A job ID (**job\_execution\_id**) is required for some URLs when an API is called. To obtain a job ID, perform the following operations:

1. Log in to the MRS management console.
2. On the **Active Clusters** page, and click the name of the cluster to be operated. The cluster details page is displayed.
3. Click the **Jobs** tab and obtain the ID of the job to be operated from the job list.

## 10.8 Roles and components supported by MRS

**Table 10-7** Roles and components supported by MRS

| Role Name        | Component  |
|------------------|------------|
| OMSServer        | OMSServer  |
| NameNode         | HDFS       |
| Zkfc             | HDFS       |
| JournalNode      | HDFS       |
| DataNode         | HDFS       |
| ResourceManager  | Yarn       |
| NodeManager      | Yarn       |
| JobHistoryServer | MapReduce  |
| quorumpeer       | ZooKeeper  |
| HMaster          | HBase      |
| ThriftServer     | HBase      |
| RegionServer     | HBase      |
| SlapdServer      | LdapServer |
| KerberosServer   | KrbServer  |
| KerberosAdmin    | KrbServer  |
| Hue              | Hue        |
| LoaderServer     | Loader     |
| JDBCServer       | Spark      |
| JobHistory       | Spark      |
| SparkResource    | Spark      |
| JDBCServer2x     | Spark2x    |

| Role Name          | Component  |
|--------------------|------------|
| JobHistory2x       | Spark2x    |
| SparkResource2x    | Spark2x    |
| MetaStore          | Hive       |
| WebHCat            | Hive       |
| HiveServer         | Hive       |
| MonitorServer      | Flume      |
| Flume              | Flume      |
| oozie              | Oozie      |
| KerberosClient     | KrbClient  |
| SlapdClient        | LdapClient |
| meta               | meta       |
| DBServer           | DBService  |
| Broker             | Kafka      |
| Supervisor         | Storm      |
| Logviewer          | Storm      |
| Nimbus             | Storm      |
| UI                 | Storm      |
| FlinkResource      | Flink      |
| ClickHouseServer   | ClickHouse |
| ClickHouseBalancer | ClickHouse |
| HSBroker           | HetuEngine |
| HSConsole          | HetuEngine |
| QAS                | HetuEngine |
| CDLConnector       | CDL        |
| CDLService         | CDL        |
| IoTDBServer        | IoTDB      |
| ConfigNode         | IoTDB      |
| FE                 | Doris      |
| BE                 | Doris      |
| DBroker            | Doris      |

| Role Name   | Component  |
|-------------|------------|
| TokenServer | Guardian   |
| JobServer   | JobGateway |
| JobBalancer | JobGateway |

## 10.9 Change History

| Release Date | What's New                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2023-11-16   | This issue is the eighth official release.<br>Added the API for adding components to a cluster. For details, see <a href="#">Adding Components to a Cluster</a> .                                                                                                                                                                                                                |
| 2023-09-20   | This issue is the seventh official release.<br>1. Added the API for displaying the MRS version list. For details, see <a href="#">Obtaining MRS Version List</a> .<br>2. Added the API for scaling out a cluster. For details, see <a href="#">Scaling Out a Cluster</a> .<br>3. Added the API for scaling in a cluster. For details, see <a href="#">Scaling In a Cluster</a> . |
| 2023-07-30   | This issue is the sixth official release.<br>Added data connection management APIs in <a href="#">Data Connection Management</a> .                                                                                                                                                                                                                                               |
| 2023-06-30   | This issue is the fifth official release.<br>Added AZ APIs in <a href="#">Availability Zones</a> .                                                                                                                                                                                                                                                                               |
| 2023-05-06   | This issue is the fourth official release.<br>Added the support for MRS 3.2.0-LTS.1. For details, see <a href="#">Creating a Cluster</a> .                                                                                                                                                                                                                                       |
| 2023-04-07   | This issue is the third official release.<br>Added the Creating a Cluster and Submitting a Job API. For details, see <a href="#">Creating a Cluster and Submitting a Job</a> .                                                                                                                                                                                                   |
| 2023-03-30   | This issue is the second official release.<br>Added the support for MRS 3.1.5. For details, see <a href="#">Creating a Cluster</a> .                                                                                                                                                                                                                                             |
| 2022-10-31   | This issue is the first official release.                                                                                                                                                                                                                                                                                                                                        |