MapReduce Service (MRS) 3.3.1-LTS

API Reference

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MapReduce Service	(MRS)
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Contents

Before You Start

1.1 Overview

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

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

1.2 API Calling

MRS supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see Making an API Request.

1.3 Endpoints

An endpoint is the **request address** for calling an API. Endpoints vary depending on services and regions. For details, see **Obtaining Endpoints**.

1.4 Constraints

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

1.5 Concepts

Tenant

A tenant matches an enterprise or subsidiary. Data, operations, and networks are isolated between different tenants.

Region and AZ

A region or an availability zone (AZ) identifies the location of a data center. You can create resources in a specific region or an AZ.

- A region refers to a physical data center. Each region is completely isolated to ensure high fault tolerance and stability. After a resource is created, its region cannot be changed.
- An AZ is a physical location where resources use independent power supplies and networks. A region can contain multiple AZs, which are physically isolated but interconnected through internal networks. This ensures the independence of AZs and provides low-cost and low-latency network connections.

Resource Space

A resource space is a collection of resources. Resource spaces are isolated from each other and can be assigned to specific users.

Checkpoint

When an application consumes data, the latest SN of the consumed data is recorded as a checkpoint. When the data is reconsumed, the consumption can be continued based on this checkpoint.

App

Application: Multiple applications can access data in the same stream. Checkpoints generated for each application are used to record the consumed data in the stream by each application.

1.6 Selecting an API Type

MRS provides two types (V1 and V2) of APIs for cloud services with customized specifications at present. 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.

Based on the V1 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 gueried.

For details about the APIs and their functions, see API Overview.

2 API Overview

Table 2-1, Table 2-2, and **Table 2-3** list MRS APIs that meet RESTful API design standards.

Table 2-1 V2 APIs

API	Function	API URI	
Cluster	Creating Clusters	POST /v2/{project_id}/clusters	
management	Scaling Out a Cluster	POST /v2/{project_id}/clusters/ {cluster_id}/expand	
	Scaling in a Cluster	POST /v2/{project_id}/clusters/ {cluster_id}/shrink	
Job objects	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	
	Terminating a Job	POST /v2/{project_id}/clusters/ {cluster_id}/job-executions/ {job_execution_id}/kill	
	Deleting Jobs in Batches	POST /v2/{project_id}/clusters/ {cluster_id}/job-executions/batch- delete	
	Obtain the SQL Result	GET /v2/{project_id}/clusters/ {cluster_id}/job-executions/ {job_execution_id}/sql-result	

API	Function	API URI	
Cluster HDFS files	Obtaining Files from a Specified Directory	GET /v2/{project_id}/clusters/ {cluster_id}/files? path={directory}&offset={offset}&limit ={limit}&sort_key={sort_key}ℴ={order}	
Agency management	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	
IAM synchronizatio n	Obtaining Synchronized IAM Users and User Groups	GET /v2/{project_id}/clusters/ {cluster_id}/iam-sync-user	
	Synchronizing IAM Users and User Groups	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	

Table 2-2 V1 APIs

API	Function	API URI	
Cluster management	Creating a Cluster and Running 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	
	Querying Cluster Details	GET /v1.1/{project_id}/cluster_infos/ {cluster_id}	
	Terminating a Cluster	DELETE /v1.1/{project_id}/clusters/ {cluster_id}	
	Querying a Host List	GET /v1.1/{project_id}/clusters/ {cluster_id}/hosts	

API	Function	API URI	
Job objects (not	Adding a Job and Executing the Job	POST /v1.1/{project_id}/jobs/submit- job	
recommended)	Querying the exe Object List of Jobs	GET /v1.1/{project_id}/job-exes	
	Querying exe Object Details	GET /v1.1/{project_id}/job-exes/ {job_exe_id}	
Job execution objects (not recommended)	Deleting a Job Execution Object	DELETE /v1.1/{project_id}/job- executions/{job_execution_id}	
Tag management	Adding a Tag to a Specified Cluster	POST /v1.1/{project_id}/clusters/ {cluster_id}/tags	
	Deleting a Tag of 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 or Deleting Cluster Tags in Batches	POST /v1.1/{project_id}/clusters/ {cluster_id}/tags/action	
	Querying All Tags	GET /v1.1/{project_id}/clusters/tags	
		POST /v1.1/{project_id}/clusters/ resource_instances/action	

Table 2-3 Python APIs

API	Function	API URI	
Python APIs	Creating an MRS Cluster	MRSApi.create_cluster	
	Querying Cluster Details	MRSApi.get_cluster_infos	
	Querying a Host List	MRSApi.list_hosts MRSApi.delete_cluster	
	Terminating a Cluster		
	Adding an MRS Whitelist	MRSApi.mrs_add_whitelist_to_db	
	Deleting an MRS Whitelist	MRSApi.mrs_delete_whitelist_to_db	

3 Calling APIs

3.1 Making an API Request

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

Request URI

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 transmitted separately.

Table 3-1 URI parameter description

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. For details about how to obtain endpoints, see Obtaining Endpoints.
resource-path	Access path of an API for performing a specified operation. Obtain the value from the URI of the API. For example, the resource-path of the API for obtaining a user token is /v3/auth/tokens.
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included in front of each query parameter that is in the format of <i>Parameter name=Parameter value</i> . For example, ? limit=10 indicates that a maximum of 10 data records will be queried.

For example, to obtain an IAM token, obtain the endpoint of the IAM and the resource-path (/v3/auth/tokens) in the URI of the API used to obtain a user token. Then, construct the URL as follows:

https://iam-cache-proxy.</region_id>.<domain_name>:26335/v3/auth/tokens

■ 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.

For details about ManageOne APIs in Huawei Cloud Stack scenarios, see *Huawei Cloud Stack 8.3.1 API Reference*.

Request Methods

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

Table 3-2 HTTP methods

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

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

POST https://iam-cache-proxy.</region_id>.<domain_name>:26335/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 authentication information, add **Content-Type**, which specifies the request body type.

Table 3-3 lists common request header fields.

Table 3-3 Common request header fields

Parameter	Description	Mandatory	Example
X-Sdk-Date	Time when the request is sent. The time is in YYYYMMDD'T'HHM MSS'Z' format. The value is the current Greenwich Mean Time (GMT) of the system.	This field is mandatory for AK/SK- based authenticatio n.	20150907T101459Z
Host	Server information of the resource being requested. The value can be obtained from the URL of a service API. The value is hostname[:port]. If the port number is not specified, the default port is used. The default port number for HTTPS is 443.	This field is mandatory for AK/SK-based authentication.	code.test.com or code.test.com:443
Content-Type	MIME type of the request body This field is mandatory and its default value is application/json. Other values of this field will be provided for specific APIs if any.	Yes	application/json
Content- Length	Length of the request body. The unit is byte.	This field is mandatory for POST and PUT requests, but must be left blank for GET requests.	3495
X-Project-Id	Project ID. This field is used to obtain the token for each project.	No	e9993fc787d94b6c886 cbaa340f9c0f4

Parameter	Description	Mandatory	Example
X-Auth-Token	User token. A user token is a response to the API for obtaining a user token (only this API does not require authentication). The token is the value of X-Subject-Token in the response header.	No This field is mandatory for tokenbased authentication.	-
X-Language	Request language. The options are as follows: • zh-cn: Chinese • en-us: English	No	en-us
X-Domain-Id	Account ID	No	-

■ NOTE

In addition to supporting token-based authentication, APIs also support authentication using access key ID/secret access key (AK/SK). During AK/SK-based authentication, an SDK is used to sign the request, and the **Authorization** (signature authentication) and **X-Sdk-Date** (time when the request is sent) header fields are automatically added to the request.

For more information, see AK/SK-based Authentication in Authentication.

The API used to obtain a user token does not require authentication. Therefore, only the **Content-Type** field needs to be added to requests for calling the API. An example of such requests is as follows:

POST https://iam-cache-proxy..<domain_name">.26335/v3/auth/tokens Content-Type: application/json

(Optional) Request Body

This part is optional. The body of a request is often sent in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The request body transfers content except the request header. If the request body contains Chinese characters, these characters must be coded in UTF-8.

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

If an API is used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace *username*, *domainname*, *************(login password), and **xxxxxxxxxxxxxxx***(resource space ID) with the actual ones. To learn how to obtain a project ID, see **Obtaining a Project ID**.

The **scope** parameter specifies where a token takes effect. In the following example, the token takes effect only for the resources in a specified project. You can set **scope** to an account or a project under an account. In the following example, the token takes effect only for the resources in a specified project. For more information about this API, see **Obtaining a User Token** of the IAM service.

```
POST https://iam-cache-proxy.</region_id>.<domain_name>:26335/v3/auth/tokens
Content-Type: application/json
  "auth": {
     "identity": {
        "methods": [
          "password"
        'password": {
           "user": {
             "name": "username"
             "password": " *******
             "domain": {
                "name": "domainname"
          }
       }
     "scope": {
        "project": {
          "id": "xxxxxxxxxxxxxx
  }
```

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

3.2 Authentication

Requests for calling an API can be authenticated using either of the following methods:

- Token-based authentication: Requests are authenticated using a token.
- AK/SK-based authentication: Requests are authenticated by encrypting the request body using an AK/SK pair. AK/SK-based authentication is recommended because it is more secure than token-based authentication.

Token-based Authentication

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

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

When calling an API to obtain a user token, you must set **auth.scope** in the request body to **project**.

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

Content-Type: application/json X-Auth-Token: ABCDEFJ....

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.

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.

NOTICE

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

3.3 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 calling the API used to obtain a user token, the request is successful.

Response Header

A response header corresponds to a request header, for example, **Content-Type**.

Figure 3-1 shows the response header fields for the API used to obtain a user token. The **x-subject-token** header field is the desired user token. This token can then be used to authenticate the calling of other APIs.

Figure 3-1 Header fields of the response to the request for obtaining a user token

```
content-type → application/json

date → Tue, 12 Feb 2019 06:52:13 GMT

server → Web Server

strict-transport-security → max-age=31536000; includeSubdomains;

transfer-encoding → chunked

via → proxy A

x-content-type-options → nosniff

x-download-options → nospen

x-frame-options → SAMEORIGIN

x-lam-trace-id → 218d45ab-d674-4995-af3a-2d0255ba41b5

X-subject-token
```

(Optional) 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 is part of the response body for the API used to obtain a user token. For the sake of space, only part of the content is displayed here.

```
{
"token": {
```

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": "Invalid cluster name.",
    "error_code": "12000002"
}
```

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

4 Application Cases

4.1 Scaling Out a Cluster

Scenarios

After a cluster is created, add Core or Task nodes to the cluster.

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**.

Request example

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

- For details about {endpoint}, see Obtaining 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.

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**.

Response example{
 "result": "succeeded"

4.2 Scaling in a Cluster

Scenarios

This section describes how to scale in a Core or Task node in the cluster after it is created. For details about 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**.

Request example

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

- For details about {endpoint}, see Obtaining 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.

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**.

Response example

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

4.3 Creating a Job

Scenarios

This API is used to add and submit a job in an MRS cluster. For details about 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. Click a cluster name to go to the cluster details page. On the **Dashboard** page, click **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**.

Request example

"job_name":"MapReduceTest",

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

- For details about {endpoint}, see Obtaining 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.

```
Body:
```

```
"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**.

Response example

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

4.4 Terminating a Job

Scenarios

This API is used to manually terminate the job if a job is not completed after being submitted. For details about 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. Click a cluster name to go to the cluster details page. On the **Dashboard** page, click **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**.

Request example

POST: https://{endpoint}/v2/{project_id}/clusters/{cluster_id}/job-executions/ fiob execution id}/kill

- For details about {endpoint}, see Obtaining 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.

Body: None

Response example

```
t
"result": "succeeded"
```

4.5 Terminating a Cluster

Scenarios

This API is used to terminate a cluster after data processing and analysis are 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 terminated.
- **terminated**: The cluster has been terminated.
- **failed**: The cluster is failed.

For details about 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**.

Request example

DELETE: https://{endpoint}/v1.1/{project_id}/clusters/{cluster_id}

- For details about {endpoint}, see Obtaining 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.

Body: None

• Response example

```
"result": "succeeded"
```

5 api v2

5.1 Cluster Management

5.1.1 Creating Clusters

Function

This API is used to create an MRS cluster.

Before using the API, you need to obtain the resources listed in Table 5-1.

Table 5-1 Obtaining resources

Resource	How to Obtain
VPC	Check the description of the API for querying and creating a VPC in the <i>Virtual Private Cloud (VPC) Service Usage Guide</i> .
Subnet	Check the description of the API for querying and creating subnets in the <i>Virtual Private Cloud (VPC) Service Usage Guide</i> .
Key Pair	Check the sections for querying SSH key pairs and creating and importing SSH key pairs in the <i>Elastic Cloud Server (ECS) User Guide</i> .
Zone	Check Obtaining Endpoints for details about regions and AZs.
Version	Currently, MRS 3.3.1-LTS is supported.
Component	Custom cluster users can configure components based on service requirements.

URI

FormatPOST /v2/{project_id}/clusters

• Parameter description

Table 5-2 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.

Request

Table 5-3 Request parameter description

Parameter	Mandato ry	Туре	Description
cluster_version	Yes	String	Cluster version. The options are as follows: • MRS 3.3.1-LTS
cluster_name	Yes	String	Cluster name. It must be unique. A cluster name can contain 2 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
cluster_type	Yes	String	Cluster type. The options are as follows: • CUSTOM: customized cluster
charge_info	No	ChargeInf o	Charging type information. For details, see Table 5-6 .
region	Yes	String	Information about the region where the cluster is located. For details, see Obtaining Endpoints .

Parameter	Mandato ry	Туре	Description
vpc_name	Yes	String	Name of the VPC where the subnet locates.
			Perform the following operations to obtain the VPC name from the VPC management console:
			Log in to the management console.
			2. Click Virtual Private Cloud and select Virtual Private Cloud from the left list.
			On the Virtual Private Cloud page, obtain the VPC name from the list.
subnet_id	No	String	Subnet ID. Obtain the subnet ID by performing the following operations on the VPC management console:
			Log in to the VPC management console.
			Click Virtual Private Cloud and select Virtual Private Cloud from the left list.
			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. 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.

Parameter	Mandato ry	Туре	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. Click Virtual Private Cloud and select Virtual Private Cloud from the left list. 3. Locate the row containing the target VPC and click the number in the Subnets column to obtain the subnet name. 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.
components	Yes	String	List of component names, which are separated by commas (,).
availability_zone	Yes	String	Name of an AZ. For details about the AZ information, see Obtaining Endpoints.

Parameter	Mandato ry	Туре	Description
security_groups_id	No	String	 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 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.
auto_create_defau lt_security_group	No	Boolean	Whether to create the default security group for the MRS cluster. The default value is false . 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.
safe_mode	Yes	String	 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 cluster functions, the users must contact the Manager administrator to assign more permissions.

Parameter	Mandato ry	Туре	Description
manager_admin_ password	Yes	String	Password of the MRS Manager administrator.
			Must contain 8 to 32 characters.
			The password must contain at least three types of the following characters (if the value of cluster_version is FusionInsight 6.5.1, the password must contain at least four types of the following characters):
			 Lowercase letters
			 Uppercase letters
			– Digits
			- Special characters: `~!@#\$ %^&*()=+\ [{}];:'",<.>/?
			– Spaces
			Cannot be the username or the username spelled backwards.
login_mode	Yes	String	Node login mode.
			 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.
node_root_passwo rd	No	String	Password of user root for logging in to a cluster node.
			A password must meet the following requirements:
			Must be 8 to 26 characters long.
			 Must contain at least three 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.

Parameter	Mandato ry	Туре	Description
node_keypair_na me	No	String	Name of a key pair. You can use a key pair to log in to the Master node in the cluster.
enterprise_project	No	String	Enterprise project ID.
_id			When creating 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 Enterprise Management API Reference.
eip_address	No	String	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.
eip_id	No	String	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 Elastic IP and Bandwidth > EIPs, click the EIP to be bound, and view the ID in the VPC Information area.

Parameter	Mandato ry	Туре	Description
mrs_ecs_default_a gency	No	String	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.

Parameter	Mandato ry	Туре	Description
template_id	No	String	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 control 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.
tags	No	Array of Tag	Cluster tag. For more parameter description, see Table 5-4 . A maximum of 10 tags can be added to a cluster.

Parameter	Mandato ry	Туре	Description
log_collection	No	Integer	Whether to collect logs when cluster creation fails.
			• 0 : Do not collect.
			• 1: Collect.
			The default value is 1, indicating that OBS buckets will be created and only used to collect logs that record MRS cluster creation failures.
node_groups	Yes	Array of NodeGro up	Information about the node groups in the cluster. For details about the parameters, see Table 5-5 .
component_config s	No	Array of Compone ntConfig objects	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 5-15.

Table 5-4 Tag structure

Parameter	Mandato ry	Туре	Description
key	Yes	String	 Tag key. It contains a maximum of 36 Unicode characters and cannot be an empty string. The tag key cannot start or end with spaces or contain non- printable ASCII characters (0- 31) and the following special characters: =*<> /. The tag key of a resource must be unique.

Parameter	Mandato ry	Туре	Description
value	Yes	String	 Value. The value contains a maximum of 43 Unicode characters and can be an empty string. The tag value cannot start or end with spaces or contain non-printable ASCII characters (0–31) and the following special characters: =*<> /.

Table 5-5 NodeGroup structure description

Parameter	Mandato ry	Туре	Description
group_name	Yes	String	Node group name. 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 contained in the analysis cluster and hybrid cluster.
			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 required.
			task_node_streaming_group: streaming Task node group, which can be selected for streaming clusters and hybrid clusters as required.
			node_group{x}: node group of the customized cluster. You can add multiple node groups as required. A maximum of nine node groups can be added.
node_num	Yes	Integer	Number of nodes. The value ranges from 0 to 500. The maximum number of Core and Task nodes is 500.
node_size	Yes	String	Instance specifications of a node, for example, c3.4xlarge.2.linux.bigdata. MRS supports host specifications determined by CPU, memory, and disk space.

Parameter	Mandato ry	Туре	Description
root_volume	No	Volume	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 the parameter description, see Table 5-7 .
data_volume	No	Volume	Data disk information. This parameter is mandatory when data_volume_count is not 0.
data_volume_cou nt	No	Integer	Number of data disks of a node. Value range: 0 to 10
charge_info	No	ChargeInf o	Billing type of the 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 from that of the cluster.
auto_scaling_polic y	No	AutoScali ngPolicy	Auto scaling rule corresponding to the node group. For details about the parameters, see Table 5-10 .

Parameter	Mandato ry	Туре	Description
assigned_roles	No	Array of String	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 the node group, set this parameter to <role name="">, for example, DataNode.</role>
			 If the role is deployed on a specified subscript node in the node group: <role name="">:<index1>,<index2>, <indexn>, for example,</indexn></index2></index1></role> 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): <role name="">[<instance count="">], for example, EsNode[9].</instance></role>
			 For details about available roles, see Roles and components supported by MRS.

Table 5-6 ChargeInfo structure description

Parameter	Mandato ry	Туре	Description
charge_mode	Yes	String	Billing mode. The options are as follows:
			 prePaid: indicates the yearly/ monthly billing mode. This mode is not supported currently.
			• postPaid : indicates the pay-peruse billing mode.

Table 5-7 Volume field data structure description

Parameter	Mandato ry	Туре	Description
type	Yes	String	Disk type.
			The following disk types are supported:
			SATA: common I/O disk
			SAS: high I/O disk
			SSD: ultra-high I/O disk
size	Yes	Integer	Data disk size, in GB. The value ranges from 10 to 32,768.

Table 5-8 BootstrapScript structure description

Parameter	Mandato ry	Туре	Description
name	Yes	String	Name of an action script. It must be unique in a cluster.
			The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and cannot start with a space.
			The value can contain 1 to 64 characters.

Parameter	Mandato ry	Туре	Description
uri	Yes	String	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.
parameters	No	String	Bootstrap action script parameters.
nodes	Yes	Array String	Type of a node where the Bootstrap action script is executed. The value can be Master , Core , or Task .
active_master	No	Boolean	Whether the Bootstrap action script runs only on active Master nodes. The default value is false , indicating that the Bootstrap action script can run on all Master nodes.
before_componen t_start	No	Boolean	Time when the Bootstrap action script is executed. Currently, the following two options are available: Before component start and After component start. The default value is false, indicating that the Bootstrap action script is executed after the component is started.

Parameter	Mandato ry	Туре	Description
fail_action	Yes	String	Whether to continue executing subsequent scripts and creating a cluster after the Bootstrap action script fails to be executed.
			• continue : Continue to execute subsequent scripts.
			• errorout: Stop the action.
			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.

Table 5-9 Parameters in AddJobReq

Parameter	Mandato ry	Туре	Description
job_type	Yes	Integer	 Job type code. 1: MapReduce 2: Spark 3: Hive Script 4: HiveQL (not supported currently) 5: DistCp for importing and exporting data (not supported currently) 6: Spark Script 7: Spark SQL for submitting Spark SQL statements (not supported currently). NOTE Spark and Hive jobs can be added to only clusters that include Spark and Hive components.

Parameter	Mandato ry	Туре	Description
job_name	Yes	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. NOTE Identical job names are allowed but not recommended.
jar_path	No	String	Path of the JAR or SQL file for program execution. The parameter must meet the following requirements: • The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &><'\$ and cannot be left blank or full of spaces. • Files can be stored in HDFS or OBS. The path varies depending on the file system. - OBS: The path starts 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.
arguments	No	String	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. The parameter contains a maximum of 2,047 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.

Parameter	Mandato ry	Туре	Description
input	No	String	Address for inputting data. Files can be stored in HDFS or OBS. The path varies depending on the file system.
			OBS: The path starts with s3a://. Files or programs encrypted by KMS are not supported.
			HDFS: The path starts with a slash (/).
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.
output	No	String	Address for outputting data. Files can be stored in HDFS or OBS. The path varies depending on the file system. OBS: The path starts with
			s3a://.HDFS: The path starts with a slash (/).
			If the specified path does not exist, the system will automatically create it.
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.

Parameter	Mandato ry	Туре	Description
job_log	No	String	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 starts with s3a://. HDFS: The path starts with a slash (/). The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.
shutdown_cluster	No	Bool	Whether to delete the cluster after the job execution is complete. • true: yes • false: no
file_action	No	String	Data import and export. • import • export
submit_job_once_ cluster_run	Yes	Bool	 true: Submit a job during cluster creation. false: Submit a job after the cluster is created. Set this parameter to true in this example.
hql	No	String	HiveQL statement.

Parameter	Mandato ry	Туре	Description
hive_script_path	Yes	String	SQL program path. This parameter is required by Spark Script and Hive Script jobs only, and must meet the following requirements:
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &><'\$ and cannot be left blank or full of spaces.
			Files can be stored in HDFS or OBS. The path varies depending on the file system.
			 OBS: The path starts 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.

Table 5-10 AutoScalingPolicy structure

Parameter	Mandato ry	Туре	Description
auto_scaling_enab le	Yes	Boolean	Whether to enable the auto scaling rule.
min_capacity	Yes	Integer	Minimum number of nodes left in the node group. Value range: 0 to 500
max_capacity	Yes	Integer	Maximum number of nodes in the node group. Value range: 0 to 500
resources_plans	No	List	Resource plan list. For details, see Table 5-11. If this parameter is left blank, the resource plan is disabled.
			When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured.

Parameter	Mandato ry	Туре	Description
exec_scripts	No	List	List of custom scaling automation scripts. For details, see Table 5-12 . If this parameter is left blank, a hook script is disabled.
rules	No	List	List of auto scaling rules. For details, see Table 5-13 .
			When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured.

 Table 5-11 resources_plan parameter description

Parameter	Mandato ry	Туре	Description
period_type	Yes	String	Cycle type of a resource plan. Currently, only the following cycle type is supported: • daily
start_time	Yes	String	Start time of a resources plan. The value is in the format of hour:minute, indicating that the time ranges from 0:00 to 23:59.
end_time	Yes	String	End time of a resource plan. The value is in the same format as that of start_time . The interval between end_time and start_time must be greater than or equal to 30 minutes.
min_capacity	Yes	Integer	Minimum number of the preserved nodes in a node group in a resource plan. Value range: 0 to 500
max_capacity	Yes	Integer	Maximum number of the preserved nodes in a node group in a resource plan. Value range: 0 to 500

Table 5-12 exec_script parameter description

Parameter	Mandato ry	Туре	Description
name	Yes	String	Name of a custom automation script. It must be unique in a same cluster.
			The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and cannot start with a space.
			The value can contain 1 to 64 characters.
uri	Yes	String	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.

Parameter	Mandato ry	Туре	Description
parameters	No	String	Parameters of a custom automation script. • Multiple parameters are separated by space. • The following predefined system parameters can be transferred: - \${mrs_scale_node_num}: number of the nodes to be added or removed - \${mrs_scale_type}: scaling type. The value can be scale_out or scale_in. - \$ {mrs_scale_node_hostnames} }: host names of the nodes to be added or removed. - \${mrs_scale_node_ips}: IP addresses of the nodes to be added or removed. - \${mrs_scale_rule_name}: 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.
nodes	Yes	List <strin g></strin 	Type of a node where the custom automation script is executed. The node type can be Master , Core , or Task .
active_master	No	Boolean	Whether the custom automation script runs only on the active Master node. The default value is false , indicating that the custom automation script can run on all Master nodes.

Parameter	Mandato ry	Туре	Description
action_stage	Yes	String	Time when a script is executed. The following four options are supported: • before_scale_out: before scale-out • before_scale_in: before scale-in • after_scale_out: after scale-out • after_scale_in: after scale-in
fail_action	Yes	String	Whether to continue to execute subsequent scripts and create a cluster after the custom automation script fails to be executed. • continue: Continue to execute subsequent scripts. • errorout: Stop the action. 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 custom automation script is executed successfully. • The scale-in operation cannot be undone. Therefore, fail_action must be set to continue for the scripts that are executed after scale-in.

Table 5-13 rules parameter description

Parameter	Mandato ry	Туре	Description
name	Yes	String	Name of an auto scaling rule. A cluster name can contain 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. Rule names must be unique in a
			node group.

Parameter	Mandato ry	Туре	Description
description	No	String	Description about an auto scaling rule.
			It contains a maximum of 1,024 characters.
adjustment_type	Yes	String	Auto scaling rule adjustment type. The options are as follows:
			• scale_out: cluster scale-out
			scale_in: cluster scale-in
cool_down_minut es	Yes	Integer	Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.
			Value range: 0 to 10,080. One week is equal to 10,080 minutes.
scaling_adjustmen t	Yes	Integer	Number of nodes that can be adjusted once.
			Value range: 1 to 100
trigger	Yes	Trigger	Condition for triggering a rule. For details, see Table 5-14 .

Table 5-14 trigger parameter description

Parameter	Mandato ry	Туре	Description
metric_name	Yes	String	Metric name.
			This triggering condition makes a judgment according to the value of the metric.
			A metric name contains a maximum of 64 characters.
metric_value	Yes	String	Metric threshold to trigger a rule.
			The parameter value must be an integer or number with two decimal places only.

Parameter	Mandato ry	Туре	Description
comparison_opera tor	No	String	Metric judgment logic operator. The options are as follows: • LT: less than • GT: greater than • LTOE: less than or equal to • GTOE: greater than or equal to
evaluation_period s	Yes	Integer	Number of consecutive five- minute periods, during which a metric threshold is reached. Value range: 1 to 288

Table 5-15 ComponentConfig

Parameter	Mandato ry	Туре	Description
component_name	Yes	String	Component name
configs	No	Array of Config objects	The component configuration item list. For details about this parameter, see Table 5-16 .

Table 5-16 Config

Parameter	Mandato ry	Туре	Description
key	Yes	String	The configuration name. Only the configuration names displayed on the MRS component configuration page are supported.
value	Yes	String	The configuration value.
config_file_name	Yes	String	The configuration file name. Only the file names displayed on the MRS component configuration page are supported.

Response

Table 5-17 Response parameter description

Parameter	Туре	Description
cluster_id	String	Cluster ID, which is returned by the system after the cluster is created.

Examples

- Request example
 - Creating a customized cluster with co-deployed management and control nodes

```
"cluster_version": "MRS 3.3.1-LTS",
 "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-ed99",
"components": "Hadoop,Spark,HBase,Hive,Hue,Loader,Kafka,Flume,FTP-
Server, Solr, Redis, Elasticsearch, Flink, Oozie, Graph Base, Hetu Engine, Ranger, Tez",
  "safe_mode": "KERBEROS",
  "manager_admin_password": "xxx",
 "login_mode": "PASSWORD",
  "node_root_password": "xxx",
  "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": 100
     "data_volume": {
      "type": "SAS",
"size": 300
    },
"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",
           "FTP-Server:1,2,3"
           "MonitorServer:1,2",
           "Nimbus:1,2",
           "UI:1,2",
"JDBCServer:1,2,3",
           "JobHistory:2,3",
           "SparkResource:1,2,3",
           "oozie:2,3",
           "EsMaster:1,2,3",
           "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",
           "IndexServer:1,2",
           "ThriftServer:1,2,3"
           "RegionServer[1]: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",
           "SolrServer[3]:1,2,3",
           "HBaseIndexer:1,2,3",
           "Redis[3]:1,2,3",
           "EsNode[3]:1,2,3",
           "EsClient:1,2,3",
           "GraphServer: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": 100
    "data_volume": {
     "type": "SAS",
"size": 300
   },
"data_volume_count": 1,
    "assigned_roles": [
           "DataNode",
```

```
"NodeManager",
          "RegionServer[1]",
          "Flume:1",
          "Broker",
          "Supervisor",
          "Logviewer",
          "HBaseIndexer",
          "SolrServerAdmin:1,2",
          "SolrServer[3]",
          "Redis[3]"
          "EsNode[3]",
          "GraphServer:1,3",
          "KerberosClient",
          "SlapdClient",
          "meta",
          "HSBroker:1,2",
          "ThriftServer",
          "ThriftServer1",
          "RESTServer",
          "FTP-Server",
          "EsClient",
          "FlinkResource"]
 },
   "group_name": "node_group_2",
   "node_num": 1,
   "node_size": "Sit3.4xlarge.4.linux.bigdata",
   "root_volume": {
    "type": "SAS",
"size": 100
   "data_volume": {
    "type": "SAS",
    "size": 300
  },
"data_volume_count": 1,
   "assigned_roles": [
          "NodeManager",
          "KerberosClient",
          "SlapdClient",
          "meta",
          "FlinkResource"]
]
```

Creating a cluster with customized management and control planes deployed separately

```
"cluster_version": "MRS 3.3.1-LTS",
 "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-ed99",
"components": "Hadoop,Spark,HBase,Hive,Hue,Loader,Kafka,Flume,FTP-
Server, Solr, Redis, Elasticsearch, Flink, Oozie, Graph Base, Hetu Engine, Ranger, Tez",
 "safe_mode": "KERBEROS",
  "manager_admin_password": "xxx',
 "login_mode": "PASSWORD",
 "node_root_password": "xxx",
 "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": 100
 },
"data_volume": {
": "SAS",
   "type": "SAS",
"size": 300
  },
"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",
         "FTP-Server:1,2,3,4,5",
         "MonitorServer:1,2",
         "Nimbus:1,2",
         "UI:1,2",
         "JDBCServer:1,2,3,4,5",
         "JobHistory:4,5",
         "SparkResource:1,2,3,4,5",
         "oozie:1,2",
         "EsMaster:1,2,3,4,5",
         "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",
         "IndexServer:1,2",
         "ThriftServer:1,2,3,4,5",
         "RegionServer[1]: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",
          "SolrServer[3]: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": 100
   "data_volume": {
     "type": "SAS",
     "size": 300
  },
"data_volume_count": 1,
   "assigned_roles": [
           "DataNode",
           "NodeManager"
           "RegionServer[1]",
          "Flume:1",
           "Broker",
           "Supervisor",
           "Logviewer",
           "HBaseIndexer",
           "KerberosClient",
           "SlapdClient",
          "meta",
           "HSBroker:1,2",
          "ThriftServer",
           "ThriftServer1",
           "RESTServer",
          "FlinkResource"]
 }
]
```

Creating a user-defined data cluster

```
"cluster_version": "MRS 3.3.1-LTS",
"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-ed99",
"components": "Hadoop,Spark,HBase,Hive,Hue,Loader,Kafka,Flume,Flink,Oozie,Ranger,Tez",
"safe_mode": "KERBEROS",
"manager_admin_password": "xxx",
"login_mode": "PASSWORD",
"node_root_password": "xxx",
"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": 100
  },
"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",
          "JDBCServer:8,9",
          "JobHistory:8,9",
          "SparkResource: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": 100
   "data_volume": {
    "type": "SAS",
    "size": 600
  },
"data_volume_count": 1,
```

```
"assigned_roles": [
             "DataNode",
             "NodeManager",
             "RegionServer[1]",
             "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": 100
    },
"data_volume": {
      "type": "SAS",
"size": 600
    },
"data_volume_count": 1,
"assigned_roles": [
"""BackIndever"
             "HBaseIndexer",
             "SolrServer[3]",
             "EsNode[2]",
             "KerberosClient",
             "SlapdClient",
             "meta",
             "SolrServerAdmin:1,2"]
  },
{
    "group_name": "node_group_3",
    "do num": 3,
     "node_num": 3,
"node_size": "rc3.4xlarge.4.linux.bigdata",
     "root_volume": {
    "type": "SAS",
    "size": 100
     "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": 100
     },
"data_volume": {
      "type": "SAS",
"size": 600
    },
"data_volume_count": 1,
             "Broker",
             "Supervisor",
```

```
"Logviewer",
"KerberosClient",
"SlapdClient",
"meta"]
}
```

• Response example

```
Example of a normal response
{
    "cluster_id": "da1592c2-bb7e-468d-9ac9-83246e95447a"
}
```

```
- Failed sample response
{
    "error_code": "MRS.0002",
    "error_msg": "The parameter is invalid."
}
```

Status Code

Table 5-18 describes the status code.

Table 5-18 Status Code

Status Code	Description	
200	A cluster is created successfully.	

For details about error status codes, see **Status Codes**.

5.1.2 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 5-19 URI parameters

Parameter	Mandatory	Туре	Description
project_id	Yes	String	Project ID. The value can contain a maximum of 64 characters.
cluster_id	Yes	String	Cluster ID. The value can contain a maximum of 64 characters.

Request

Table 5-20 Request body parameters

Parameter	Mandatory	Туре	Description
node_group_n ame	Yes	String	Node group name Minimum length: 1 Maximum length: 64
count	Yes	Integer	Number of nodes to add
scale_without _start	No	Boolean	Whether the components remain stopped on new nodes after cluster scale-out. The default value is false , indicating that the components will be started. • true : Do not start components after scale-out.
			false: Start components after scale-out.

Response

Status code: 200

Table 5-21 Response body parameter

Parameter	Туре	Description
result	String	Result of the request. Value succeeded indicates that the operation is successful, and value failed indicates that the operation fails.
order_id	String	Order ID

Example Request

• Add one node to node_group_1. The component is started by default. /v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/expand { "node_group_name": "node_group_1", "count": "1"

• Add one node to **node_group_1** without starting the component. /v2/ff8080828997cb24018a1b2db3440b80/clusters/f7f45c04-4303-411c-9b71-d2cb730dd162/expand

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

Example Response

Status code: 200

The scale-out is successful.

```
{
    "order_id" : "XXXXXXXXXXXXXX"
}
```

Status Codes

Table 5-22 describes the status codes.

Table 5-22 Status code

Status Code	Description	
200	The cluster scale-out is successful.	

For details about error status codes, see **Status Codes**.

5.1.3 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 5-23 URI parameters

Parameter	Mandatory	Туре	Description
project_id	Yes	String	Project ID. The value can contain a maximum of 64 characters.
cluster_id	Yes	String	Cluster ID. The value can contain a maximum of 64 characters.

Request

Table 5-24 Request body parameters

Parameter	Mandatory	Туре	Description
node_group_n ame	Yes	String	Node group name. • Minimum length: 1 • Maximum length: 64
count	No	Integer	Number of nodes to be removed. If you want to remove a specified node, leave this parameter blank.
resource_ids	No	Array of strings	Resource IDs of nodes to be removed. If this parameter is left blank, nodes are automatically removed based on system rules. Only abnormal ECS nodes can be removed. Specified nodes are forcibly removed. You can obtain the value of resource_id by calling the host querying API.

Response

Status code: 200

Table 5-25 Response body parameter

Parameter	Туре	Description
result	String	Operation result. Value succeeded indicates that the operation is successful, and value failed indicates that the operation fails.

Example Request

 Forcibly remove node 678050cd-ba1d-4550-942d-f2e396b1c6fb from 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.

```
{
    "order_id" : "XXXXXXXXXXXXXX"
}
```

Status Codes

Table 5-26 describes the status codes.

Table 5-26 Status code

Status Code	Description
200	The cluster scale-in is successful.

For details about error status codes, see **Status Codes**.

5.2 Job Objects

5.2.1 Adding and Executing a Job

Function

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

Ⅲ NOTE

Before submitting a job through this API, complete IAM user synchronization first. Click a cluster name to go to the cluster details page. On the **Dashboard** page, click **Synchronize** on the right side of **IAM User Sync** to synchronize IAM users.

URI

- Format
 POST /v2/{project_id}/clusters/{cluster_id}/job-executions
- Parameter description

Table 5-27 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID .

Request

Table 5-28 Request parameter description

Parameter	Mandato ry	Туре	Description
job_type	Yes	String	Job types. MapReduce SparkSubmit HiveScript HiveSql DistCp, importing and exporting data SparkScript SparkSql Flink NOTE Spark, Hive, and Flink jobs can be added to only clusters that include Spark, Hive, and Flink components.

Parameter	Mandato ry	Туре	Description
job_service	No	String	This parameter is used to run jobs of a specified service when multiple services exist. The restrictions are as follows:
			Services in managed multi- service clusters can be specified, whereas those in ECS/BMS clusters cannot.
			Hive and Spark can be specified.
			3. Task submission APIs can be used to specify services. If no service is specified, the jobs of the first service are run by default.
job_name	Yes	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
			NOTE Identical job names are allowed but not recommended.

Parameter	Mandato ry	Туре	Description
arguments No	No	Array	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.
			The value can contain a maximum of 150,000 characters. Special characters (; &>'<\$!\\) are not allowed. This parameter can be left blank.
			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 3.0.2-LTS 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 Manager. 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 Obtaining Endpoints.
properties	No	Object	Program system parameter. The parameter contains a maximum of 2,048 characters, excluding special characters such as >< '`&! and can be left blank. NOTE If jobs need to obtain files from OBS, the properties parameter is mandatory. In this case, this parameter must contain the endpoint information (fs.obs.endpoint) and AK/SK authentication information (fs.obs.access.key and fs.obs.secret.key), as shown in the

Response

Table 5-29 Response parameter description

Parameter	Туре	Description
job_submit_result	Object	Job execution result.
job_id	String	Job ID.
state	String	Job submission status. • COMPLETE: The job is submitted. • FAILED: Failed to submit the job.
error_msg	String	Error message.
error_code	String	Error codes.

Example

Request example

The following is an example of a MapReduce job request:

```
{
    "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"
}
```

The following is an example of a SparkSubmit job request:

```
{
  "job_name":"SparkSubmitTest",
  "job_type":"SparkSubmit",
  "job_service":"Spark-1",
  "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=executoraaa",
    "--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"
}
```

The following is an example of a HiveScript job request:

```
{
    "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"
}
```

The following is an example of a HiveSQL job request:

```
{
    "job_name":"HiveSqlTest",
    "job_type":"HiveSql",
    "job_service":"Hive-1",
    "arguments":[
        "DROP TABLE IF EXISTS src_wordcount;create external table src_wordcount(line string);insert
into src_wordcount values('v1')"
    ],
    "properties":{
        "fs.obs.endpoint":"obs endpoint",
        "fs.obs.access.key":"xxx",
        "fs.obs.secret.key":"yyy"
    }
}
```

The following is an example of a DistCp job request:

```
{
    "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"
}
```

The following is an example of a SparkScript job request:

```
{
    "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"
}
```

The following is an example of a SparkSQL job request:

```
{
  "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"
}
```

The following is an example of a Flink job request:

```
{
  "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"
}
```

Response example

- Example of a successful response

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

- Example of a failed response

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

Status Code

For details about status codes, see **Status Codes**.

5.2.2 Querying Information About a Job

Function

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

URI

- Format GET /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}
- Parameter description

Table 5-30 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID .
job_execution_id	Yes	Job ID. For details about how to obtain the job ID, see Obtaining a Job ID .

Request

Request parameters

None.

Response

Table 5-31 Response parameter description

Parameter	Туре	Description
job_detail	Object	Job details. For details about the parameter, see Table 5-32 .

Table 5-32 Job parameter description

Parameter	Туре	Description
job_id	String	Job ID.
user	String	Name of the user who submits a job.
job_name	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Parameter	Туре	Description
job_result	String	 Final result of a job. FAILED: indicates that the job fails to be executed. KILLED: indicates that the job is manually terminated during execution. UNDEFINED: indicates that the job is being executed. SUCCEEDED: indicates that the job has been successfully executed.
job_service	String	Service that executes the job
job_state	String	 Execution status of a job. FAILED: failed KILLED: indicates that the job is terminated. New: indicates that the job is created. NEW_SAVING: indicates that the job has been created and is being saved. SUBMITTED: indicates that the job is submitted. ACCEPTED: indicates that the job is accepted. RUNNING: indicates that the job is running. FINISHED: indicates that the job is completed.
job_progress	Float	Job execution progress.
job_type	String	Type of a job. MapReduce SparkSubmit HiveScript HiveSql DistCp, importing and exporting data SparkScript SparkSql Flink
started_time	Long	Start time to run a job. Unit: ms.

Parameter	Туре	Description
submitted_time	Long	Time when a job is submitted. Unit: ms.
finished_time	Long	End time to run a job. Unit: ms.
elapsed_time	Long	Running duration of a job. Unit: ms.
arguments	Array	Running parameter. The parameter contains a maximum of 4,096 characters, excluding special characters such as ; &>'<\$, and can be left blank.
properties	Object	Configuration parameter, which is used to configure -d parameters. The parameter contains a maximum of 2,048 characters, excluding special characters such as >< '`&! and can be left blank.
launcher_id	String	Launcher job ID.
app_id	String	Actual job ID.
tracking_url	String	URL of the specified application.

Example

- Request example None.
- Response example

Example of a successful response

```
{
    "job_detail": {
        "job_id": "431b135e-c090-489f-b1db-0abe3822b855",
        "user": "xxxx",
        "job_name": "pyspark1",
        "job_result": "SUCCEEDED",
        "job_state": "FINISHED",
        "job_progress": 100,
        "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, obs://obs-test/jobs/spark/spark-examples_2.11-2.1.0.jar, 10000]",
        "launcher_id": "application_1564622673393_0006",
        "app_id": "application_1564622673393_0007",
        "tracking_url": "https://IP address.9022/component/Yarn/ResourceManager/36/cluster/app/application_1594363749020_0007",
        "properties": "{}"
}
```

- Example of a failed response

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

Status Code

For details about status codes, see **Status Codes**.

5.2.3 Querying a List of Jobs

Function

This API is used to query the job list in an MRS cluster.

URI

- FormatGET /v2/{project_id}/clusters/{cluster_id}/job-executions
- Parameter description

Table 5-33 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Table 7-16 .

Table 5-34 Request parameter description

Parameter	Mandato ry	Туре	Description
job_name	No	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Parameter	Mandato ry	Туре	Description
job_type	No	String	Type of a job. MapReduce SparkSubmit HiveScript HiveSql DistCp, importing and exporting data SparkScript SparkSql Flink
job_state	No	String	 Execution status of a job. FAILED: indicates that the job fails to be executed. KILLED: indicates that the job is terminated. New: indicates that the job is created. NEW_SAVING: indicates that the job has been created and is being saved. SUBMITTED: indicates that the job is submitted. ACCEPTED: indicates that the job is accepted. RUNNING: indicates that the job is running. FINISHED: indicates that the job is completed.
job_result	No	String	 Execution result of a job. FAILED: indicates that the job fails to be executed. KILLED: indicates that the job is manually terminated during execution. UNDEFINED: indicates that the job is being executed. SUCCEEDED: indicates that the job has been successfully executed.

Parameter	Mandato ry	Туре	Description
limit	No	Integer	Number of records displayed on each page in the returned result. The default value is 10 .
offset	No	Integer	Offset.
			The default offset from which the job list starts to be queried is 1 .
sort_by	No	String	Ranking mode of returned results. The default value is desc .
			asc: indicates that the returned results are ranked in ascending order.
			desc: indicates that the returned results are ranked in descending order.
submitted_time_b egin	No	TimeStam p	UTC timestamp after which a job is submitted, in milliseconds. For example, 1562032041362.
submitted_time_e nd	No	TimeStam p	UTC timestamp before which a job is submitted, in milliseconds. For example, 1562032041362.

Response

Table 5-35 Response parameter description

Parameter	Туре	Description
total_record	Integer	Total number of jobs.
job_list	Array	Job list. For details about the parameter, see Table 5-36 .

Table 5-36 Job parameter description

Parameter	Туре	Description
job_id	String	Job ID.
user	String	Name of the user who submits a job.
job_name	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Parameter	Туре	Description
job_result	String	 Final result of a job. FAILED: indicates that the job fails to be executed. KILLED: indicates that the job is manually terminated during execution. UNDEFINED: indicates that the job is being executed. SUCCEEDED: indicates that the job has been successfully executed.
job_service	String	Service that executes the job
job_state	String	 Execution status of a job. FAILED: indicates that the job fails to be executed. KILLED: indicates that the job is terminated. New: indicates that the job is created. NEW_SAVING: indicates that the job has been created and is being saved. SUBMITTED: indicates that the job is submitted. ACCEPTED: indicates that the job is accepted. RUNNING: indicates that the job is running. FINISHED: indicates that the job is completed.
job_progress	Float	Job execution progress.
job_type	String	Type of a job. MapReduce SparkSubmit HiveScript HiveSql DistCp, importing and exporting data SparkScript SparkSql Flink
started_time	Long	Start time to run a job. Unit: ms.

Parameter	Туре	Description
submitted_time	Long	Time when a job is submitted. Unit: ms.
finished_time	Long	End time to run a job. Unit: ms.
elapsed_time	Long	Running duration of a job. Unit: ms.
arguments	Array	Run parameters. The parameter contains a maximum of 4,096 characters, excluding special characters such as ; &>'<\$, and can be left blank.
properties	Object	Configuration parameter, which is used to configure -d parameters. The parameter contains a maximum of 2,048 characters, excluding special characters such as >< '`&! and can be left blank.
launcher_id	String	Launcher job ID.
app_id	String	Actual job ID.
job_id	String	Job ID. It can contain 1 to 36 characters, including letters, digits, and hyphens (-).
user	String	User name. It can contain 1 to 32 characters, including letters, digits, and hyphens (-), but cannot start with a digit.
queue	String	Resource queue type of the job. It can contain 1 to 50 characters, including letters, digits, and hyphens (-).

Example

- Request example None.
- Response example None.

Status Code

For details about status codes, see **Status Codes**.

5.2.4 Terminating a Job

Function

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

URI

- FormatPOST /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/kill
- Parameter description

Table 5-37 URI parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID .
job_execution_id	Yes	Job ID. For details about how to obtain the job ID, see Obtaining a Job ID .

Request

Request parameters

None

Response

Response parameters

None

Example

- Request example
 - None
- Response example
 - Example of a successful response
 None
 - Example of a failed response

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

Status Code

Table 5-38 describes status codes.

Table 5-38 Status code

Status Code	Description
202	The job termination request has been accepted. Please wait.

For details about error status codes, see **Status Codes**.

5.2.5 Deleting Jobs in Batches

Function

This API is used to delete jobs in batches.

URI

- Format
 POST /v2/{project_id}/clusters/{cluster_id}/job-executions/batch-delete
- Parameter description

Table 5-39 URI parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID.

Table 5-40 Request parameter description

Parameter	Mandato ry	Туре	Description
job_id_list	Yes	Array	List of job IDs. For details about how to obtain the list of job IDs, see Obtaining a Job ID.

Response

Response parameters

None

Example

Request example

```
{
    "job_id_list": ["c23c1f53-5c8e-4eb8-ab2f-a6acff8ac369", "8f7969b6-d2fb-4442-9533-3fe7d7bdf31b"]
```

- Response example
 - Example of a successful response

None

Example of a failed response

```
{
"error_msg": "Failed to delete jobs in batches.",
"error_code":"0161"
```

Status Code

For details about status codes, see **Status Codes**.

5.2.6 Obtain the SQL Result

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.

URI

- Format
 GET /v2/{project_id}/clusters/{cluster_id}/job-executions/{job_execution_id}/sql-result
- Parameter description

Table 5-41 URI parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID.
job_execution_id	Yes	Job ID. For details about how to obtain the job ID, see Obtaining a Job ID .

Request

Request parameters

None

Response

Table 5-42 Response parameter description

Parameter	Туре	Description
sql-results	Object	SQL statement query result.

Example

Request example

• Response example

```
- Example of a successful response
```

- Example of a failed response

```
"error_msg": "Failed to collect SQL job results."
```

"error_code":"0172" }

Status Code

For details about status codes, see Status Codes.

5.3 Cluster HDFS File

5.3.1 Obtaining Files from a Specified Directory

Function

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

URI

- Format
 GET /v2/{project_id}/clusters/{cluster_id}/files?
 path={directory}&offset={offset}&limit={limit}&sort_key={sort_key}&order={or der}
- URI parameter description

Table 5-43 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID. For details about how to obtain the cluster ID, see Obtaining a Cluster ID.

Parameter	Mandatory	Description
path	Yes	File directory. For example, to access the /tmp/test directory list, the directory must be a directory. The overall URI is as follows:
		/v2/{project_id}/clusters/{cluster_id}/ files?path=%2Ftmp%2Ftest
		A single-level directory must comply with the following rules:
		The directory path cannot be left blank.
		The value cannot start or end with a period (.).
		3. The value cannot contain the following characters: /:*?"<> \;&,'`!{} []\$%+
		4. The value cannot exceed 255 characters.
offset	No	Pagination parameter. The file list is queried from the offset. The default value is 0 .
limit	No	Pagination parameter, indicating the maximum number of records on a page. The default value is 100 and the maximum value is 1000 .
sort_key	No	The list is sorted by this attribute. The following attributes are supported:
		path_suffix: file or directory namelength: file size
		modification_time: modification time
		The default value is path_suffix , indicating that files or directories are sorted by file or directory name.
order	No	List sorting mode:
		desc: Files are displayed in the descending order.
		asc: Files are displayed in ascending order.
		The default value is desc .

Request

Request parameters

None.

Response

Table 5-44 Response parameter description

Parameter	Туре	Type Description	
total_count	Integer	Total number of files, which is irrelevant to pagination.	
files	Array of FileStatus	File list. For details, see Table 5-45 .	

Table 5-45 FileStatus description

Parameter	Туре	Description
path_suffix	String	File name extension in the current directory. For example, if you obtain the /tmp/test file in the /tmp directory, the value of path_suffix is test.
owner	String	File owner.
group	String	File owner group.
permission	String	Permission information.
replication	Integer	Number of replicas.
block_size	Integer	Block size.
length	Integer	File length.
type	String	The following file types are supported: • FILE: file • DIRECTORY: directory
children_num	Integer	Number of files in the directory.
access_time	Long	File access time.
modification_time	Long	File modification time

Example

• Request example

None.

- Response example
 - Example of a successful response {
 "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 Code

For details about status codes, see **Status Codes**.

5.4 Agency Management

5.4.1 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.

URI

- FormatGET /v2/{project_id}/clusters/{cluster_id}/agency-mapping
- Parameter description

Table 5-46 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Response

Table 5-47 Response parameter description

Parameter	Туре	Description
agency_mappings	Array	For details about the mapping between users or user groups and agencies, see Table 5-48.

Table 5-48 agency_mappings parameter description

Parameter	Type Description	
agency	String	Specifies the name of the IAM agency bound to the mapping.
identifier_type	String	Agency type, which can be User or Group .
		User: indicates that the mapping is for users. The user name list is displayed in identifiers.
		• Group : indicates that the mapping is for user groups. The user group name list is displayed in identifiers .
identifiers	Array of String	List of users or user groups mapped to the IAM agency.
agency_id	String	Unique ID of the agency bound to the mapping.

Example

Request example

None.

Response example

```
"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 Code

Table 5-49 describes the status code.

Table 5-49 Status Code

Status Code	Description
200	The operations are successful.

5.4.2 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.

URI

FormatPUT /v2/{project_id}/clusters/{cluster_id}/agency-mapping

Parameter description

Table 5-50 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Table 5-51 Request parameters

Parameter	Mandato ry	Туре	Description
agency_mappings	Yes	Array	For details about the mapping between users or user groups and agencies, see Table 5-52 .

Table 5-52 agency_mappings parameter description

Parameter	Mandato ry	Туре	Description
agency	Yes	String	Specifies the name of the IAM agency bound to the mapping.
identifier_type	Yes	String	Agency type, which can be User or Group . • User : indicates that the mapping is for users. The user name list is displayed in identifiers . • Group : indicates that the mapping is for user groups. The user group name list is displayed in identifiers .
identifiers	Yes	Array of String	List of users or user groups mapped to the IAM agency.

Parameter	Mandato ry	Туре	Description
agency_id	Yes	String	Unique identifier of the agency bound to the mapping. For details about how to obtain the agency_id of the agency to be updated, see Querying the Mapping Between a User (Group) and an IAM Agency.

Response

Table 5-53 Response parameter description

Parameter	Туре	Description
result	String	Operation result.
		 succeeded: The operation is successful.
		• failed: The operation failed.

Example

- Request example None.
- Response example None.

Status Code

Table 5-54 describes the status code.

Table 5-54 Status Code

Status Code	Description
200	The operations are successful.

5.5 IAM Synchronization

5.5.1 Obtaining Synchronized IAM Users and User Groups

Function

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

URI

GET /v2/{project_id}/clusters/{cluster_id}/iam-sync-user

Table 5-55 URI parameters

Parameter	Mandatory	Туре	Description
project_id	Yes	String	Project ID
cluster_id	Yes	String	Cluster ID

Request

None

Response

Status code: 200

Table 5-56 Response body parameters

Parameter	Туре	Description
user_names	Array of strings	Synchronized users
group_names	Array of strings	Synchronized user groups

Example Request

None

Example Response

Status code: 200

Synchronized users and user groups

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

Status Codes

Table 5-57 describes the status codes.

Table 5-57 Status code

Status Code	Description
200	Synchronized users and user groups are obtained.

For details about error status codes, see **Status Codes**.

5.5.2 Synchronizing IAM Users and User Groups

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.

URI

POST /v2/{project_id}/clusters/{cluster_id}/iam-sync-user

Table 5-58 URI parameters

Parameter	Mandatory	Туре	Description
project_id	Yes	String	Project ID
cluster_id	Yes	String	Cluster ID

Table 5-59 Request body parameters

Parameter	Mandatory	Туре	Description
is_all_sync	No	Boolean	Full synchronization. Value true indicates full synchronization, and false indicates synchronization of specified users and user groups. The default value is false .
group_names	No	Array of strings	IAM user groups to be synchronized

Parameter	Mandatory	Туре	Description
user_names	No	Array of strings	IAM users to be synchronized

Response

Status code: 202

Table 5-60 Response body parameters

Parameter	Туре	Description
state	String	Request result

Example Request

Synchronize group1 and user1 to the Manager. The IAM user group associated with user1 will be 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

Request result

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

Status Codes

Table 5-61 describes the status codes.

Table 5-61 Status code

Status Code	Description
202	Users and user groups are synchronized.

For details about error status codes, see **Status Codes**.

5.5.3 Cancelling Synchronization of Specified Users and User Groups

Function

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

URI

DELETE /v2/{project_id}/clusters/{cluster_id}/iam-sync-user

Table 5-62 URI parameters

Parameter	Mandatory	Туре	Description
project_id	Yes	String	Project ID
cluster_id	Yes	String	Cluster ID

Request

Table 5-63 Request body parameters

Parameter	Mandatory	Туре	Description
group_names	No	Array of strings	IAM user group whose synchronization is to be canceled
user_names	No	Array of strings	IAM users whose synchronization is to be canceled

Response

Status code: 202

Table 5-64 Response body parameters

Parameter	Туре	Description	
state	String	Request accepted for processing	

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

Table 5-65 describes the status codes.

Table 5-65 Status code

Status Code	Description
202	Synchronization cancelled.

For details about error status codes, see **Status Codes**.

6 API V1

6.1 Cluster Management

6.1.1 Creating a Cluster and Running 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.

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 6-1.

Table 6-1 Obtaining resources

Resource	How to Obtain
VPC	Check the description of the API for querying and creating a VPC in the <i>Virtual Private Cloud (VPC) Service Usage Guide</i> .
Subnet	Check the description of the API for querying and creating subnets in the <i>Virtual Private Cloud (VPC) Service Usage Guide</i> .
Key Pair	Check the sections for querying SSH key pairs and creating and importing SSH key pairs in the <i>Elastic Cloud Server (ECS) User Guide</i> .
Zone	See Obtaining Endpoints for details about regions and AZs.
Version	Currently, MRS 3.3.1-LTS is supported.

Resource	How to Obtain			
Component	Components supported by MRS of the current version:			
	The batch processing cluster includes components such as Spark, Hive, Ranger, Tez, and Hadoop.			
	• The interactive query cluster contains components such as HetuEngine, Hive, Hadoop, Ranger, Spark and Tez.			
	The stream computing cluster consists of components such as Kafka, Flink, Redis, Flume, Hadoop and Ranger.			
	The real-time query cluster contains components such as HBase, Elasticsearch, Hadoop, and Ranger.			
	Custom cluster users can configure components based on service requirements.			

URI

- FormatPOST /v1.1/{project_id}/run-job-flow
- Parameter description

Table 6-2 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .

Table 6-3 Request parameter description

Parameter	Mandato ry	Туре	Description
billing_type	Yes	Integer	Cluster billing mode. • 11: Yearly/Monthly • 12: Pay-per-use
data_center	Yes	String	Information about the region where the cluster is located. For details, see Obtaining Endpoints .
available_zone_id	Yes	String	AZ ID.

Parameter	Mandato ry	Туре	Description
cluster_name	Yes	String	Cluster name. It must be unique. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
vpc	Yes	String	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. Click Virtual Private Cloud and select Virtual Private Cloud from the left list. On the Virtual Private Cloud page, obtain the VPC name from the list.
vpc_id	Yes	String	ID of the VPC where the subnet locates. Perform the following operations to obtain the VPC ID from the VPC management console: 1. Log in to the management console. 2. Click Virtual Private Cloud and select Virtual Private Cloud from the left list. On the Virtual Private Cloud page, obtain the VPC ID from the list.
subnet_id	Yes	String	Network ID. Perform the following operations to obtain the network ID of the VPC from the VPC management console: 1. Log in to the management console. 2. Click Virtual Private Cloud and select Virtual Private Cloud from the left list. On the Virtual Private Cloud page, obtain the network ID of the VPC from the list.

Parameter	Mandato ry	Туре	Description
subnet_name	Yes	String	Subnet name.
			Perform the following operations to obtain the subnet name from the VPC management console:
			Log in to the management console.
			2. Click Virtual Private Cloud and select Virtual Private Cloud from the left list.
			On the Virtual Private Cloud page, obtain the subnet name of the VPC from the list.
security_groups_id	No	String	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 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.
enterprise_project	No	String	Enterprise project ID.
_id			When creating 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 Enterprise Management API Reference.

Parameter	Mandato ry	Туре	Description
tags	No	Array	 Cluster tag. A cluster allows a maximum of 10 tags. A tag name (key) must be unique in a cluster. A tag key or value cannot contain the following special characters: =*<> /
cluster_version	Yes	String	Cluster version. The options are as follows: • MRS 3.3.1-LTS
safe_mode	Yes	Integer	 Running mode of an MRS cluster. 0: normal cluster. In a normal cluster, Kerberos authentication is disabled, and users can use all functions provided by the cluster. 1: 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 these functions, the users must obtain the relevant permissions from the MRS Manager administrator.
cluster_admin_sec ret	Yes	String	Password of the MRS Manager administrator. • Must contain 8 to 32 characters. • Must contain at least three of the following: - Lowercase letters - Uppercase letters - Digits - Special characters: `~!@#\$ %^&*()=+\ [{}];:''',<.>/? and space • Cannot be the username or the username spelled backwards.

Parameter	Mandato ry	Туре	Description
login_mode	Yes	Integer	Cluster login mode.
			• 0 : password
			• 1: key pair
			The default value is 1.
			 If login_mode is set to 0, the request body contains the cluster_master_secret field.
			If login_mode is set to 1, the request body contains the node_public_cert_name field.
cluster_master_se cret	No	String	Password of user root for logging in to a cluster node.
			If login_mode is set to 0, the request body contains the cluster_master_secret field.
			A password must meet the following requirements:
			Must be 8 to 26 characters long.
			 Must contain at least three 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.
node_public_cert_ name	No	String	Name of a key pair. You can use a key pair to log in to the Master node in the cluster.
			If login_mode is set to 1 , the request body contains
			the node_public_cert_name field.
log_collection	No	Integer	Whether to collect logs when cluster creation fails.
			• 0 : Do not collect.
			• 1: Collect.
			The default value is 1, indicating that OBS buckets will be created and only used to collect logs that record MRS cluster creation failures.

Parameter	Mandato ry	Туре	Description
node_groups	No	Array	List of nodes. For more parameter description, see Table 6-4 . NOTE You can select either this parameter or the parameter listed in Table 6-5 .
component_list	Yes	Array	List of service components to be installed. For more parameter description, see Table 6-7 .
add_jobs	No	Array	Jobs can be submitted when a cluster is created. Currently, only one job can be created. For details about job parameters, see Table 6-8.
bootstrap_scripts	No	Array	Bootstrap action script information. For more parameter description, see Table 6-14.

Table 6-4 node_groups parameter description

Parameter	Mandato ry	Туре	Description
group_name	Yes	String	Node group name. • master_node_default_group • core_node_analysis_group • core_node_streaming_group • task_node_analysis_group • task_node_streaming_group
node_num	Yes	Integer	Number of nodes. The value ranges from 0 to 500 and the default value is 0 . The total number of Core and Task nodes cannot exceed 500.
node_size	Yes	String	Instance specifications of a node. For details about the configuration method, see the remarks of master_node_size.
root_volume_size	Yes	String	Data disk storage space of a node.

Parameter	Mandato ry	Туре	Description
root_volume_type	Yes	String	System disk storage type of a node. Currently, SATA, SAS, and SSD are supported. • SATA: common I/O • SAS: high I/O • SSD: ultra-high I/O
data_volume_type	Yes	String	Data disk storage type of a node. Currently, SATA, SAS, and SSD are supported. • SATA: common I/O • SAS: high I/O • SSD: ultra-high I/O
data_volume_cou nt	Yes	Integer	Number of data disks of a node. Value range: 0 to 10
data_volume_size	Yes	Integer	Data disk storage space of a node. Value range: 100 GB to 32,000 GB
auto_scaling_polic y	No	AutoScali ngPolicy	Auto scaling rule information. This parameter is valid only when group_name is set to task_node_analysis_group or task_node_streaming_group . For details, see Table 6-5 .

Table 6-5 Node configuration parameters

Parameter	Mandato ry	Туре	Description
master_node_num	Yes	Integer	Number of Master nodes. If cluster HA is enabled, set this parameter to 2 . If cluster HA is disabled, set this parameter to 1 .
master_node_size	Yes	String	Instance specifications of the Master node, for example, c3.4xlarge.2.linux.bigdata. MRS supports host specifications determined by CPU, memory, and disk space.

Parameter	Mandato ry	Туре	Description
core_node_num	Yes	Integer	Number of Core nodes. Value range: 1 to 500 The default maximum number of Core nodes is 500 . If more than 500 Core nodes are required, contact technical support to increase the quota.
core_node_size	Yes	String	Instance specifications of the Core node, for example, c3.4xlarge.2.linux.bigdata.
master_data_volu me_type	No	String	This parameter is a multi-disk parameter, indicating the data disk storage type of the Master node. Currently, SATA, SAS, and SSD are supported.
master_data_volu me_size	No	Integer	This parameter is a multi-disk parameter, indicating the 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. Value range: 100 GB to 32,000 GB
master_data_volu me_count	No	Integer	This parameter is a multi-disk parameter, indicating the number of data disks of the Master node. The value can be set to 1 only.
core_data_volume _type	No	String	This parameter is a multi-disk parameter, indicating the data disk storage type of the Core node. Currently, SATA, SAS, and SSD are supported.
core_data_volume _size	No	Integer	This parameter is a multi-disk parameter, indicating the 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. Value range: 100 GB to 32,000 GB
core_data_volume _count	No	Integer	This parameter is a multi-disk parameter, indicating the number of data disks of the Core node. Value range: 1 to 10

Parameter	Mandato ry	Туре	Description
volume_type	No	String	Data disk storage type of the Master and Core nodes. Currently, SATA, SAS, and SSD are supported. Disk parameters can be represented by volume_type and volume_size, or multi-disk parameters. If the volume_type and volume_size parameters coexist with the multi-disk parameters, the system reads the volume_type and volume_size parameters first. You are advised to use the multi-disk parameters. SATA: common I/O SAS: high I/O SSD: ultra-high I/O
volume_size	No	Integer	Data disk storage space of the Master and Core nodes. To increase data storage capacity, you can add disks at the same time when creating a cluster. Select a proper disk storage space based on the following application scenarios: • 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. • 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. Value range: 100 GB to 32,000 GB This parameter is not recommended. For details, see the description of the volume_type parameter.

Parameter	Mandato ry	Туре	Description
task_node_groups	No	Array	List of Task nodes. For more parameter description, see Table 6-6.

Table 6-6 task_node_groups parameter description

Parameter	Mandato ry	Туре	Description
node_num	Yes	Integer	Number of Task nodes. The value ranges from 0 to 500 and the total number of Core and Task nodes cannot exceed 500.
node_size	Yes	String	Instance specifications of the Task node, for example, c3.4xlarge.2.linux.bigdata.
data_volume_type	Yes	String	Data disk storage type of the Task node. Currently, SATA, SAS, and SSD are supported. • SATA: common I/O • SAS: high I/O • SSD: ultra-high I/O
data_volume_cou nt	Yes	Integer	Number of data disks of a Task node. Value range: 0 to 10
data_volume_size	Yes	Integer	Data disk storage space of a Task node. Value range: 100 GB to 32,000 GB
auto_scaling_polic y	No	AutoScali ngPolicy	Auto scaling policy. For details, see Table 6-9.

Table 6-7 component_list parameter description

Parameter	Mandato ry	Туре	Description
component_name	Yes	String	Component name

Table 6-8 add_jobs parameter description

Parameter	Mandato ry	Туре	Description
job_type	Yes	Integer	 Job type code. 1: MapReduce 2: Spark 3: Hive Script 4: HiveQL (not supported currently) 5: DistCp for importing and exporting data (not supported currently) 6: Spark Script 7: Spark SQL for submitting Spark SQL statements (not supported currently). NOTE Spark and Hive jobs can be added to only clusters that include Spark and Hive components.
job_name	Yes	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. NOTE Identical job names are allowed but not recommended.

Parameter	Mandato ry	Туре	Description
jar_path	No	String	Path of the JAR or SQL file for program execution. The parameter must meet the following requirements:
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &><'\$ and cannot be left blank or full of spaces.
			Files can be stored in HDFS or OBS. The path varies depending on the file system.
			 OBS: The path starts 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.
arguments	No	String	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.
			The parameter contains a maximum of 2,047 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.

Parameter	Mandato ry	Туре	Description
input	No	String	Address for inputting data. Files can be stored in HDFS or OBS. The path varies depending on the file system.
			OBS: The path starts with s3a://. Files or programs encrypted by KMS are not supported.
			HDFS: The path starts with a slash (/).
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.
output	No	String	Address for outputting data. Files can be stored in HDFS or OBS. The path varies depending on the file system. OBS: The path starts with
			s3a://.HDFS: The path starts with a slash (/).
			If the specified path does not exist, the system will automatically create it.
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.

Parameter	Mandato ry	Туре	Description
job_log	No	String	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 starts with s3a://.
			HDFS: The path starts with a slash (/).
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.
shutdown_cluster	No	Bool	Whether to delete the cluster after the job execution is complete.
			• true: yes
			• false: no
file_action	No	String	Data import and export.
			• import
			• export
submit_job_once_ cluster_run	Yes	Bool	true: Submit a job during cluster creation.
			false: Submit a job after the cluster is created.
			Set this parameter to true in this example.
hql	No	String	HiveQL statement.

Parameter	Mandato ry	Туре	Description
hive_script_path	Yes	String	SQL program path. This parameter is required by Spark Script and Hive Script jobs only, and must meet the following requirements:
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &><'\$ and cannot be left blank or full of spaces.
			Files can be stored in HDFS or OBS. The path varies depending on the file system.
			 OBS: The path starts 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.

Table 6-9 auto_scaling_policy parameter description

Parameter	Mandato ry	Туре	Description
auto_scaling_enab le	Yes	Boolean	Whether to enable the auto scaling rule.
min_capacity	Yes	Integer	Minimum number of nodes left in the node group. Value range: 0 to 500
max_capacity	Yes	Integer	Maximum number of nodes in the node group. Value range: 0 to 500
resources_plans	No	List	Resource plan list. For details, see Table 6-10 . If this parameter is left blank, the resource plan is disabled.
			When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured.

Parameter	Mandato ry	Туре	Description
exec_scripts	No	List	List of custom scaling automation scripts. For details, see Table 6-11 . If this parameter is left blank, a hook script is disabled.
rules	No	List	List of auto scaling rules. For details, see Table 6-12 .
			When auto scaling is enabled, either a resource plan or an auto scaling rule must be configured.

 Table 6-10 resources_plan parameter description

Parameter	Mandato ry	Туре	Description
period_type	Yes	String	Cycle type of a resource plan. Currently, only the following cycle type is supported: • daily
start_time	Yes	String	Start time of a resources plan. The value is in the format of hour:minute , indicating that the time ranges from 0:00 to 23:59.
end_time	Yes	String	End time of a resource plan. The value is in the same format as that of start_time . The interval between end_time and start_time must be greater than or equal to 30 minutes.
min_capacity	Yes	Integer	Minimum number of the preserved nodes in a node group in a resource plan. Value range: 0 to 500
max_capacity	Yes	Integer	Maximum number of the preserved nodes in a node group in a resource plan. Value range: 0 to 500

Table 6-11 exec_script parameter description

Parameter	Mandato ry	Туре	Description
name	Yes	String	Name of a custom automation script. It must be unique in a same cluster.
			The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and cannot start with a space.
			The value can contain 1 to 64 characters.
uri	Yes	String	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.

Parameter	Mandato ry	Туре	Description
parameters	No	String	Parameters of a custom automation script. • Multiple parameters are separated by space. • The following predefined system parameters can be transferred: - \${mrs_scale_node_num}: number of the nodes to be added or removed - \${mrs_scale_type}: scaling type. The value can be scale_out or scale_in. - \$ {mrs_scale_node_hostnames} }: host names of the nodes to be added or removed. - \${mrs_scale_node_ips}: IP addresses of the nodes to be added or removed. - \${mrs_scale_rule_name}: 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.
nodes	Yes	List <strin g></strin 	Type of a node where the custom automation script is executed. The node type can be Master , Core , or Task .
active_master	No	Boolean	Whether the custom automation script runs only on the active Master node. The default value is false , indicating that the custom automation script can run on all Master nodes.

Parameter	Mandato ry	Туре	Description
action_stage	Yes	String	Time when a script is executed. The following four options are supported: • before_scale_out: before scale-out • before_scale_in: before scale-in • after_scale_out: after scale-out • after_scale_in: after scale-in
fail_action	Yes	String	 Whether to continue to execute subsequent scripts and create a cluster after the custom automation script fails to be executed. continue: Continue to execute subsequent scripts. errorout: Stop the action. 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 custom automation script is executed successfully. The scale-in operation cannot be undone. Therefore, fail_action must be set to continue for the scripts that are executed after scale-in.

Table 6-12 rules parameter description

Parameter	Mandato ry	Туре	Description
name	Yes	String	Name of an auto scaling rule. A cluster name can contain 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. Rule names must be unique in a node group.

Parameter	Mandato ry	Туре	Description
description	No	String	Description about an auto scaling rule.
			It contains a maximum of 1,024 characters.
adjustment_type	Yes	String	Auto scaling rule adjustment type. The options are as follows:
			• scale_out: cluster scale-out
			• scale_in: cluster scale-in
cool_down_minut es	Yes	Integer	Cluster cooling time after an auto scaling rule is triggered, when no auto scaling operation is performed. The unit is minute.
			Value range: 0 to 10,080. One week is equal to 10,080 minutes.
scaling_adjustmen t	Yes	Integer	Number of nodes that can be adjusted once.
			Value range: 1 to 100
trigger	Yes	Trigger	Condition for triggering a rule. For details, see Table 6-13 .

Table 6-13 trigger parameter description

Parameter	Mandato ry	Туре	Description
metric_name	Yes	String	Metric name.
			This triggering condition makes a judgment according to the value of the metric.
			A metric name contains a maximum of 64 characters.
metric_value	Yes	String	Metric threshold to trigger a rule.
			The value must be an integer or a number with two decimal places.
comparison_opera tor	No	String	Metric judgment logic operator. The options are as follows:
			LT: less than
			GT: greater than
			LTOE: less than or equal to
			GTOE: greater than or equal to

Parameter	Mandato ry	Туре	Description
evaluation_period s	Yes	Integer	Number of consecutive five- minute periods, during which a metric threshold is reached. Value range: 1 to 288

Table 6-14 bootstrap_scripts parameter description

Parameter	Mandato ry	Туре	Description
name	Yes	String	Name of an action script. It must be unique in a cluster. The value can contain only digits, letters, spaces, hyphens (-), and underscores (_) and cannot start with a space. The value can contain 1 to 64 characters.
uri	Yes	String	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. Local VM path: Enter a script path. The script path must start with a slash (/) and end with .sh.
parameters	No	String	Bootstrap action script parameters.
nodes	Yes	Array String	Type of a node where the Bootstrap action script is executed. The value can be Master , Core , or Task .
active_master	No	Boolean	Whether the Bootstrap action script runs only on active Master nodes. The default value is false , indicating that the Bootstrap action script can run on all Master nodes.

Parameter	Mandato ry	Туре	Description
before_componen t_start	No	Boolean	Time when the Bootstrap action script is executed. Currently, the following two options are available: Before component start and After component start.
			The default value is false , indicating that the Bootstrap action script is executed after the component is started.
fail_action	Yes	String	Whether to continue executing subsequent scripts and creating a cluster after the Bootstrap action script fails to be executed.
			• continue : Continue to execute subsequent scripts.
			• errorout: Stop the action.
			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.

Response

Table 6-15 Response parameter description

Parameter	Туре	Description
cluster_id	String	Cluster ID, which is returned by the system after the cluster is created.
result	Bool	Operation result. • true: The operation is successful. • false: The operation failed.
msg	String	System message, which can be empty.

Example

Request example

Creating a cluster with Cluster HA enabled (using the node_groups parameter group)

```
"billing_type": 12,
"data_center": "sa-fb-1",
     "available_zone_id": "d573142f24894ef3bd3664de068b44b0",
     "cluster_name": "mrs_HEbK",
     "cluster_version": "MRS 3.3.1-LTS",
     "safe_mode": 0,
     "cluster_type": 0,
"component_list": [
        "component_name": "Hadoop"
     },
        "component_name": "Spark"
        "component_name": "HBase"
     },
        "component_name": "Hive"
     {
        "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": 40,
              "root_volume_type": "SATA",
              "data_volume_type": "SATA",
              "data_volume_count": 1,
              "data_volume_size": 200
         }, {
              "group_name": "core_node_analysis_group",
              "node_num": 3,
              "node_size": "s3.xlarge.2.linux.bigdata",
              "root_volume_size": 40,
              "root_volume_type": "SATA",
"data_volume_type": "SATA",
              "data_volume_count": 1,
              "data volume size": 100
              "group_name": "task_node_analysis_group",
```

```
"node_num": 2,
          "node_size": "s3.xlarge.2.linux.bigdata",
          "root_volume_size": 40,
          "root_volume_type": "SATA",
"data_volume_type": "SATA",
          "data_volume_count": 0,
          "data_volume_size": 100,
          "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
               }],
               "uri": "s3a://XXX/zeppelin_install.sh ",
                    "parameters": "${mrs_scale_node_num} ${mrs_scale_type} xxx",
                    "nodes": ["master", "core", "task"],
                    "active_master": "true",
"action_stage": "before_scale_out",
                    "fail_sction": "continue"
              }, {
                    "name": "after_scale_out",
                    "uri": "s3a://XXX/flink_rebalance.sh",
                    "parameters": "${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",
      "fail_action": "continue"
}, {
      "name": "Install zepplin",
      "uri": "s3a://XXX/zeppelin_install.sh",
      "parameters": ""
      "nodes": ["master"],
      "active_master": "true",
      "before_component_start": "false",
      "fail_action": "continue"
```

 Creating a cluster with Cluster HA enabled (without using the node_groups parameter group)

```
"billing_type": 12,
"data_center": "sa-fb-1",
"master_node_num": 2,
"master_node_size": "s3.2xlarge.2.linux.bigdata",
"core_node_num": 3,
"core_node_size": "s1.xlarge.linux.bigdata",
"available_zone_id": "d573142f24894ef3bd3664de068b44b0",
"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": "",
"enterprise_project_id": "0",
"tags": [
    "key": "key1",
    "value": "value1"
    "key": "key2",
    "value": "value2"
 }
],
"cluster_version": "MRS 3.3.1-LTS",
"cluster_type": 0,
"master_data_volume_type": "SATA",
"master_data_volume_size": 100,
"master_data_volume_count": 1,
"core_data_volume_type": "SATA",
"core_data_volume_size": 100,
"core_data_volume_count": 2,
```

```
"login_mode": 1,
"node_public_cert_name": "SSHkey-bba1",
"safe_mode": 0,
"cluster_admin_secret":"*****",
"log_collection": 1,
"task_node_groups": [
         "node_num": 2,
"node_size": "s3.xlarge.2.linux.bigdata",
         "data_volume_type": "SATA",
         "data_volume_count": 1,
         "data volume size": 700,
         "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",
    "": "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": "",
                      "nodes": [
                        "master",
                        "core",
                        "task"
                    ],
"active_master": "true",
                    "action_stage": "before_scale_out",
"fail_action": "continue"
                },{
                      "name": "after_scale_out",
                     "uri": "s3a://XXX/flink_rebalance.sh",
                     "parameters": "",
                    "nodes": [
                        "master",
                         "core",
                        "task"
                    "active_master": "true",
"action_stage": "after_scale_out",
                    "fail_action": "continue"
                }],
"rules": [
                  {
  "name": "default-expand-1",
  "scale out the scale out
                    "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"
     },
         "component_name": "Tez"
     },
     {
         "component_name": "Hue"
         "component_name": "Loader"
         "component_name": "Flink"
  ],
"add_jobs": [
         "job_type": 1,
        "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":"Modify os config",
         "uri": "s3a://XXX/modify_os_config.sh",
         "parameters":"param1 param2",
          "nodes":[
            "master",
             "core",
             "task"
         "active_master":"false",
```

```
"before_component_start":"true",
    "fail_action":"continue"
},
{
    "name":"Install zepplin",
    "uri":"s3a://XXX/zeppelin_install.sh",
    "parameters":"",
    "nodes":[
        "master"
    ],
    "active_master":"true",
        "before_component_start":"false",
        "fail_action":"continue"
}
```

 Disabling the Cluster HA function and creating a cluster with the minimum specifications (using the **node groups** parameter group)

```
minimum specifications (using the node_groups parameter group)
   "billing_type": 12,
"data_center": "sa-fb-1",
   "available_zone_id": "d573142f24894ef3bd3664de068b44b0",
   "cluster_name": "mrs_HEbK",
   "cluster_version": "MRS 3.3.1-LTS",
   "safe_mode": 0,
   "cluster_type": 0,
"component_list": [
        "component_name": "Hadoop"
        "component_name": "Spark"
        "component_name": "HBase"
        "component_name": "Hive"
         "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": 1,
        "node_size": "s3.xlarge.2.linux.bigdata",
        "root_volume_size": 40,
        "root_volume_type": "SATA",
```

```
"data_volume_type": "SATA",
      "data_volume_count": 1,
      "data_volume_size": 200
   }, {
      "group_name": "core_node_analysis_group",
      "node_num": 1,
      "node_size": "s3.xlarge.2.linux.bigdata",
      "root_volume_size": 40,
      "root_volume_type": "SATA",
"data_volume_type": "SATA",
      "data_volume_count": 1,
      "data_volume_size": 100
  }
"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,
   "hal": ""
   "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",
   "fail_action": "continue"
}, {
   "name": "Install zepplin",
   "uri": "s3a://XXX/zeppelin_install.sh",
   "parameters": "'
   "nodes": ["master"],
   "active_master": "true",
   "before_component_start": "false",
   "fail_action": "continue"
```

 Disabling the Cluster HA function and creating a cluster with the minimum specifications (without using the node_groups parameter group)

```
"billing_type": 12,
"data_center": "sa-fb-1",
"master_node_num": 1
"master_node_size": "s3.2xlarge.2.linux.bigdata",
"core_node_num": 1,
"core_node_size": "s1.xlarge.linux.bigdata",
"available_zone_id": "d573142f24894ef3bd3664de068b44b0",
"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": "",
"enterprise_project_id": "0",
```

```
"tags": [
       "key": "key1",
       "value":"value1"
       "key": "key2",
       "value": "value2"
    }
   "cluster_version": "MRS 3.3.1-LTS",
  "cluster_type": 0,
  "master_data_volume_type": "SATA",
  "master_data_volume_size": 100,
  "master_data_volume_count": 1,
  "core_data_volume_type": "SATA",
  "core_data_volume_size": 100,
   "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": "Spark"
        "component_name": "HBase"
        "component_name": "Hive"
         "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 zepplin",
         "uri": "s3a://XXX/zeppelin_install.sh",
```

Response example

Status Code

Table 6-16 describes the status code.

Table 6-16 Status Code

Status Code	Description	
200	The cluster has been successfully created.	

For details about error status codes, see **Status Codes**.

6.1.2 Resizing a Cluster

Function

This API is used to manually 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.

URI

Format

PUT /v1.1/{project_id}/cluster_infos/{cluster_id}

• Parameter description

Table 6-17 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.

Parameter	Mandatory	Description
cluster_id	Yes	Cluster ID.

Request

Table 6-18 Request parameter description

Parameter	Mandato ry	Туре	Description
service_id	No	String	Service ID. This parameter is reserved for extension. You do not need to set this parameter.
plan_id	No	String	Plan ID. This parameter is reserved for extension. You do not need to set this parameter.
parameters	Yes	Object	Core parameters. For details, see Table 6-19.

Table 6-19 parameters description

Parameter	Mandato ry	Туре	Description
order_id	No	String	Order ID obtained by the system during scale-out or scale-in. You do not need to set the parameter.
scale_type	Yes	String	scale_in: cluster scale-inscale_out: cluster scale-out
node_id	Yes	String	ID of the newly added or removed node. The parameter value is fixed to node_orderadd . The ID of a newly added or removed node includes node_orderadd , for example, node-orderadd-TBvSr.com .

Parameter	Mandato ry	Туре	Description
node_group	No	String	 Node group to be scaled out or in. If the value of node_group is core_node_default_group, the node group is a Core node group. If the value of node_group is task_node_default_group, the node group is a Task node group. If it is left blank, the default value core_node_default_group is used.
task_node_info	No	Object	 Task node specifications. For more parameter description, see Table 6-21. When the number of Task nodes is 0, this parameter is used to specify Task node specifications. When the number of Task nodes is greater than 0, this parameter is unavailable.

Parameter	Mandato ry	Туре	Description
instances	Yes	String/ Integer	Number of nodes to be added or removed. 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. 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. Nodes can be deleted for cluster scale-in 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.
skip_bootstrap_scr ipts	No	Boolean	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. The default value is false, indicating that the Bootstrap action is performed.
scale_without_star t	No	boolean	Whether to start components on the added nodes after cluster scale-out. • true: Do not start components after scale-out. • false: Start components after scale-out.

Parameter	Mandato ry	Туре	Description
server_ids	No	List <strin g></strin 	ID list of Task nodes to be deleted during task node scale-in.
			 This parameter does not take effect when scale_type is set to scale-out.
			 If scale_type is set to scale-in and this parameter is not left blank, the system deletes the specified Task nodes.
			When scale_type is set to scale-in and server_ids is left blank, the system automatically deletes the Task nodes based on the system rules.
previous_values	No	Object	Extension parameter. You do not need to set this parameter. For details, see Table 6-20 .

Table 6-20 previous_values parameter description

Parameter	Mandato ry	Туре	Description
plan_id	No	String	Reserve the parameter for extending APIs. You do not need to set the parameter.

Table 6-21 task_node_info parameter description

Parameter	Mandato ry	Туре	Description
node_size	Yes	String	Instance specifications of a Task node, for example, c3.4xlarge.2.linux.bigdata.
data_volume_type	No	String	Data disk storage type of the Task node, supporting SATA, SAS, and SSD currently. • SATA: Common I/O • SAS: High I/O • SSD: Ultra-high I/O

Parameter	Mandato ry	Туре	Description
data_volume_cou nt	No	Integer	Number of data disks of a Task node. Value range: 1 to 10
data_volume_size	No	Integer	Data disk storage space of a Task node. Value range: 100 GB to 32,000 GB

Response

Response parameters

Table 6-22 describes the response parameters.

Table 6-22 Response parameter description

Parameter	Туре	Description
result	String	Operation result.
		• succeeded : The operation is successful.
		Table 6-24 describes the error codes returned upon operation failures.

Example

Example request

Scaling out Core nodes:

```
{
    "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": ""
}
```

Scaling out Task nodes when the number of the existing Task nodes is greater than zero:

```
{
 "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": {

    "plan_id": ""
}
```

Scaling out Task nodes when the number of the existing Task nodes is zero:

```
"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": "s3.xlarge.2.linux.bigdata",
             "data_volume_type":"SATA",
             "data_volume_count":2,
            "data_volume_size":200
            },
      "instances": "1",
      "scale_without_start":false
   "previous_values": {
      "plan_id": ""
}
```

Scaling in Core nodes:

```
{
    "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": ""
    }
}
```

Scaling in Task nodes:

```
{
    "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": {
        "plan_id": ""
    }
}
```

The following is an example of a specified Task node scale-in:

```
{
    "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": {
        "plan_id": ""
    }
}
```

• Example response

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

Status Code

• Table 6-23 describes the status code of this API.

Table 6-23 Status code

Status Code	Description	
200	The Core or Task nodes have been successfully scaled out or in.	

• Table 6-24 describes the error codes returned upon operation failures.

Table 6-24 Error codes

Error Code	Message	
12000001	Identity verification is invalid	
12000002	The parameter is invalid.	
12000003	The cluster does not exist.	
12000009	The method parameter is invalid.	
12000013	Scale-in of cluster XX failed.	
12000014	Scale-out of cluster XX failed.	
12000017	Scale-out or scale-in is not allowed for clusters that are not in the Running state.	
12000018	Scale-out or scale-in cannot be performed again because it is in progress.	
12000019	Failed to obtain hosts of the cluster.	

Error Code	Message	
12000028	The maximum number of Core nodes in a cluster is N.	
12000029	Failed to obtain the quota.	
12000030	The requested number of nodes in the cluster exceeds the available quota.	
12000031	The requested number of vCPUs in the cluster exceeds the available quota.	
12000032	The requested memory of the cluster exceeds the available quota.	
12000033	The requested number of disks in the cluster exceeds the available quota.	
12000034	The requested disk capacity of the cluster exceeds the available quota.	
12000054	The operation is not supported.	
12000067	The cluster cannot be scaled out because its version is too early. Upgrade the cluster to the latest version.	
12000068	The status of some nodes is not running in the cluster. Try again later.	
12000121	Scale-out is not allowed because the cluster has an unpaid order. Scale out the cluster again after you pay the order.	
MRS.101	Your request could not be fulfilled because your quota is insufficient. Contact technical support to increase the quota.	
MRS.102	The token cannot be null or invalid. Try again later or contact the administrator.	
MRS.103	Invalid request. Try again later or contact the administrator.	
MRS.104	Insufficient resources. Try again later or contact the administrator.	
MRS.105	Insufficient IP addresses in the existing subnet. Try again later or contact the administrator.	
MRS.201	Failed due to an ECS error. Try again later or contact the administrator. (ECS: xxxx, ECS error information)	
MRS.202	Failed due to an IAM error. Try again later or contact the administrator. (IAM: xxxx, IAM error information)	

Error Code	Message
MRS.203	Failed due to a VPC error. Try again later or contact the administrator. (VPC: xxxx, VPC error information)
MRS.300	MRS system error. Try again later or contact the administrator.

• For details about error status codes, see **Status Codes**.

6.1.3 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.

URI

- Format
 - GET /v1.1/{project_id}/cluster_infos? pageSize={page_size}¤tPage={current_page}&clusterState={cluster_state}&tags={tags}
- Parameter description

Table 6-25 URI parameter description

Parameter	Mandat ory	Туре	Description
project_id	Yes	String	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
pageSize	No	String	Maximum number of clusters displayed on a page. Value range: 1 to 2147483646
currentPage	No	String	Current page number.
clusterName	No	String	Cluster name.

Parameter	Mandat ory	Туре	Description
clusterState	No	String	You can query a cluster list by cluster status.
			 existing: queries the list of existing clusters, including all clusters except those in the Terminated state and the yearly/monthly clusters in the Order processing or Preparing state.
			history: queries the historical cluster list, including all the terminated clusters, clusters that fail to terminate, clusters whose VMs fail to delete, and clusters whose database updates fail to delete.
			• starting : queries the list of clusters that are being started.
			 running: Query a list of running clusters.
			terminated: Query a list of terminated clusters.
			failed: Query a list of failed clusters.
			abnormal: Query a list of abnormal clusters.
			• terminating : Query a list of clusters that are being terminated.
			frozen: Query a list of frozen clusters.
			scaling-out: Query a list of clusters that are being scaled out.
			scaling-in: queries the list of clusters that are being scaled in.
			• partial-error: queries the list of clusters with partial errors.
enterpriseProjec- tId	No	String	The enterprise project ID used to query clusters in a specified enterprise project.
			The default value is 0 , indicating the default enterprise project.

Parameter	Mandat ory	Туре	Description
tags	No	String	You can search for a cluster by its tag. If you specify multiple tags, the relationship between them is AND.
			• The format of the tags parameter is tags=k1*v1,k2*v2,k3*v3.
			 When the values of some tags are null, the format is tags=k1,k2,k3*v3.

Request

None.

Response

Table 6-26 Response parameter description

Parameter	Туре	Description
clusterTotal	String	Total number of clusters in a list.
clusters	Array	Cluster parameters. For details, see Table 6-27.

Table 6-27 clusters parameter description

Parameter	Туре	Description
clusterId	String	Cluster ID.
clusterName	String	Cluster name.
masterNodeNum	String	Number of Master nodes deployed in a cluster.
coreNodeNum	String	Number of Core nodes deployed in a cluster.
totalNodeNum	String	Total number of nodes deployed in a cluster.

Parameter	Туре	Description
clusterState	String	Cluster status. Valid values include: starting: The cluster is being started. running: The cluster is running. terminated: The cluster has been terminated. failed: The cluster fails. abnormal: The cluster is abnormal. terminating: The cluster is being terminated. frozen: The cluster has been frozen. scaling-out: The cluster is being scaled out. scaling-in: The cluster is being
createAt	String	scaled in. Cluster creation time, which is a 10-bit timestamp.
updateAt	String	Cluster update time, which is a 10-bit timestamp.
billingType	String	Cluster billing mode.
dataCenter	String	Cluster work region.
vpc	String	VPC name.
vpcld	String	VPC ID.
duration	String	Cluster subscription duration.
fee	String	Cluster creation fee, which is automatically calculated.
hadoopVersion	String	Hadoop version.
masterNodeSize	String	Instance specifications of a Master node.
coreNodeSize	String	Instance specifications of a Core node.
componentList	Array	Component list. For details, see Table 6-28 .
externallp	String	External IP address.
externalAlterna- telp	String	Backup external IP address.
internallp	String	Internal IP address.

Parameter	Туре	Description
deploymentId	String	Cluster deployment ID.
remark	String	Cluster remarks.
orderId	String	Cluster creation order ID.
azld	String	AZ ID.
masterNodeProdu ctId	String	Product ID of a Master node.
masterNodeSpecl d	String	Specification ID of a Master node.
coreNodeProductI d	String	Product ID of a Core node.
coreNodeSpecId	String	Specification ID of a Core node.
azName	String	AZ name.
azCode	String	AZ name.
availabilityZoneId	String	The AZ.
instanceId	String	Instance ID.
vnc	String	URI for remotely logging in to an ECS.
tenantId	String	Project ID.
volumeSize	Integer	Disk storage space.
volumeType	String	Disk type.
subnetId	String	Subnet ID.
enterpriseProjec- tld	String	Enterprise project ID.
mrsManagerFinis h	Boolean	Whether MRS Manager installation is finished during cluster creation.
		• true : MRS Manager installation is finished.
		false: MRS Manager installation is not finished.
clusterType	String	Cluster type.
subnetName	String	Subnet name.
securityGroupsId	String	Security group ID.
slaveSecurityGrou psId	String	Security group ID of a non-Master node. Currently, one MRS cluster uses only one security group. Therefore, this field has been discarded.

Parameter	Туре	Description
stageDesc	String	Cluster operation progress description.
		The cluster installation progress includes:
		Verifying cluster parameters: Cluster parameters are being verified.
		 Applying for cluster resources: Cluster resources are being applied for.
		Creating VMs: The VMs are being created.
		 Initializing VMs: The VMs are being initialized.
		 Installing MRS Manager: MRS Manager is being installed.
		Deploying the cluster: The cluster is being deployed.
		 Cluster installation failed: Failed to install the cluster.
		The cluster scale-out progress includes:
		 Preparing for scale-out: Cluster scale-out is being prepared.
		Creating VMs: The VMs are being created.
		 Initializing VMs: The VMs are being initialized.
		Adding nodes to the cluster: The nodes are being added to the cluster.
		Scale-out failed: Failed to scale out the cluster.
		The cluster scale-in progress includes:
		 Preparing for scale-in: Cluster scale- in is being prepared.
		Decommissioning instance: The instance is being decommissioned.
		Deleting VMs: The VMs are being deleted.
		Deleting nodes from the cluster: The nodes are being deleted from the cluster.
		Scale-in failed: Failed to scale in the cluster.
		If the cluster installation, scale-out, or scale-in fails, stageDesc will display

Parameter	Туре	Description
		the failure cause. For details, see Table 6-24 .
safeMode	String	Running mode of an MRS cluster. • 0: Normal cluster • 1: Security cluster
clusterVersion	String	Cluster version.
nodePublicCertNa me	String	Name of the key file.
masterNodelp	String	IP address of a Master node.
privatelpFirst	String	Preferred private IP address.
errorInfo	String	Error message.
tags	String	Tag information.
chargingStartTime	String	Start time of billing.
logCollection	Integer	Whether to collect logs when cluster installation fails. • 0: Do not collect. • 1: Collect.
taskNodeGroups	List <nodegroup></nodegroup>	List of Task nodes. For details, see Querying a Cluster ListTable 6-29.
nodeGroups	List <nodegroup></nodegroup>	List of Master, Core and Task nodes. For more parameter description, see Table 6-29.
masterDataVolum eType	String	Data disk storage type of the Master node. Currently, SATA, SAS, and SSD are supported.
masterDataVolum eSize	Integer	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. Value range: 100 GB to 32,000 GB
masterDataVolum eCount	Integer	Number of data disks of the Master node. The value can be set to 1 only.
coreDataVolumeT ype	String	Data disk storage type of the Core node. Currently, SATA, SAS, and SSD are supported.

Parameter	Туре	Description
coreDataVolumeSi ze	Integer	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. Value range: 100 GB to 32,000 GB
coreDataVolumeC ount	Integer	Number of data disks of the Core node. Value range: 1 to 10
periodType	Integer	 Whether the subscription type is yearly or monthly. 0: monthly subscription 1: yearly subscription
scale	String	 Node change status. If this parameter is left blank, the cluster nodes are not changed. The options are as follows: scaling-out: The cluster is being scaled out. scaling-in: The cluster is being scaled in. scaling-error: 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. scaling-up: The master node specifications are being scaled up. scaling_up_first: The standby master node specifications are being scaled up. scaled_up_first: The standby master node specifications have been scaled up. scaled-up-success: The master node specifications have been scaled up.

Table 6-28 componentList parameter description

Parameter	Туре	Description
componentId	String	Component ID.
		Component IDs of MRS 3.3.1-LTS:
		• MRS 3.3.1-LTS_001: Hadoop
		• MRS 3.3.1-LTS_002: HBase
		• MRS 3.3.1-LTS_003: Hive
		• MRS 3.3.1-LTS_004: Spark
		• MRS 3.3.1-LTS_005: Tez
		• MRS 3.3.1-LTS_006: Flink
		• MRS 3.3.1-LTS_008: Kafka
		• MRS 3.3.1-LTS_009: Flume
		MRS 3.3.1-LTS_010: Elasticsearch
		• MRS 3.3.1-LTS_011: Solr
		• MRS 3.3.1-LTS_012: Redis
		• MRS 3.3.1-LTS_013: Loader
		• MRS 3.3.1-LTS_014: Hue
		• MRS 3.3.1-LTS_015: Oozie
		MRS 3.3.1-LTS_016: FTP-Server
		• MRS 3.3.1-LTS_022: Ranger
		MRS 3.3.1-LTS_023: HetuEngine
		For example, component_id of Hadoop is MRS 3.3.1-LTS_001.
componentName	String	Component name.
componentVersio n	String	Component version.
componentDesc	String	Component description.

Table 6-29 NodeGroup parameter description

Parameter	Туре	Description
groupName	String	Node group name.
nodeNum	Integer	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.
nodeSize	String	Instance specifications of a node.

Parameter	Туре	Description
nodeSpecId	String	Instance specification ID of a node.
nodeProductId	String	Instance product ID of a node.
vmProductId	String	VM product ID of a node.
vmSpecCode	String	VM specifications of a node.
rootVolumeSize	Integer	System disk size of a node. This parameter is not configurable and its default value is 40 GB .
rootVolumeProdu ctId	String	System disk product ID of a node.
rootVolumeType	String	System disk type of a node.
rootVolumeResou rceSpecCode	String	System disk product specifications of a node.
rootVolumeResou rceType	String	System disk product type of a node.
dataVolumeType	String	Data disk storage type of a node. Currently, SATA, SAS, and SSD are supported.
		SATA: Common I/O
		• SAS: High I/O
		SSD: Ultra-high I/O
dataVolumeCount	Integer	Number of data disks of a node.
dataVolumeSize	String	Data disk storage space of a node.
dataVolumeProdu ctId	String	Data disk product ID of a node.
dataVolumeResou rceSpecCode	String	Data disk product specifications of a node.
dataVolumeResou rceType	String	Data disk product type of a node.

Example

 Request example None.

Response example

```
"masterNodeNum": "2",
        "coreNodeNum": "3",
        "clusterState": "terminated",
        "createAt": "1498272043",
"updateAt": "1498636753",
        "chargingStartTime": "1498273733",
        "logCollection": 1,
        "billingType": "Metered", 
"dataCenter": "xxx",
        "vpc": null,
        "duration": "0",
         "fee": null,
        "hadoopVersion": null,
        "masterNodeSize": null,
        "coreNodeSize": null,
        "componentList": [{
               "id": null,
               "componentId": "MRS 3.3.1-LTS_001",
               "componentName": "Hadoop",
               "componentVersion": "3.3.1",
               "external_datasources": null,
        "componentDesc": "A distributed data processing framework for big data sets",
               "componentDescEn": null
          {
               "id": null,
               "componentId": "MRS 3.3.1-LTS_002",
               "componentName": "HBase",
               "componentVersion": "2.4.14",
               "external_datasources": null,
        "componentDesc": "HBase is a column-based distributed storage system that features high
reliability, performance, and scalability",
               "componentDescEn": null
               "id": null,
               "componentId": "MRS 3.3.1-LTS_003",
               "componentName": "Hive",
               "componentVersion": "3.1.0",
               "external_datasources": null,
        "componentDesc": "A data warehouse software that facilitates query and management of big
data sets stored in distributed storage systems"
               "componentDescEn": null
               "id": null,
               "componentId": "MRS 3.3.1-LTS_004",
               "componentName": "Spark",
               "componentVersion": "3.3.1",
               "external_datasources": null,
        "componentDesc": "Spark is a fast general-purpose engine for large-scale data processing. It
is developed based on the open-source Spark3.x version.",
               "componentDescEn": null
               "id": null,
               "componentId": "MRS 3.3.1-LTS_005",
               "componentName": "Tez",
               "componentVersion": "0.10.2",
               "external_datasources": null,
        "componentDesc": "An application framework which allows for a complex directed-acyclic-
graph of tasks for processing data.",
               "componentDescEn": null
               "id": null,
               "componentId": "MRS 3.3.1-LTS_006",
               "componentName": "Flink",
               "componentVersion": "1.17.1",
```

```
"external_datasources": null,
        "componentDesc": "Flink is an open-source message processing system that integrates
streams in batches.",
              "componentDescEn": null
         },
              "id": null,
              "componentId": "MRS 3.3.1-LTS_008",
              "componentName": "Kafka",
              "componentVersion": "2.12-3.6.1",
              "external_datasources": null,
        "componentDesc": "Kafka is a distributed message release and subscription system.",
              "componentDescEn": null
              "id": null,
              "componentId": "MRS 3.3.1-LTS_009",
              "componentName": "Flume",
              "componentVersion": "1.11.0",
              "external datasources": null,
        "componentDesc": "Flume is a distributed, reliable, and highly available service for efficiently
collecting, aggregating, and moving large amounts of log data",
               "componentDescEn": null
              "id": null,
              "componentId": "MRS 3.3.1-LTS_010",
              "componentName": "Elasticsearch",
              "componentVersion": "7.6.0",
              "external_datasources": null,
        "componentDesc": "An enterprise-level search engine",
              "componentDescEn": null
              "id": null,
              "componentId": "MRS 3.3.1-LTS_011",
              "componentName": "Solr",
              "componentVersion": "8.11.2",
              "external_datasources": null,
        "componentDesc": "An enterprise-level search engine",
              "componentDescEn": null
              "id": null,
              "componentId": "MRS 3.3.1-LTS_012",
              "componentName": "Redis",
              "componentVersion": "6.2.7"
              "external_datasources": null,
        "componentDesc": "Redis is a high-performance key-value storage system developed based
on the Berkeley Software Distribution (BSD) open-source protocol.",
               "componentDescEn": null
              "id": null,
              "componentId": "MRS 3.3.1-LTS_013",
              "componentName": "Loader",
              "componentVersion": "1.99.3",
              "external_datasources": null,
        "componentDesc": "Loader is a tool designed for efficiently transmitting a large amount of
data between Apache Hadoop and structured databases (such as relational databases).",
              "componentDescEn": null
              "id": null,
              "componentId": "MRS 3.3.1-LTS_014",
              "componentName": "Hue",
              "componentVersion": "3.11.0",
              "external_datasources": null,
        "componentDesc": "Apache Hadoop UI",
```

```
"componentDescEn": null
               "id": null,
               "componentId": "MRS 3.3.1-LTS_015",
               "componentName": "Oozie",
               "componentVersion": "5.1.0",
               "external_datasources": null,
        "componentDesc": "A Hadoop job scheduling system",
               "componentDescEn": null
          },
{
               "id": null,
               "componentId": "MRS 3.3.1-LTS_016",
               "componentName": "FTP-Server",
               "componentVersion": "1.1.3",
               "external_datasources": null,
        "componentDesc": "FTP-Server allows the FTP client to connect to the HDFS by using the FTP-
Server service."
               "componentDescEn": null
               "id": null,
               "componentId": "MRS 3.3.1-LTS_022",
               "componentName": "Ranger", "componentVersion": "2.0.0",
               "external_datasources": null,
        "componentDesc": "Ranger is a centralized framework based on the Hadoop platform. It
provides permission control interfaces such as monitoring, operation, and management interfaces for
complex data.",

"componentDescEn": null
          },
               "id": null,
               "componentId": "MRS 3.3.1-LTS_023",
               "componentName": "HetuEngine",
               "componentVersion": "2.1.0",
               "external_datasources": null,
componentDesc": "HetuEngine is a distributed SQL query engine for heterogeneous big data sets.",
               "componentDescEn": null
         "externallp": null,
         "externalAlternateIp": null,
         "internallp": null,
         "deploymentId": null,
         "remark": "'
         "orderId": null,
         "azId": null,
         "masterNodeProductId": null,
         "masterNodeSpecId": null,
         "coreNodeProductId": null,
         "coreNodeSpecId": null,
        "azName": "az1.dc1",
"instanceId": null,
         "vnc": "v2/5a3314075bfa49b9ae360f4ecd333695/servers/
e2cda891-232e-4703-995e-3b1406add01d/action",
         "tenantId": null,
         "volumeSize": 0,
         "volumeType": null,
         "subnetId": null,
         "subnetName": null,
         "securityGroupsId": null,
         "slaveSecurityGroupsId": null,
         "mrsManagerFinish": false,
         "stageDesc": "Installing MRS Manager",
         "safeMode": 0,
         "clusterVersion": null,
         "nodePublicCertName": null,
        "masterNodelp": "unknown",
```

```
"privateIpFirst": null,
"errorInfo": "",
"clusterType": 0,
"enterpriseProjectId": "0",
"nodeGroups": [
   "groupName": "master_node_default_group",
   "nodeNum": 1,
"nodeSize": "s3.xlarge.2.linux.bigdata",
"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": "s3.xlarge.2.linux.bigdata",
   "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": "s3.xlarge.2.linux.bigdata",
"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": "s3.xlarge.2.linux.bigdata",
         "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
]
```

Table 6-30 describes the status code of this API.

Table 6-30 Status code

Status Code	Description
200	The cluster list information has been successfully queried.

For details about error status codes, see **Status Codes**.

6.1.4 Querying Cluster Details

Function

This API is used to query details about a specified cluster. This API is incompatible with Sahara.

URI

- FormatGET /v1.1/{project_id}/cluster_infos/{cluster_id}
- Parameter description

Table 6-31 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Table 6-32 Response parameter description

Parameter	Туре	Description
clusterId	String	Cluster ID.
clusterName	String	Cluster name.
masterNodeNum	String	Number of Master nodes deployed in a cluster.
coreNodeNum	String	Number of Core nodes deployed in a cluster.
totalNodeNum	String	Total number of nodes deployed in a cluster.
clusterState	String	Cluster status. Valid values include:
		starting: The cluster is being started.
		• running: The cluster is running.
		terminated: The cluster has been terminated.
		failed: The cluster fails.
		abnormal: The cluster is abnormal.
		terminating: The cluster is being terminated.
		• frozen: The cluster has been frozen.
		• scaling-out: The cluster is being scaled out.
		scaling-in: The cluster is being scaled in.

Parameter	Туре	Description
createAt	String	Cluster creation time, which is a 10-bit timestamp.
updateAt	String	Cluster update time, which is a 10-bit timestamp.
billingType	String	Cluster billing mode.
dataCenter	String	Cluster work region.
vpc	String	VPC name.
vpcld	String	VPC ID.
duration	String	Cluster subscription duration.
fee	String	Cluster creation fee, which is automatically calculated.
hadoopVersion	String	Hadoop version.
masterNodeSize	String	Instance specifications of a Master node.
coreNodeSize	String	Instance specifications of a Core node.
componentList	Array	Component list. For details, see Table 6-33 .
externallp	String	External IP address. This IP address is opened to the outside of the cluster as access to the active Master process.
externalAlterna- telp	String	Backup external IP address. This IP address is used outside the cluster as access to the standby Master process.
internallp	String	Internal IP address. This IP address is used within the cluster as access to Master processes.
deploymentId	String	Cluster deployment ID. The ID is used by cloud services to query details about cluster deployment tasks.
remark	String	Cluster remarks. By default, this parameter is left blank.
orderId	String	Cluster creation order ID.
azld	String	AZ ID.
masterNodeProdu ctId	String	Product ID of a Master node.
masterNodeSpecI d	String	Specification ID of a Master node.

Parameter	Туре	Description
coreNodeProductI d	String	Product ID of a Core node.
coreNodeSpecId	String	Specification ID of a Core node.
azName	String	AZ name.
azCode	String	AZ name.
availabilityZoneId	String	The AZ.
instanceld	String	Instance ID.
vnc	String	URI for remotely logging in to an ECS.
tenantId	String	Project ID.
volumeSize	Integer	Disk storage space.
volumeType	String	Disk type.
subnetId	String	Subnet ID.
subnetName	String	Subnet name.
securityGroupsId	String	Security group ID.
enterpriseProjec- tId	String	Enterprise project ID.
slaveSecurityGrou psId	String	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 securityGroupsId does for compatibility consideration.

Parameter	Туре	Description
stageDesc	String	Cluster operation progress description.
		The cluster installation progress includes:
		Verifying cluster parameters: Cluster parameters are being verified.
		Applying for cluster resources: Cluster resources are being applied for.
		Creating VMs: The VMs are being created.
		 Initializing VMs: The VMs are being initialized.
		 Installing MRS Manager: MRS Manager is being installed.
		Deploying the cluster: The cluster is being deployed.
		Cluster installation failed: Failed to install the cluster.
		The cluster scale-out progress includes:
		 Preparing for scale-out: Cluster scale-out is being prepared.
		Creating VMs: The VMs are being created.
		Initializing VMs: The VMs are being initialized.
		Adding nodes to the cluster: The nodes are being added to the cluster.
		Scale-out failed: Failed to scale out the cluster.
		The cluster scale-in progress includes:
		 Preparing for scale-in: Cluster scale- in is being prepared.
		Decommissioning instance: The instance is being decommissioned.
		Deleting VMs: The VMs are being deleted.
		Deleting nodes from the cluster: The nodes are being deleted from the cluster.
		Scale-in failed: Failed to scale in the cluster.
		If the cluster installation, scale-out, or scale-in fails, stageDesc will display

Parameter	Туре	Description
		the failure cause. For details, see Table 6-24 .
mrsManagerFinis h	boolean	Whether MRS Manager installation is finished during cluster creation.
		• true : MRS Manager installation is finished.
		false: MRS Manager installation is not finished.
safeMode	String	Running mode of an MRS cluster.
		0: Normal cluster1: Security cluster
clusterVersion	String	Cluster version.
nodePublicCertNa me	String	Name of the public key file.
masterNodelp	String	IP address of a Master node.
privatelpFirst	String	Preferred private IP address.
errorInfo	String	Error message.
tags	Array	Tag information.
chargingStartTime	String	Start time of billing.
clusterType	String	Cluster type.
logCollection	Integer	Whether to collect logs when cluster installation fails.
		• 0 : Do not collect.
		• 1: Collect.
taskNodeGroups	List <nodegroup></nodegroup>	List of Task nodes. For more parameter description, see Table 6-34 .
nodeGroups	List <nodegroup></nodegroup>	List of Master, Core and Task nodes. For details, see
		Table 6-34.
masterDataVolum eType	String	Data disk storage type of the Master node. Currently, SATA, SAS, and SSD are supported.
masterDataVolum eSize	Integer	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. Value range: 100 GB to 32,000 GB
		<u>, </u>

Parameter	Туре	Description
masterDataVolum eCount	Integer	Number of data disks of the Master node. The value can be set to 1 only.
coreDataVolumeT ype	String	Data disk storage type of the Core node. Currently, SATA, SAS, and SSD are supported.
coreDataVolumeSi ze	Integer	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. Value range: 100 GB to 32,000 GB
coreDataVolumeC ount	Integer	Number of data disks of the Core node. Value range: 1 to 10
periodType	Integer	Whether the subscription type is yearly or monthly. • 0: monthly subscription • 1: yearly subscription
scale	String	Node change status. If this parameter is left blank, the cluster nodes are not changed. The options are as follows: • scaling-out • scaling-error: 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. • scaling-up: The Master node specifications are being scaled up. • scaling_up_first: The standby Master node specifications are being scaled up. • scaled_up_first: The standby Master node specifications have been scaled up successfully. • scaled-up-success: The Master
		node specifications have been scaled up successfully.

Parameter	Туре	Description
omsBusinessIp	String	Service IP address of the active OMS node in a cluster (returned only when clusters are managed by MRS 3.1.3-LTS or later)
omsAlternateBusi- nessIp	String	Service IP address of the standby OMS node in a cluster (returned only when clusters are managed by MRS 3.1.3-LTS or later)
omsBusinessIpPor t	String	Port bound to the service IP addresses of active and standby OMS nodes in a cluster (returned only when clusters are managed by MRS 3.1.3-LTS or later).

 Table 6-33 componentList parameter description

Parameter	Туре	Description
componentId	String	Component ID.
		Component IDs of MRS 3.3.1-LTS:
		• MRS 3.3.1-LTS_001: Hadoop
		• MRS 3.3.1-LTS_002: HBase
		• MRS 3.3.1-LTS_003: Hive
		• MRS 3.3.1-LTS_004: Spark
		• MRS 3.3.1-LTS_005: Tez
		• MRS 3.3.1-LTS_006: Flink
		• MRS 3.3.1-LTS_008: Kafka
		MRS 3.3.1-LTS_009: Flume
		MRS 3.3.1-LTS_010: Elasticsearch
		• MRS 3.3.1-LTS_011: Solr
		• MRS 3.3.1-LTS_012: Redis
		• MRS 3.3.1-LTS_013: Loader
		• MRS 3.3.1-LTS_014: Hue
		• MRS 3.3.1-LTS_015: Oozie
		MRS 3.3.1-LTS_016: FTP-Server
		• MRS 3.3.1-LTS_022: Ranger
		MRS 3.3.1-LTS_023: HetuEngine
		For example, component_id of Hadoop is MRS 3.3.1-LTS_001.
componentName	String	Component name.

Parameter	Туре	Description
componentVersio n	String	Component version.
componentDesc	String	Component description.

Table 6-34 NodeGroup parameter description

Parameter	Туре	Description
groupName	String	Node group name.
nodeNum	Integer	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.
nodeSize	String	Instance specifications of a node.
nodeSpecId	String	Instance specification ID of a node.
nodeProductId	String	Instance product ID of a node.
vmProductId	String	VM product ID of a node.
vmSpecCode	String	VM specifications of a node.
rootVolumeSize	Integer	System disk size of a node. This parameter is not configurable and its default value is 40 GB .
rootVolumeProdu ctId	String	System disk product ID of a node.
rootVolumeType	String	System disk type of a node.
rootVolumeResou rceSpecCode	String	System disk product specifications of a node.
rootVolumeResou rceType	String	System disk product type of a node.
dataVolumeType	String	Data disk storage type of a node. Currently, SATA, SAS, and SSD are supported. • SATA: Common I/O • SAS: High I/O • SSD: Ultra-high I/O
dataVolumeCount	Integer	Number of data disks of a node.
dataVolumeSize	String	Data disk storage space of a node.

Parameter	Туре	Description
dataVolumeProdu ctId	String	Data disk product ID of a node.
dataVolumeResou rceSpecCode	String	Data disk product specifications of a node.
dataVolumeResou rceType	String	Data disk product type of a node.

Example

Request example

None.

Response example

```
"cluster":{
     "clusterId":"bdb064ff-2855-4624-90d5-e9a6376abd6e",
     "clusterName":"c17022001",
     "masterNodeNum":"2",
     "coreNodeNum":"3"
     "clusterState":"scaling-in",
     "stageDesc": null,
     "createAt":"1487570757",
"updateAt":"1487668974",
     "billingType":"Metered",
     "dataCenter":"xxx",
     "vpc": "vpc-autotest",
     "vpcId": "e2978efd-ca12-4058-9332-1ca0bfbab592",
     "duration":"0",
     "fee":"0"
     "hadoopVersion":"",
     "masterNodeSize":"c3.2xlarge.2.linux.bigdata",
     "coreNodeSize":""
       "componentList": [{
        "id": null,
        "componentId": "MRS 3.3.1-LTS_001",
        "componentName": "Hadoop",
        "componentVersion": "3.3.1",
        "external_datasources": null,
        "componentDesc": "A distributed data processing framework for big data sets",
        "componentDescEn": null
     },
        "id": null,
        "componentId": "MRS 3.3.1-LTS_002",
        "componentName": "HBase",
        "componentVersion": "2.4.14",
        "external_datasources": null,
        "componentDesc": "HBase is a column-based distributed storage system that features high
reliability, performance, and scalability",
        "componentDescEn": null
        "id": null,
        "componentId": "MRS 3.3.1-LTS_003",
        "componentName": "Hive",
        "componentVersion": "3.1.0",
        "external_datasources": null,
        "componentDesc": "A data warehouse software that facilitates query and management of big
data sets stored in distributed storage systems"
        "componentDescEn": null
```

```
"id": null,
        "componentId": "MRS 3.3.1-LTS_004",
        "componentName": "Spark",
        "componentVersion": "3.3.1",
       "external_datasources": null,
        "componentDesc": "Spark is a fast general-purpose engine for large-scale data processing. It
is developed based on the open-source Spark3.x version.",
        "componentDescEn": null
     },
     {
        "id": null,
        "componentId": "MRS 3.3.1-LTS_005",
        "componentName": "Tez",
        "componentVersion": "0.10.2",
        "external_datasources": null,
        "componentDesc": "An application framework which allows for a complex directed-acyclic-
graph of tasks for processing data.",
        "componentDescEn": null
        "id": null,
        "componentId": "MRS 3.3.1-LTS_006",
        "componentName": "Flink",
        "componentVersion": "1.17.1",
        "external_datasources": null,
        "componentDesc": "Flink is an open-source message processing system that integrates
streams in batches."
        "componentDescEn": null
        "id": null,
        "componentId": "MRS 3.3.1-LTS_008",
        "componentName": "Kafka",
        "componentVersion": "2.12-3.6.1",
        "external_datasources": null,
        "componentDesc": "Kafka is a distributed message release and subscription system.",
        "componentDescEn": null
        "id": null,
        "componentId": "_009",
        "componentName": "Flume",
        "componentVersion": "1.11.0",
        "external_datasources": null,
        "componentDesc": "Flume is a distributed, reliable, and highly available service for efficiently
collecting, aggregating, and moving large amounts of log data",
        'componentDescEn": null
     },
       "id": null,
        "componentId": "_010",
        "componentName": "Elasticsearch",
        "componentVersion": "7.10.2",
        "external_datasources": null,
        "componentDesc": "An enterprise-level search engine",
        "componentDescEn": null
        "id": null,
        "componentId": "_011",
        "componentName": "Solr",
        "componentVersion": "8.11.2",
        "external_datasources": null,
        "componentDesc": "An enterprise-level search engine",
        "componentDescEn": null
     },
```

```
"id": null,
        "componentId": "_012",
        "componentName": "Redis",
        "componentVersion": "6.2.7",
        "external_datasources": null,
        "componentDesc": "Redis is a high-performance key-value storage system developed based
on the Berkeley Software Distribution (BSD) open-source protocol.",
        "componentDescEn": null
       "id": null,
        "componentId": "_013",
        "componentName": "Loader",
        "componentVersion": "1.99.3",
        "external_datasources": null,
        "componentDesc": "Loader is a tool designed for efficiently transmitting a large amount of
data between Apache Hadoop and structured databases (such as relational databases).",
        "componentDescEn": null
       "id": null,
        "componentId": "_014",
        "componentName": "Hue",
        "componentVersion": "3.11.0",
        "external_datasources": null,
        "componentDesc": "Apache Hadoop UI",
        "componentDescEn": null
        "id": null,
        "componentId": "_015",
        "componentName": "Oozie",
        "componentVersion": "5.1.0",
        "external_datasources": null,
        "componentDesc": "A Hadoop job scheduling system",
        "componentDescEn": null
     },
        "id": null,
        "componentId": "_016",
        "componentName": "FTP-Server",
        "componentVersion": "1.1.3",
        "external_datasources": null,
        "componentDesc": "FTP-Server allows the FTP client to connect to the HDFS by using the FTP-
Server service.",
        "componentDescEn": null
     },
       "id": null,
        "componentId": " 022",
        "componentName": "Ranger",
        "componentVersion": "2.0.0",
        "external_datasources": null,
        "componentDesc": "Ranger is a centralized framework based on the Hadoop platform. It
provides permission control interfaces such as monitoring, operation, and management interfaces for
complex data.",
        "componentDescEn": null
       "id": null,
        "componentId": "_023",
        "componentName": "HetuEngine",
        "componentVersion": "2.1.0",
        "external_datasources": null,
        "componentDesc": "HetuEngine is a distributed SQL query engine for heterogeneous big data
sets.",
        "componentDescEn": null
     }],
```

```
"externallp": "100.XXX.XXX.XXX",
"externalAlternateIp":"100.XXX.XXX.XXX",
"internallp": "192.XXX.XXX.XXX",
"deploymentId":"4ac46ca7-a488-4b91-82c2-e4d7aa9c40c2",
"remark":""
"orderId":"null",
"azId":"null",
"masterNodeProductId":"b35cf2d2348a445ca74b32289a160882",
"masterNodeSpecId":"8ab05e503b4c42abb304e2489560063b",
"coreNodeProductId":"dc970349d128460e960a0c2b826c427c",
"coreNodeSpecId":"cdc6035a249a40249312f5ef72a23cd7",
"azName": "az1.cn-fcs-1a",
"instanceId":"4ac46ca7-a488-4b91-82c2-e4d7aa9c40c2",
"vnc":null,
"tenantId": "3f99e3319a8943ceb15c584f3325d064",
"volumeSize":100,
"volumeType":"SATA",
"subnetId": "6b96eec3-4f8d-4c83-93e2-6ec625001d7c",
"subnetName": "subnet-ftest",
"securityGroupsId": "930e34e2-195d-401f-af07-0b64ea6603f8",
"slaveSecurityGroupsId":"2ef3343e-3477-4a0d-80fe-4d874e4f81b8",
"stageDesc": "Installing MRS Manager", "mrsManagerFinish": false,
"safeMode":1,
"clusterVersion":"",
"nodePublicCertName":"myp",
"masterNodelp":"192.XXX.XXX.XXX",
"privatelpFirst":"192.XXX.XXX.XXX",
"errorInfo":null,
"tags":"k1=v1,k2=v2,k3=v3",
"clusterType": 0,
"logCollection": 1,
"nodeGroups": [
      "groupName": "master_node_default_group",
      "nodeNum": 1,
"nodeSize": "c3.2xlarge.2.linux.bigdata",
      "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": "c3.2xlarge.2.linux.bigdata",
      "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": "c3.2xlarge.2.linux.bigdata",
"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": "c3.2xlarge.2.linux.bigdata",
    "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": "",
    "AutoScalingPolicy": null
    }
  ],
"masterDataVolumeType": "SATA",
"masterDataVolumeSize": 200,
"masterDataVolumeCount": 1,
"coreDataVolumeType": "SATA",
"coreDataVolumeSize": 100,
"coreDataVolumeCount": 1,
```

Table 6-35 describes the status code of this API.

Table 6-35 Status code

Status Code	Description	
200	Cluster details have been queried successfully.	

For details about error status codes, see Status Codes.

6.1.5 Terminating a Cluster

Function

This API is used to terminate a cluster after data processing and analysis are completed or the cluster is abnormal. This API is compatible with Sahara.

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 terminated.
- **terminated**: The cluster has been terminated.
- **failed**: The cluster is failed.

URI

- FormatDELETE /v1.1/{project_id}/clusters/{cluster_id}
- Parameter description

Table 6-36 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Response

Response parameters

None.

Example

Request example

None.

• Response example None.

Status Code

Table 6-37 describes the status code of this API.

Table 6-37 Status code

Status Code	Description	
204	The cluster is terminated successfully.	

For details about error status codes, see **Status Codes**.

6.1.6 Querying a Host List

Function

This API is used to query a host list of a specified cluster.

URI

- FormatGET /v1.1/{project_id}/clusters/{cluster_id}/hosts
- Parameter description

Table 6-38 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Request

Table 6-39 Request parameter description

Parameter	Mandato ry	Туре	Description
pageSize	No	Integer	Maximum number of clusters displayed on a page. Value range: [1-2147483646]. The default value is 10 .
currentPage	No	Integer	Current page number. The default value is 1 .

Table 6-40 Response parameter description

Parameter	Туре	Description
total	Integer	Total number of hosts in a list.
hosts	Array	Host parameters. For details, see Table 6-41 .

Table 6-41 Host parameter description

Parameter	Туре	Description
id	String	VM ID.
ip	String	VM IP address.
flavor	String	VM flavor ID.
type	String	VM type. The value can be MasterNode, CoreNode, or TaskNode.
name	String	VM name.
status	String	Current VM state.
mem	String	Memory.
cpu	String	Number of CPU cores.
root_volume_size	String	OS disk capacity.
data_volume_type	String	Data disk type.

Parameter	Туре	Description
data_volume_size	Integer	Data disk capacity.
data_volume_cou nt	Integer	Number of data disks.

Example

Request example

None

Response example

```
{
"total": 5,
 "hosts": [
    "id": "063d1d47-ae91-4a48-840c-b3cfe4efbcf0",
    "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_core_IQhiC",
    "ip": "192.168.0.169",
    "status": "ACTIVE",
"flavor": "c2.2xlarge.linux.mrs",
    "type": "Core",
"mem": "16384",
    "cpu": "8",
    "root_volume_size": "40",
    "data_volume_type": "SATA",
    "data_volume_size": 100,
    "data_volume_count": 1
   },
    "id": "dc5c6208-faa2-4727-a65a-2b1ce235d350",
    "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_master1_ASzkl",
    "ip": "192.168.0.156",
    "status": "ACTIVE",
    "flavor": "c2.4xlarge.linux.mrs",
    "type": "Master",
"mem": "32768",
    "cpu": "16",
    "root_volume_size": "40",
    "data_volume_type": "SATA",
    "data_volume_size": 100,
    "data_volume_count": 1
   },
    "id": "c0ce793d-848b-448a-835b-ea0cac534b09",
    "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_core_ANnRN",
    "ip": "192.168.0.243",
    "status": "ACTIVE",
    "flavor": "c2.2xlarge.linux.mrs",
    "type": "Core",
"mem": "16384",
    "cpu": "8",
    "root_volume_size": "40",
    "data_volume_type": "SATA",
    "data_volume_size": 100,
    "data_volume_count": 1
    "id": "95c23e43-ef6e-4732-b6ed-a5f1c7779fae",
    "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_core_uRRiA",
    "ip": "192.168.0.126",
    "status": "ACTIVE",
    "flavor": "c2.2xlarge.linux.mrs",
    "type": "Core",
```

```
"mem": "16384",
     "cpu": "8",
     "root_volume_size": "40",
     "data_volume_type": "SATA",
     "data_volume_size": 100,
     "data_volume_count": 1
     "id": "63bdbf75-1133-4a94-8c27-1fa12c8b9e70",
     "name": "a78e161c-d14f-4b68-8c2d-0219920ce844_node_master2_StqFu",
     "ip": "192.168.0.22",
     "status": "ACTIVE",
"flavor": "c2.4xlarge.linux.mrs",
     "type": "Master",
     "mem": "32768",
"cpu": "16",
     "root_volume_size": "40",
     "data_volume_type": "SATA",
     "data_volume_size": 100,
     "data_volume_count": 1
]
```

Table 6-42 describes the status code of this API.

Table 6-42 Status code

Status Code	Description
200	The host list information has been successfully queried.

For details about error status codes, see Status Codes.

6.2 Job Objects (Not Recommended)

6.2.1 Adding a Job and Executing the Job

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 6-43 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.

Request

Table 6-44 Request parameter description

Parameter	Mandato ry	Туре	Description
job_type	Yes	Integer	Job type code. 1: MapReduce 2: Spark 3: Hive Script 4: HiveQL (not supported currently) 5: DistCp, importing and exporting data. For details, see Table 6-45. 6: Spark Script 7: Spark SQL, submitting Spark SQL statements. For details, see Table 6-46. (Not supported in this API currently.) NOTE Spark and Hive jobs can be added to only clusters that include Spark and Hive components.
job_name	Yes	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. NOTE Identical job names are allowed but not recommended.
cluster_id	Yes	String	Cluster ID.

Parameter	Mandato ry	Туре	Description
jar_path	Yes	String	Path of the JAR or SQL file for program execution. The parameter must meet the following requirements:
			 Contains a maximum of 1,023 characters. The path cannot contain special characters such as ; &><'\$ and cannot be left blank or full of spaces.
			This path must start with "/" or "s3a://". The OBS path does not support files or programs encrypted by KMS.
			 Spark Script must end with .sql while MapReduce and Spark JAR must end with .jar. sql and jar are case-insensitive.
arguments	No	String	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.
			The parameter contains a maximum of 2,047 characters. It cannot contain special characters such as ; &>'<\$!\ but can be left blank.
			When entering a parameter containing sensitive information (for example, login password), you can add an at sign (@) before the parameter name to encrypt the parameter value. This prevents the sensitive information from being persisted in plaintext. When you view job information, sensitive information is displayed as *. Example: username=admin @password=xxx

Parameter	Mandato ry	Туре	Description
input	No	String	Path to the directory where input data is stored. 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.
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.
output	No	String	Path to the directory where output data is stored. This path must start with "/" or "s3a://". A correct OBS path is required. If the path does not exist, the system automatically creates it.
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.
job_log	No	String	Path for storing job logs that record job running status. This path must start with "/" or "s3a://".
			The parameter contains a maximum of 1,023 characters. It cannot contain special characters such as ; &>'<\$, but can be left blank.

Parameter	Mandato ry	Туре	Description
hive_script_path	Yes	String	SQL program path. This parameter is needed by Spark Script and Hive Script jobs only, and must meet the following requirements:
			Contains a maximum of 1,023 characters. The path cannot contain special characters such as ; &><'\$ and cannot be left blank or full of spaces.
			The path must start with / or s3a://. The OBS path does not support files or programs encrypted by KMS.
			Ends with .sql. sql is case- insensitive.

 Table 6-45 DistCp parameter description

Parameter	Mandato ry	Туре	Description
job_name	Yes	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. NOTE Identical job names are allowed but not recommended.
t	NI -	Chuin n	
input	No	String	 When you import data, the parameter is set to an OBS path. Files or programs encrypted by KMS are not supported. When you export data, the parameter is set to an HDFS path.
output	No	String	 Data receiving path. When you import data, the parameter is set to an HDFS path. When you export data, the parameter is set to an OBS path.

Parameter	Mandato ry	Туре	Description
file_action	Yes	String	 Types of file operations, including: export: Export data from HDFS to OBS. import: Import data from OBS to HDFS.

Table 6-46 Spark SQL parameter description

Parameter	Mandato ry	Туре	Description
hql	Yes	String	Spark SQL statement, which needs Base64 encoding and decoding. ABCDEFGHIJKLMNOPQRSTUVW- XYZabcdefghijklmnopqrstuvw- xyz0123456789+/ is a standard encoding table. MRS uses ABCDEFGHILKJMNOPQRSTUVW- XYZabcdefghijklmnopqrstuvw- xyz0123456789+/ for Base64 encoding. The value of the hql 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:
			Obtain the Base64 encoding tool.
			2. Enter the show tables ; Spark SQL statement in the encoding tool to perform Base64 encoding.
			Obtain the encoded character string c2hvdyB0YWLsZXM7.
			4. At the beginning of c2hvdyB0YWLsZXM7, add any letter, for example, g. Then, the character string becomes gc2hvdyB0YWLsZXM7, that is, the value of the hql parameter.

Parameter	Mandato ry	Туре	Description
job_name	Yes	String	Job name. It contains 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
			NOTE Identical job names are allowed but not recommended.

Table 6-47 Response parameter description

Parameter	Туре	Description
job_execution	Object	For details, see Table 6-48 .

Table 6-48 job_execution parameter description

Parameter	Туре	Description
templated	Bool	Whether job execution objects are generated by job templates.
created_at	Integer	Creation time, which is a 10-bit timestamp.
updated_at	Integer	Update time, which is a 10-bit timestamp.
id	String	Job ID.
tenant_id	String	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
job_id	String	Job application ID.
job_name	String	Job name.
input_id	String	Data input ID.
output_id	String	Data output ID.
start_time	Integer	Start time of job execution, which is a 10-bit timestamp.
end_time	Integer	End time of job execution, which is a 10-bit timestamp.

Parameter	Туре	Description
cluster_id	String	Cluster ID.
engine_job_id	String	Workflow ID of Oozie.
return_code	Integer	Returned code for an execution result.
is_public	Bool	Whether a job is public.
		• true
		 false The current version does not support
		this function.
is_protected	Bool	Whether a job is protected.
		• true
		 false The current version does not support
		this function.
group_id	String	Group ID of a job.
jar_path	String	Path of the .jar file for program execution.
input	String	Address for inputting data.
output	String	Address for outputting data.
job_log	String	Address for storing job logs.
job_type	Integer	Job type code.
		• 1: MapReduce
		• 2: Spark
		3: Hive Script4: HiveQL (not supported currently)
		• 5: DistCp
		• 6 : Spark Script
		• 7: Spark SQL (not supported in this API currently)
file_action	String	Data import and export.
arguments	String	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. This parameter can be empty.

Parameter	Туре	Description
job_state	Integer	Job status code. • -1: Terminated • 1: Starting • 2: Running • 3: Completed • 4: Abnormal • 5: Error
job_final_status	Integer	 Final job status. O: unfinished 1: terminated due to an execution error 2: executed successfully 3: canceled
hive_script_path	String	Address of the Hive script.
create_by	String	User ID for creating jobs. This parameter is not used in the current version, but is retained for compatibility with earlier versions.
finished_step	Integer	Number of completed steps. This parameter is not used in the current version, but is retained for compatibility with earlier versions.
job_main_id	String	Main ID of a job. This parameter is not used in the current version, but is retained for compatibility with earlier versions.
job_step_id	String	Step ID of a job. This parameter is not used in the current version, but is retained for compatibility with earlier versions.
postpone_at	Integer	Delay time, which is a 10-bit timestamp. This parameter is not used in the current version, but is retained for compatibility with earlier versions.
step_name	String	Step name of a job. This parameter is not used in the current version, but is retained for compatibility with earlier versions.

Parameter	Туре	Description
step_num	Integer	Number of steps.
		This parameter is not used in the current version, but is retained for compatibility with earlier versions.
task_num	Integer	Number of tasks.
		This parameter is not used in the current version, but is retained for compatibility with earlier versions.
update_by	String	User ID for updating jobs.
credentials	String	Token, which is not supported in the current version.
user_id	String	User ID for creating jobs.
		This parameter is not used in the current version, but is retained for compatibility with earlier versions.
job_configs	String	Key-value pair set for saving job running configurations.
extra	String	Authentication information, which is not supported in the current version.
data_source_urls	String	Data source URL.
info	String	Key-value pair set, containing job running information returned by Oozie.

Example

Request example

The following is an example of an MapReduce job request:

```
{
  "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": ""
}
```

The request example of Spark 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": ""
}
```

The request example of Hive Script 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"
}
```

The request example of DistCp job for import:

```
{
  "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"
}
```

The request example of DistCp job for export:

```
{
  "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"
}
```

The request example of Spark Script 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"
}
```

Response example

```
{
    "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": false,
"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
```

Table 6-49 describes the status code

Table 6-49 Status Code

Status Code	Description	
200	The job has been successfully added.	

For details about error status codes, see Status Codes.

6.2.2 Querying the exe Object List of Jobs

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 6-50 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .

Request

Table 6-51 Request parameter description

Parameter	Mandato ry	Туре	Description
cluster_id	Yes	String	Cluster ID.
id	No	String	Job execution object ID.
page_size	No	Integer	Maximum number of jobs displayed on a page. Value range: 1 to 100
current_page	No	Integer	Current page number.
job_name	No	String	Job name.
state	No	Integer	Job status code. • -1: Terminated • 2: Running • 3: Completed • 4: Abnormal

Table 6-52 Response parameter description

Parameter	Туре	Description
totalRecord	Integer	Total number of jobs in a list.
job_executions	Array	Job list parameters. For details, see Table 6-53.

Table 6-53 job_executions parameter description

Parameter	Туре	Description
id	String	Job ID.
create_at	Integer	Creation time, which is a 13-bit timestamp.
update_at	Integer	Update time, which is a 13-bit timestamp.
tenant_id	String	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
job_id	String	Job ID of the YARN.
job_name	String	Job name.
start_time	Integer	Start time of job execution, which is a 13-bit timestamp.
end_time	Integer	End time of job execution, which is a 13-bit timestamp.
cluster_id	String	Cluster ID of a job.
group_id	String	Group ID of a job.
jar_path	String	Path of the .jar file or .sql file for program execution.
input	String	Address for inputting data.
output	String	Address for outputting data.
job_log	String	Address for storing job logs.
job_type	Integer	Job type code. 1: MapReduce 2: Spark 3: Hive Script 4: HiveQL (not supported currently) 5: DistCp 6: Spark Script 7: Spark SQL (not supported in this API currently)
file_action	String	Data import and export.

Parameter	Туре	Description
arguments	String	Key parameter for program execution. The parameter is specified by the function of the user's internal program. MRS is only responsible for loading the parameter. This parameter can be empty.
hql	String	HiveQL statement.
job_state	Integer	Job status code. • -1: Terminated • 2: Running • 3: Completed • 4: Abnormal
job_final_status	Integer	 Final job status. 0: unfinished 1: terminated due to an execution error 2: executed successfully 3: canceled
hive_script_path	String	Address of the Hive script.
create_by	String	User ID for creating jobs.
finished_step	Integer	Number of completed steps.
job_main_id	String	Main ID of a job.
job_step_id	String	Step ID of a job.
postpone_at	Integer	Delay time, which is a 13-bit timestamp.
step_name	String	Step name of a job.
step_num	Integer	Number of steps.
task_num	Integer	Number of tasks.
update_by	String	User ID for updating jobs.
spend_time	Integer	Duration of job execution. (Unit: s)
step_seq	Integer	Step sequence of a job.
progress	String	Job execution progress.

Request example

GET/v1.1/{project_id}/job-exes? page_size=10¤t_page=1&state=3&job_name=myfirstjob&clusterId=20ca8601-72a2-4570-b788-2a20fec81a95

Response example

```
"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 Code

Table 6-54 describes the status code of this API.

Table 6-54 Status code

Status Code	Description
200	The exe object list of jobs is queried successfully.

For details about error status codes, see **Status Codes**.

6.2.3 Querying exe Object Details

Function

This API is used to query detailed information about the exe object of a job. This API is incompatible with Sahara.

URI

- FormatGET /v1.1/{project_id}/job-exes/{job_exe_id}
- Parameter description

Table 6-55 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
job_exe_id	Yes	Job ID.

Request

Request parameters

None.

Response

Table 6-56 Response parameter description

Parameter	Туре	Description
job_execution	Object	For details, see Table 6-57 .

Table 6-57 job_execution parameter description

Parameter	Туре	Description
id	String	Job ID.
create_at	Integer	Creation time, which is a 13-bit timestamp.
update_at	Integer	Update time, which is a 13-bit timestamp.

Parameter	Туре	Description
tenant_id	String	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
job_id	String	Job ID.
job_name	String	Job name.
start_time	Integer	Start time of job execution, which is a 13-bit timestamp.
end_time	Integer	End time of job execution, which is a 13-bit timestamp.
cluster_id	String	Cluster ID of a job.
group_id	String	Group ID of a job.
jar_path	String	Path of the .jar file or .sql file for program execution.
input	String	Address for inputting data.
output	String	Address for outputting data.
job_log	String	Address for storing job logs.
job_type	Integer	Job type code. 1: MapReduce 2: Spark 3: Hive Script 4: HiveQL (not supported currently) 5: DistCp 6: Spark Script 7: Spark SQL (not supported in this API currently)
file_action	String	Data import and export.
arguments	String	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. This parameter can be empty.
hql	String	HiveQL statement.

Parameter	Туре	Description
job_state	Integer	Job status code. • -1: Terminated • 1: Starting • 2: Running • 3: Completed • 4: Abnormal • 5: Error
job_final_status	Integer	 Final job status. 0: unfinished 1: terminated due to an execution error 2: executed successfully 3: canceled
hive_script_path	String	Address of the Hive script.
create_by	String	User ID for creating jobs.
finished_step	Integer	Number of completed steps.
job_main_id	String	Main ID of a job.
job_step_id	String	Step ID of a job.
postpone_at	Integer	Delay time, which is a 13-bit timestamp.
step_name	String	Step name of a job.
step_num	Integer	Number of steps.
task_num	Integer	Number of tasks.
update_by	String	User ID for updating jobs.
spend_time	Integer	Duration of job execution. (Unit: s)
step_seq	Integer	Step sequence of a job.
progress	String	Job execution progress.

 Request example None.

• Response example

```
"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",
"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 6-58 describes the status code of this API.

Table 6-58 Status code

Status code	Description
200	The exe object details are queried successfully.

For details about error status codes, see **Status Codes**.

6.3 Job Execution Objects (Not Recommended)

6.3.1 Deleting a Job Execution Object

Function

This API is used to delete a job execution object. This API is compatible with Sahara.

URI

FormatDELETE /v1.1/{project_id}/job-executions/{job_execution_id}

• Parameter description

Table 6-59 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
job_execution_id	Yes	Job ID.

Request

Request parameters

None.

Response

Response parameters

None.

Example

• Request example

None.

• Response example

None.

Status Code

Table 6-60 describes the status code of this API.

Table 6-60 Status code

Status Code	Description
204	The job execution object is deleted successfully.

For details about error status codes, see **Status Codes**.

6.4 Tag Management APIs

6.4.1 Adding a Tag to a Specified Cluster

Function

This API is used to add a tag to a specified cluster.

A cluster has a maximum of 10 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.

URI

- FormatPOST /v1.1/{project_id}/clusters/{cluster_id}/tags
- Parameter description

Table 6-61 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
cluster_id	Yes	Cluster ID.

Request

Table 6-62 tags parameter description

- and the contraction of the con			
Parameter	Mandato ry	Туре	Description
key	Yes	String	Key. A tag key cannot contain special characters (=*<> /) or start or end with spaces.
value	Yes	String	Value. A tag value cannot contain special characters (=*<> /) or start or end with spaces.

Response

Response parameters

None.

Example

Request example

የ "tag":

```
{
    "key":"DEV",
    "value":"DEV1"
    }
}
```

• Response example None.

Status Code

Table 6-63 describes the status code of this API.

Table 6-63 Status code

Status Code	Description
204	The operation is successful.

6.4.2 Deleting a Tag of a Specified Cluster

Function

This API is used to delete a tag of a specified cluster.

URI

- Format
 DELETE /v1.1/{project_id}/clusters/{cluster_id}/tags/{key}
- Parameter description

Table 6-64 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Response

Response parameters

None

- Request example
 - None.
- Response example
 - None

Status Code

Table 6-65 describes the status code of this API.

Table 6-65 Status code

Status Code	Description
204	The operation is successful.

6.4.3 Querying Tags of a Specified Cluster

Function

This API is used to query tags of a specified cluster.

URI

- Format
 - GET /v1.1/{project_id}/clusters/{cluster_id}/tags
- Parameter description

Table 6-66 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Response

Table 6-67 Response parameter description

Parameter	Туре	Description
tags	Array of objects	Tag list. For details, see Table 6-68 .

Table 6-68 tags parameter description

Parameter	Туре	Description
key	String	Key. A tag key cannot contain special characters (=*<> /) or start or end with spaces.
value	String	Value. A tag value cannot contain special characters (=*<> /) or start or end with spaces.

Example

Request example

None.

Response example

Status Code

Table 6-69 describes the status code of this API.

Table 6-69 Status code

Status Code	Description
200	The operation is successful.

6.4.4 Adding or Deleting Cluster Tags in Batches

Function

This API is used to add or delete tags to or from a specified cluster in batches.

You can add a maximum of 10 tags to a cluster.

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.
- When tags are being deleted and some tags do not exist, the operation is considered successful by default. The character set of the tags will not be checked. A key and a value can respectively contain up to 36 and 43 Unicode characters. When tags are deleted, the tag structure body cannot be missing, and the key cannot be left blank or set to an empty string.

URI

- FormatPOST /v1.1/{project_id}/clusters/{cluster_id}/tags/action
- Parameter description

Table 6-70 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
cluster_id	Yes	Cluster ID.

Request

Table 6-71 Request parameter description

Parameter	Mandato ry	Туре	Description
action	Yes	String	Operation to be performed. The value can be set to create or delete only.
tags	Yes	List <resou rce_tag></resou 	Tag list. For details about the parameter, see Table 6-72 .

Table 6-72 tags parameter description

Parameter	Mandato ry	Туре	Description
key	Yes	String	Key. A tag key cannot contain special characters (=*<> /) or start or end with spaces.
value	Yes	String	Value. A tag value cannot contain special characters (=*<> /) or start or end with spaces. Note: This parameter is mandatory for adding a tag. This parameter is optional for deleting a tag.

Response

Response parameters

None.

Example

Request example

• Response example None.

Status Code

Table 6-73 describes the status code of this API.

Table 6-73 Status code

Status Code	Description
204	The operation is successful.

6.4.5 Querying All Tags

Function

This API is used to query all tag sets of a specified region.

URI

- FormatGET /v1.1/{project_id}/clusters/tags
- Parameter description

Table 6-74 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .

Request

Request parameters

None.

Response

Table 6-75 Response parameter description

Parameter	Туре	Description
tags	Array of objects	Tag list. For details, see Table 6-76 .

Table 6-76 tags parameter description

Parameter	Туре	Description
key	String	Tag key. A tag key cannot contain special characters (=*<> /) or start or end with spaces.
value	String	Value. A tag value cannot contain special characters (=*<> /) or start or end with spaces.

Request example

None.

• Response example

Status Code

Table 6-77 describes the status code of this API.

Table 6-77 Status code

Status Code	Description
200	The operation is successful.

6.4.6 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.

URI

- FormatPOST /v1.1/{project_id}/clusters/resource_instances/action
- Parameter description

Table 6-78 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.

Request

Table 6-79 Request parameter description

Parameter	Mandato ry	Туре	Description
tags	No	List <tag></tag>	The return result contains resources corresponding to all tags in this parameter. This parameter contains a maximum of 10 keys, and each key contains a maximum of 10 values. The structure body cannot be missing, and the key cannot be left blank or set to an empty string.
tags_any	No	List <tag></tag>	The return result contains resources corresponding to any tag in this parameter. This parameter contains a maximum of 10 keys, and each key contains a maximum of 10 values. The structure body cannot be missing, and the key cannot be left blank or set to an empty string. Keys must be unique and values of a key must be unique.
not_tags	No	List <tag></tag>	The return result does not contain resources corresponding to all tags in this parameter. This parameter contains a maximum of 10 keys, and each key contains a maximum of 10 values. The structure body cannot be missing, and the key cannot be left blank or set to an empty string. Keys must be unique and values of a key must be unique.

Parameter	Mandato ry	Туре	Description
not_tags_any	No	List <tag></tag>	The return result does not contain resources corresponding to any tag in this parameter. This parameter contains a maximum of 10 keys, and each key contains a maximum of 10 values. The structure body cannot be missing, and the key cannot be left blank or set to an empty string. Keys must be unique and values of a key must be unique.
limit	No	String	Number of records. This parameter is not available when action is set to count . The default value is 1000 when action is set to filter . The maximum value is 1000 , and the minimum value is 1 . The value cannot be a negative number.
offset	No	String	Index position. The query starts from the next piece of data specified by the offset parameter. This parameter is not required when you query data on the first page. The value in the response body returned for querying data on the previous page will be included in this parameter for querying data on subsequent pages. This parameter is not available when action is set to count. If action is set to filter, the value must be a number, and the default value is 0. The value cannot be a negative number.
action	Yes	String	Operation to be performed. The value can be filter or count . The value filter indicates pagination query. The value count indicates that the total number of query results meeting the search criteria will be returned.

Parameter	Mandato ry	Туре	Description
matches	No	List <matc h></matc 	Search field. key indicates the field to be matched, for example, resource_name . value indicates the matched value. This field is a fixed dictionary value. Determine whether fuzzy match is required based on different fields. For example, if key is resource_name , fuzzy search is used by default. If value is an empty string, exact match is used.

Table 6-80 tag parameter description

Parameter	Mandato ry	Туре	Description
key	Yes	String	Key. It contains a maximum of 127 Unicode characters. It cannot be left empty. (This parameter is not verified in the search process.)
values	Yes	List <strin g></strin 	List of values. A value contains a maximum of 255 Unicode characters.
			If the values are null, it indicates any_value. The relationship between values is OR. By default, only the first value is used for search.

Table 6-81 match parameter description

Parameter	Mandato ry	Туре	Description
key	Yes	String	Key. The value is fixed to resource_name, indicating a cluster name.
value	Yes	String	Value. A value contains a maximum of 64 Unicode characters. Enter a cluster name.

Response

Table 6-82 Response parameter description

Parameter	Туре	Description
resources	Array of objects	Resource details. For details, see Table 6-83 .
total_count	Integer	Total number of resources.

Table 6-83 resources parameter description

Parameter	Туре	Description
resource_detail	String	Resource details.
resource_id	String	Resource ID.
resource_name	String	Resource name.
tags	objects	Tag list. For details, see Table 6-84 .

Table 6-84 tags parameter description

Parameter	Туре	Description
key	String	Key. A tag key cannot contain special characters (=*<> /) or start or end with spaces.
value	String	Value. A tag value cannot contain special characters (=*<> /) or start or end with spaces.

Example

• Request example

Request body when action is set to filter

```
{
    "offset": "100",
    "limit": "100",
    "action": "filter",
    "matches":[
    {
        "key": "resource_name",
        "value": "clusterA"
      }
],
    "not_tags": [
    {
        "key": "key1",
        "values": [
```

```
"value1",
"value2"
   }
   "tags": [
   {
    "key": "key1",
    "values": [
    "value1",
        "value1",
        "value2"
   "tags_any": [
   {
"key": "key1",
      "values": [
        "value1",
        "value2"
  ],
 "not_tags_any": [
   {
  "key": "key1",
      "values": [
        "value1",
        "value2"
]
```

Request body when action is set to count

```
"action": "count",
 "not_tags": [
  {
 "key": "key1",
 ". r
    "values": [
      "value1",
"value2"
  }
],
"tags": [
    "key": "key1",
"values": [
      "value1",
      "value2"
  },
    "key": "key2",
    "values": [
      "value1",
      "value2"
 "tags_any": [
    "key": "key1",
    "values": [
      "value1",
"value2"
```

• Response example

Response body when action is set to filter

```
{
    "resources": [
        {
             "resource_detail": null,
            "resource_id": "cdfs_cefs_wesas_12_dsad",
            "resource_name": "clusterA"
        }
     ]
    "total_count": 1000
}
```

Response body when action is set to count

```
{
    "total_count": 1000
}
```

Status Code

Table 6-85 describes the status code of this API.

Table 6-85 Status code

Status Code	Description
200	The operation is successful.

7 Python APIs

7.1 Creating an MRS Cluster

Function

Create an MRS cluster.

URI

- Format MRSApi.create_cluster
- Parameter description

Table 7-1 URI parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
token	Yes	User token.
available_zone_co des	Yes	Code of an available region.
cluster_name	Yes	Cluster name. It must be unique. A cluster name can contain only 1 to 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
cluster_version	Yes	Cluster version. The latest version of MRS is used by default.
components	Yes	List of service components to be installed. Use commas (,) to separate component names, for example, Hadoop,Spark,Hive,HBase.

Parameter	Mandatory	Description
safe_mode	Yes	Running mode of an MRS cluster. 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 these functions, the users must obtain the relevant permissions from the MRS Manager administrator.
vpc_name	Yes	Name of the VPC where the subnet locates.
vpc_id	No	ID of the VPC where the subnet locates.
subnet_name	Yes	Subnet name.
subnet_id	No	Network ID.
manager_admin_ password	No	Password of the MRS Manager administrator. • Must be a string and 8 to 32 characters long. • The password must contain at least three types of the following characters (if the value of cluster_version is FusionInsight 6.5.1, the password must contain at least four types of the following characters): - Lowercase letters - Uppercase letters - Digits - Special characters: `~!@#\$ %^&*()=+ [{}];:''',<.>/? - Spaces • Cannot be the username or the username spelled backwards.

Parameter	Mandatory	Description
login_mode	Yes	Cluster login mode. PASSWORD : password mode; KEYPAIR : key pair mode.
		If login_mode is set to PASSWORD, set secret_or_keypair_name to the password of user root for accessing the cluster node.
		If login_mode is set to KEYPAIR, set secret_or_keypair_name to the key pair name.
secret_or_keypair_ name	Yes	If login_mode is set to PASSWORD, set secret_or_keypair_name to the password of user root for accessing the cluster node.
		Password of the MRS Manager administrator
		Must contain 8 to 26 characters.
		Must contain at least three of the following:
		 Lowercase letters
		 Uppercase letters
		– Digits
		Special characters: !@\$%^=+ [{}]:,./?
		Cannot contain any space.
		Cannot be the username or the username spelled backwards.
		If login_mode is set to KEYPAIR, set secret_or_keypair_name to the key pair name. You can use a key pair to log in to the Master node in the cluster.
root_volume_type	Yes	System disk type.
root_volume_size	Yes	System disk size.
ha_mode	No	Whether the cluster is highly available. If the value is true , two Master nodes are created. If the value is false , only one Master node is created.

Parameter	Mandatory	Description
master_node_size	Yes	Instance specifications of the Master node, for example, c3.4xlarge.2.linux.bigdata MRS supports host specifications determined by CPU, memory, and disk space.
master_data_volu me_count	Yes	This parameter is a multi-disk parameter, indicating the number of data disks of the Master node. The value can be set to 1 only.
master_data_volu me_size	Yes	This parameter is a multi-disk parameter, indicating the 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. Value range: 100 GB to 32,000 GB
master_data_volu me_type	Yes	This parameter is a multi-disk parameter, indicating the data disk storage type of the Master node. SATA, SAS, and SSD are commonly used.
analysis_core_nod e_num	No	Number of analysis Core nodes.
analysis_core_nod e_size	No	Instance specifications of the analysis Core node, for example, c3.4xlarge.2.linux.bigdata
analysis_core_dat a_volume_count	No	This parameter is a multi-disk parameter, indicating the number of data disks of the analysis Core node. Value range: 1 to 10
analysis_core_dat a_volume_size	No	This parameter is a multi-disk parameter, indicating the data disk storage space of the analysis Core node. To increase data storage capacity, you can add disks at the same time when creating a cluster. Value range: 100 GB to 32,000 GB
analysis_core_dat a_volume_type	No	This parameter is a multi-disk parameter, indicating the data disk storage type of the analysis Core node. Currently, SATA, SAS, and SSD are supported.
streaming_core_n ode_num	No	Number of streaming Core nodes.

Parameter	Mandatory	Description
streaming_core_n ode_size	No	Instance specifications of the streaming Core node, for example, c3.4xlarge.2.linux.bigdata
streaming_core_d ata_volume_count	No	This parameter is a multi-disk parameter, indicating the number of data disks of the streaming Core node. Value range: 1 to 10
streaming_core_d ata_volume_size	No	This parameter is a multi-disk parameter, indicating the data disk storage space of the streaming Core node. To increase data storage capacity, you can add disks at the same time when creating a cluster. Value range: 100 GB to 32,000 GB
streaming_core_d ata_volume_type	No	This parameter is a multi-disk parameter, indicating the data disk storage type of the streaming Core node. Currently, SATA, SAS, and SSD are supported.
security_groups_id	No	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 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.
cpu_type	No	CPU type.
task_node_groups	No	List of Task nodes.
log_collection	No	Whether to collect logs when cluster creation fails: • 0: Do not collect. • 1: Collect. The default value is 1, indicating that OBS buckets will be created and only used to collect logs that record MRS cluster creation failures.

Parameter	Mandatory	Description
component_custo	No	Custom component parameters:
m_config		component_name: component name
		• instance_name: instance name
		• config_item: configuration item
		name: name of the configuration item
		value: value of the configuration item
		• group_name: reference file
		• is_node_instance : whether the parameter is a node-level one
		Example:
		Example: [
		"instance_name": "EsNode1", "name": "elasticsearch.data.path", "value": "/srv/BigData/data1/
		elasticsearch/esnode1", "group name":
		"elasticsearch_env.properties", "is_node_instance": true }
] , }, {
		"component_name": "HDFS", "config_item": [
		{ "instance_name": "DataNode", "name": "dfs.datanode.data.dir", "value": "/srv/BigData/data1/dn", "group_name": "hdfs-site.xml", "is_node_instance": true }
		1 '

Parameter	Mandatory	Description
		}, { "component_name": "Kafka", "config_item": [

Request

Request parameters

None.

Response

Table 7-2 Response parameter description

Parameter	Туре	Description
CreateClustersRes pV2		Response parameter CreateClustersRespV2 for creating a cluster. For details, see Table 7-3.

Table 7-3 CreateClustersRespV2 parameter description

Parameter	Туре	Description
clusterId	String	Cluster ID.

Example

- Request example
 - None.
- Response example None.

Status Code

Table 7-4 describes the status code.

Table 7-4 Status Code

Status Code	Description
200	The operations are successful.

7.2 Querying Cluster Details

Function

This API is used to query cluster details.

URI

- Format MRSApi.get_cluster_infos
- Parameter description

Table 7-5 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
token	Yes	User token.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Response

Table 7-6 Response parameter description

Parameter	Туре	Description
cluster	Object	Cluster details. See Table 7-7 .

Table 7-7 cluster parameter description

Parameter	Туре	Description
clusterId	String	Cluster ID.
clusterName	String	Cluster name.
totalNodeNum	String	Number of cluster nodes
clusterState	String	Cluster status.
stageDesc	String	Description of the cluster operation process.
isMrsManagerFinish	Boolean	Whether the MRS cluster is created.
createAt	String	Time when the MRS cluster is created.
updateAt	String	Time when the MRS cluster is updated.
chargingStartTime	String	Billing start time.
billingType	String	Billing mode.
dataCenter	String	Data center.
vpc	String	VPN name.
vpcld	String	VPN ID.
duration	String	Cluster subscription duration.
fee	String	Cluster creation fee, which is automatically calculated.
hadoopVersion	String	Hadoop version.
componentList	Array of objects	Component list List <componentamb>. For details, see Table 7-8.</componentamb>
externallp	String	Public IP address.
externalAlternateIp	String	Standby public IP address.
internallp	String	Private IP address.
deploymentId	String	Deployment ID, which is required for deleting a cluster.
remark	String	Remarks.

Parameter	Туре	Description
orderld	String	Order ID.
azld	String	AZ ID.
azName	String	AZ name.
azCode	String	AZ name (en).
multiAzDeployment	Boolean	Whether to enable the multi-AZ deployment feature. The value can be true (enabled) or false (disabled). The default value is false .
arbitrationAzCode	String	Arbitration AZ. If this parameter is left blank, no arbitration AZ is specified.
instanceId	String	Instance ID.
vnc	String	URI for remotely logging in to an ECS.
tenantId	String	Tenant ID.
volumeSize	Integer	Volume size.
supportRollingPatch	boolean	Whether to support scrolling.
volumeType	String	Volume type.
subnetId	String	Subnet ID.
subnetName	String	Subnet name.
securityGroupsId	String	Security group ID.
slaveSecurityGroupsId	String	ID of the slave security group.
safeMode	Integer	Running mode of an MRS cluster. The value can be 0 (common) or 1 (safe).
clusterVersion	String	Cluster version.
nodePublicCertName	String	Name of the key file.
masterNodelp	String	IP address of the active node.
privatelpFirst	String	Primary private IP address.

Parameter	Туре	Description
errorInfo	String	Error message.
tags	String	Cluster tag.
clusterType	Integer	Cluster type.
nodeGroups	Array of objects	Node group information List <nodegroupv10>. For details, see Table 7-9.</nodegroupv10>
periodType	Integer	Period type.
purchaseMode	String	Purchase mode.
eipId	String	EIP ID.
eipAddress	String	EIP.
eipv6Address	String	EIP IPv6 address.
scale	String	Scale.
clusterProductId	String	Cluster product ID.
clusterSpecId	String	Cluster specification ID.
clusterResourceId	String	Cluster resource ID.
enterpriseProjectId	String	Enterprise project ID.
installedPatches	String	Patch installation.
dataVolumeEvsEn- cryptKmsKey	String	Encryption key of the EVS database.
authorizations	String	Authorization.
isDecProject	Boolean	Whether the computing resource used by the cluster is a dedicated resource pool.
promotoionActivityId	String	Promotion activity ID.
compositeProductId	String	Composite product ID.
discountId	String	Discount ID.
mrsEcsDefaultAgency	String	MRS ECS default agency.
nodeTotal	Integer	Total number of nodes.
securityAuthorize	Integer	Security authorization.

Parameter	Туре	Description
componentDLCatalog- Metadata	Array of objects	Component catalog metadata List <dlcatalogmetada- ta="">. For details, see Table 7-10.</dlcatalogmetada->

Table 7-8 ComponentAmb parameter description

Parameter	Туре	Description
componentId	String	Component ID.
componentName	String	Component name.
componentVersion	String	Component version.
externalDatasources	Array of ExternalDatasource	External data source of a component. For details, see Table 7-11 .
componentDesc	String	Component description.
componentDescEn	String	Component description in English.

Table 7-9 NodeGroupV10 parameter description

Parameter	Туре	Description
seqId	int	Primary key ID of a node group.
groupName	String	Node group name.
clusterId	String	Cluster ID.
nodeNum	int	Number of nodes.
nodeSize	String	Node size.
nodeSpecId	String	Instance specification ID of a node.
vmProductId	String	VM product ID.
vmSpecCode	String	VM product specification code.
nodeProductId	String	Instance product ID of a node.

Parameter	Туре	Description
rootVolumeSize	int	System disk size. Unit: GB.
rootVolumeProductId	String	System disk product ID.
rootVolumeType	String	System disk type, which can be SSD, SAS, or SATA.
rootVolumeResourceS- pecCode	String	System disk product specification code.
rootVolumeResourceType	String	System disk type.
dataVolumeType	String	Data disk type, which can be SSD, SAS, or SATA.
dataVolumeCount	int	Number of data disks.
dataVolumeSize	int	Data disk size. Unit: GB.
dataVolumeProductId	String	Data disk product ID.
dataVolumeResourceS- pecCode	String	Data disk product specification code.
dataVolumeResource- Type	String	Data disk type.
volumeDssClusterType	String	Volume storage cluster type.
volumeDssClusterId	String	Volume storage cluster ID.
hypervisorType	String	VM monitoring program type.
dccNodeSize	String	DCC node size.
dccNodeProductId	String	DCC node product ID.
needLvm	boolean	Whether logical volume management is required.
serverGroupId	String	Anti-affinity group ID.
billingType	Integer	Measurement type.
disabled	boolean	Whether an item is invalid.
сриТуре	String	CPU model.
assignedRoles	Array of String	Assigned role.

Parameter	Туре	Description
isSpotInstance	boolean	Whether an item is a spot instance.
spotPrice	String	Bidding price.
currency	String	Currency.
azPlacementExpression	String	Relationship between the AZ and node index. • Format for Master node groups: indexed::sa-
		fb-1a=1,2::sa- fb-1b=3::sa-fb-1d=4
		 Format for non- Master node groups: balanced::sa- fb-1a,sa-fb-1d

Table 7-10 DLCatalogMetadata parameter description

Parameter	Туре	Description
sourceType	String	Source type.
dataType	String	Data type.
dlCatalogInstance	Object	DL catalog instance DLCatalogInstance . For details, see Table 7-12 .

Table 7-11 ExternalDatasource parameter description

Parameter	Туре	Description
name	String	Name.
type	String	Туре.
dataConnectorId	String	Data connection ID.

Table 7-12 DLCatalogInstance parameter description

Parameter	Туре	Description
dlCatalogId	String	DL catalog ID.

Parameter	Туре	Description
vpcEpId	String	VPC EP ID.
vpcEpIp	String	VPC EP IP.

- Request example
 - None.
- Response example None.

Status Code

Table 7-13 describes the status code of this API.

Table 7-13 Status code

Status Code	Description
200	The operations are successful.

7.3 Querying a Host List

Function

This API is used to query all hosts in the system.

URI

- FormatMRSApi.list_hosts
- Parameter description

Table 7-14 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
token	Yes	User token.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None

Response

Table 7-15 Response parameter description

Parameter	Туре	Description
hostTotal	int	Number of hosts.
hosts	Array of Object	Host information List<hostmodel></hostmodel> . For details, see Table 7-16 .

Table 7-16 HostModel parameter description

Parameter	Туре	Description
serverId	String	ID.
hostName	String	Host name.
internallp	String	Internal IP address.
hostStatus	String	Host status.
nodeSize	String	Node size.
nodeType	String	Node type.
mem	String	Capacity.
сри	String	CPU.
disk	String	Disk.
dataVolumeType	String	Data disk type.
dataVolumeSize	int	Data disk size.
dataVolumeCount	int	Number of data disks.

Example

- Request example None
- Response example
 None

Status Code

Table 7-17 describes the status code of this API.

Table 7-17 Status code

Status Code	Description	
200	The operations are successful.	

7.4 Terminating a Cluster

Function

This API is used to terminate a cluster.

URI

- Format MRSApi.delete_cluster
- Parameter description

Table 7-18 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain the project ID, see Obtaining a Project ID.
token	Yes	User token.
cluster_id	Yes	Cluster ID.

Request

Request parameters

None.

Response

Table 7-19 Response parameter description

Parameter	Туре	Description
result	boolean	Operation result.
msg	String	Message feedback.

Example

- Request example
 - None.
- Response example None.

Status Code

Table 7-20 describes the status code of this API.

Table 7-20 Status code

Status Code	Description	
204	The operations are successful.	

7.5 Adding an MRS Whitelist

Function

This API is used to add an MRS whitelist.

URI

- Format MRSApi.mrs_add_whitelist_to_db
- Parameter description

Table 7-21 URI parameter description

Parameter	Mandatory	Description
token	Yes	User token.
cluster_version	Yes	Cluster version.
talent_name	Yes	Tenant name.

Request

Request parameters

None.

Response

Response parameters

None.

Example

- Request example
 - None.
- Response example

None.

Status Code

Table 7-22 describes the status code of this API.

Table 7-22 Status code

Status Code	Description	
204	The operation is successful.	

7.6 Deleting an MRS Whitelist

Function

This API is used to delete an MRS whitelist.

URI

- Format MRSApi.mrs_delete_whitelist_to_db
- Parameter description

Table 7-23 URI parameter description

Parameter	Mandatory	Description
token	Yes	User token.
cluster_version	Yes	Cluster version.
talent_name	Yes	Tenant name.

Request

Request parameters

None.

Response

Response parameters

None.

Example

- Request example
 - None.
- Response example None.

Status Code

Table 7-24 describes the status code of this API.

Table 7-24 Status code

Status Code	Description	
204	The operation is successful.	

8 Appendix

8.1 Status Codes

Table 8-1 describes status codes.

Table 8-1 Status codes

Status Code	Message	Description
100	Continue	The client should continue with its request.
		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.
		For example, the current HTTPS protocol is switched to a later version.
200	ок	The request has been fulfilled.
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.

Status Code	Message	Description
204	NoContent	The request has been fulfilled, but the HTTPS response does not contain a response body.
		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.
		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.
306	Unused	The HTTPS status code is no longer used.
400	BadRequest	The request is invalid.
		The client should not repeat the request without modifications.

Status Code	Message	Description
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. The client should not repeat the request without modifications.
404	NotFound	The requested resource cannot be found. The client should not repeat the request without modifications.
405	MethodNotAllowe d	A request method is not supported for the requested resource. 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. The client may repeat the request without modifications at a later time.
409	Conflict	The request could not be processed due to a conflict with the current state of the resource. This status code indicates that the resource that the client is attempting to create already exists, or that the request has failed to be processed because of the update of the conflict request.
410	Gone	The requested resource has been deleted permanently and is no longer available.

Status Code	Message	Description
411	Length Required	The server is refusing to process the request without a defined Content-Length .
412	Precondition Failed	The server did not meet one of the preconditions that the requester put on the request.
413	Request Entity Too Large	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 Retry-After header field.
414	Request-URI Too Large	The Request-URI is too long for the server to process.
415	Unsupported Media Type	The server is unable to process the media format in the request.
416	Requested range not satisfiable	The requested range is invalid.
417	Expectation Failed	The server has failed to meet the requirements of the Expect request-header field.
422	UnprocessableEn- tity	The request is well-formed but is unable to be processed due to semantic errors.
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 Retry-After header of the response has elapsed.
500	InternalServerEr- ror	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.

Status Code	Message	Description
502	Bad Gateway	The server was acting as a gateway or proxy and received an invalid request from the remote server.
503	ServiceUnavaila- ble	The requested service is invalid. 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 Timeout parameter is specified in the request.
505	HTTPS Version not supported	The server does not support the HTTPS protocol version used in the request.

8.2 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 cloud service management console.
- 2. Click the username and choose **My Settings** from the drop-down list.
- On the My Settings page, view project IDs in the resource space list.

If there are multiple projects in one region, expand **Region** and view subproject IDs in the **ID** column.

Obtaining a Project ID by Calling an API

You can obtain the project ID by calling the IAM API used to query project information based on the specified criteria.

The API for obtaining a project ID is **GET https://{Endpoint}/v3/projects**. **{Endpoint}** indicates the endpoint of IAM, which can be obtained from **Obtaining Endpoints**. For details about API authentication, see **Authentication**.

The following is an example response. The value of **id** under **projects** is the project ID of the region specified by **name**.

8.3 Obtaining a Tenant ID

A tenant ID (**domain-id**) is required for some URLs when an API is called. To obtain a tenant ID, perform the following operations:

- 1. Log in to the management console.
- 2. Click the username and choose My Settings from the drop-down list.
- 3. On the **My Settings** page, view the user ID and tenant ID in the project list.

8.4 Obtaining MRS Cluster Information

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.

8.5 Obtaining Authentication Information

Obtaining an Access Key ID/Secret Access Key (AK/SK)

1. Log in to ManageOne Operation Portal.

- 2. Click the username in the upper right corner and choose **My Settings** from the drop-down list.
- 3. On the **My Settings** page, click **Access Keys**.
- 4. Click **Add Access Key** on the left to create an AK/SK.
- 5. Click **OK** to download the certificate.
- 6. After the certificate is downloaded, you can obtain the AK and SK information in the **credentials** file.

NOTICE

- Only two access keys can be added for each user.
- To ensure access key security, the access key is automatically downloaded only when it is generated for the first time and cannot be obtained from the management console later. Keep the access key secure after the generation.

Obtaining Endpoints

The endpoint information of MRS consists of the service name, region ID, and external domain name. The format is as follows: service_name.region0_id.external_global_domain_name.

To obtain the values of *region0_id* and *external_global_domain_name*, perform the following operations:

- Method 1: Using the Environment Parameter File
 - region0_id. Search for region0_id on the "1.2 Basic_Parameters" sheet in the xxx_export_all_v2_EN.xlsm parameter summary file exported during installation.
 - external_global_domain_name: Search for
 external_global_domain_name on the "1.2 Basic_Parameters" sheet in
 the xxx_export_all_v2_EN.xlsm parameter summary file exported during
 installation.
- Method 2: Using DMK
 - a. Log in to DMK.
 - i. In the address box of the browser, enter https://DMK IP address:8443. On the DMK login page, enter the username and password of the administrator for logging in to DMK, and click Login.
 - ii. The default username is **sysadmin**. To obtain the default password, see *Huawei Cloud Stack 8.3.1 Account List* or contact the system administrator.
 - b. In the navigation pane on the left, choose **Configurations**.
 - In the configuration file, obtain the values of regionO_id and external_global_domain_name. For details, see Figure 8-1 and Figure 8-2.

Public Configuration Change Tracking **Public Configurations** Edit DMK # 1. Global info panel public!!!!! ****************************** Dashboard 4 * g_L2_nginx: 5 allow_access_remote_host: '99.130.43.66 6 Task Board 7 * g_console: 8 + home: 9 address: Configurations 10 - 'console type3 com' 12 + oldconsole: Accounts url: 'no_oldconsole'

Figure 8-1 Obtaining the external_global_domain_name value

Figure 8-2 Obtaining the region0_id value



To call an API in the local environment, you need to configure the IP address corresponding to the endpoint in the **hosts** file of the local OS.

For example, to configure the following information in the **C:\Windows\System32\drivers\etc\hosts** file:

192.168.150.114 iam-cache-proxy. region_id>.. //The IP address of IAM endpoint is the floating IP address of the ManageOne Maintenance Portal, which is the value of ManageOne-Tenant-Float-IP on the Tool-generated IP Parameters sheet of the parameter summary file xxx_export_all_EN.xlsm.

192.168.152.5 mrs. region_id. region_id. <a hr

8.6 Roles and components supported by MRS

Table 8-2 Roles and components supported by MRS

Role Name	Component
OMSServer	OMSServer
NameNode	HDFS
Zkfc	HDFS
JournalNode	HDFS
DataNode	HDFS
ResourceManager	Yarn
NodeManager	Yarn
TimelineServer	Yarn
JobHistoryServer	MapReduce
quorumpeer	ZooKeeper
HMaster	HBase
MetricController	HBase
ThriftServer	HBase
RESTServer	HBase
Thrift1Server	HBase
RegionServer	HBase
SlapdServer	LdapServer
KerberosServer	KrbServer
KerberosAdmin	KrbServer
Hue	Hue
LoaderServer	Loader
JDBCServer	Spark
JobHistory	Spark
SparkResource	Spark
IndexServer	Spark
MetaStore	Hive

Role Name	Component
WebHCat	Hive
HiveServer	Hive
MonitorServer	Flume
Flume	Flume
oozie	Oozie
KerberosClient	KrbClient
SlapdClient	LdapClient
meta	meta
Broker	Kafka
KafkaUI	Kafka
MirrorMaker	Kafka
FlinkResource	Flink
FlinkServer	Flink
SolrServerAdmin	Solr
SolrServer	Solr
Redis	Redis
Redis-Data-Sync	Redis
EsNode	Elasticsearch
EsMaster	Elasticsearch
EsClient	Elasticsearch
HSBroker	HetuEngine
HSConsole	HetuEngine
HSFabric	HetuEngine
QAS	HetuEngine
TezUI	Tez
FTP-Server	FTP-server
RangerAdmin	Ranger
UserSync	Ranger
TagSync	Ranger
PolicySync	Ranger

Role Name	Component
RangerKMS	Ranger
ClickHouseServer	ClickHouse
ClickHouseBalancer	ClickHouse
IoTDBServer	IoTDB
ConfigNode	IoTDB
CDLConnector	CDL
CDLService	CDL
KMSWebServer	KMS
JobServer	JobGateway
JobBalancer	JobGateway
TokenServer	Guardian
WebContainer	Containers
MOTServer	MOTServer
RTDServer	RTDServer
FE	Doris
BE	Doris
DBroker	Doris
DBalancer	Doris
CCSideCar	MemArtsCC
CCWorker	MemArtsCC
SearchServer	LakeSearch
SearchFactory	LakeSearch