Ubiquitous Cloud Native Service

API Reference

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HUAWEI

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Contents

1 Before You Start

1.1 Overview

Thanks for using Huawei Cloud Ubiquitous Cloud Native Service (UCS). UCS is the industry's first distributed cloud native product. It enables you to run cloud native applications across regions and clouds with intelligent traffic distribution, while enjoying a consistent experience in terms of the deployment, management, and ecosystem.

This document describes how to use application programming interfaces (APIs) to perform operations on UCS, such as creating or deleting fleets, registering or deleting clusters, and creating, updating, or deleting permission policies.

If you plan to access UCS through an API, ensure that you are familiar with UCS concepts. For details, see **What Is Huawei Cloud UCS?**

API Calling

Huawei Cloud UCS provides Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS.

For details, see **Calling APIs**.

Endpoints

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

The following table lists UCS endpoints. Select a desired one based on the service requirements.

Table 1-1 UCS endpoints

Website	Endpoint
Huawei Cloud Chinese Mainland	ucs.myhuaweicloud.com
Huawei Cloud International	ucs-intl.myhuaweicloud.com

Constraints

- Huawei Cloud UCS imposes quotas on the number and capacity of resources that an account can access. By default, up to 50 fleets, 50 clusters, and 50 permission policies can be created. To create more resources, see **What Are the Quota Limits of UCS?**
- For more constraints, see the description of each API.

1.2 Concepts

- Account

  An account is created upon successful signing up. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity, which should not be used directly to perform routine management. For security purposes, create Identity and Access Management (IAM) users and grant them permissions for routine management.

- User

  An IAM user is created by an account in IAM to use cloud services. Each IAM user has its own identity credentials (password and access keys).

  API authentication requires information such as the account name, username, and password.

- Region

  Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified into universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides specific services for specific tenants.

  For details, see **Region and AZ**.

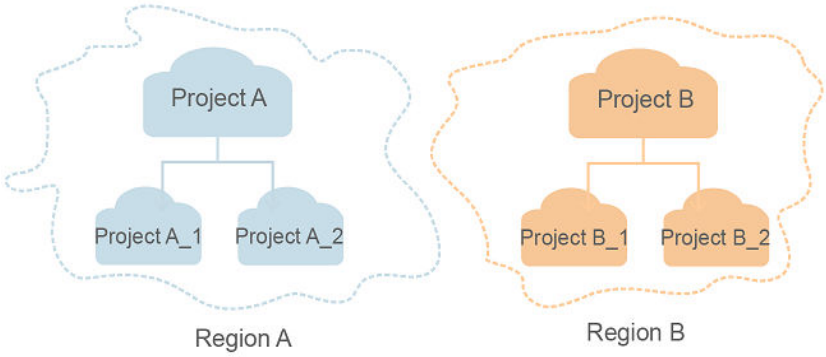
- AZ

  An AZ comprises of one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Computing, network, storage, and other resources in an AZ are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

- Project

  A project corresponds to a region. Default projects are defined to group and physically isolate resources (including computing, storage, and network resources) across regions. Users can be granted permissions in a default project to access all resources under their accounts in the region associated with the project. If you need more refined access control, create subprojects under a default project and create resources in subprojects. Then you can assign users the permissions required to access only the resources in the specific subprojects.

  Figure 1-1 Project isolation model

- Enterprise Project

  Enterprise projects group and manage resources across regions. Resources in different enterprise projects are logically isolated. An enterprise project can contain resources of multiple regions, and resources can be added to or removed from enterprise projects.

  For details about enterprise projects and about how to obtain enterprise project IDs, see ***Enterprise Management User Guide***.

2 Calling APIs

2.1 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 2-1 URI parameter description

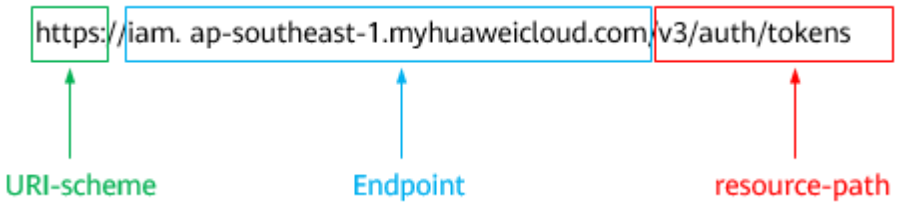
Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use **HTTPS**.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from **Regions and Endpoints**. For example, the endpoint of IAM in region **CN-Hong Kong** is **iam.ap-southeast-1.myhuaweicloud.com**.
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the **resource-path** of the API used to obtain a user token is **/v3/auth/tokens**.

Parameter	Description
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of *Parameter name*=*Parameter value*. For example, **?limit=10** indicates that a maximum of 10 data records will be displayed.

For example, to obtain an IAM token in the **CN-Hong Kong** region, obtain the endpoint of IAM (iam.ap-southeast-1.myhuaweicloud.com) for this region and the resource-path (/v3/auth/tokens) in the URI of the API used to **obtain a user token**. Then, construct the URI as follows:

```
https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
```

Figure 2-1 Example URI



NOTE

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

Request Methods

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

Table 2-2 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.

Method	Description
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.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
```

Request Header

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

Table 2-3 lists common request header fields.

Table 2-3 Common request header fields

Parameter	Description	Mandatory	Example Value
Host	Specifies the server domain name and port number of the resources being requested. The value can be obtained from the URL of the service API. The value is in the format of *Hostname:Port number*. If the port number is not specified, the default port is used. The default port number for **https** is **443**.	No This field is mandatory for AK/SK authentication.	code.test.com or code.test.com:443
Content-Type	Message body type or format. The default value **application/json** is recommended. Other values of this field will be provided for specific APIs if any.	Yes	application/json
Content-Length	Specifies the length of the request body. The unit is byte.	No	3495

Parameter	Description	Mandatory	Example Value
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in **Obtaining a Project ID**.	No This field is mandatory for requests that use AK/SK authentication in the Dedicated Cloud (DeC) scenario or multi-project scenario.	e9993fc787d94b6c886cbaa340f9c0f4
X-Auth-Token	Specifies the user token. It is a response to the API for **obtaining a user token**. (This is the only API that does not require authentication.) After the request is processed, the value of **X-Subject-Token** in the response header is the token value.	No This field is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZIhvcNAQcCo...ggg1BBIINPXsidG9rZ

NOTE

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

For more details, see "Authentication Using AK/SK" in **Authentication**.

The API used to **obtain a user token** does not require authentication. 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.ap-southeast-1.myhuaweicloud.com/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.

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.

In the case of the API 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 *xxxxxxxxxxxxxxxxx* (project name) with the actual values, for example, **ap-southeast-1**. Obtain a project name from **Regions and Endpoints**.

NOTE

The **scope** parameter specifies where a token takes effect. 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**.

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json

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

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.

2.2 Authentication

You can use either of the following authentication methods when calling APIs:

- Token authentication: Requests are authenticated using tokens.
- AK/SK authentication: Requests are encrypted using AK/SK pairs. This method is more secure.

Token Authentication

NOTE

The validity period of a token is 24 hours. If a token is used for authentication, cache it to prevent frequent API calls.

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

You can obtain a token by calling the API used to **obtain a user token**. When you call the API, set **auth.scope** in the request body to **domain**.

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

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

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/projects

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

AK/SK Authentication

NOTE

- AK/SK authentication supports API requests with a body not larger than 12 MB. For API requests with a larger body, token authentication is recommended.
- The AK/SK can either be permanent or temporary. If it is temporary, the **X-Security-Token** field must be included in the request header. The value is the security token of the temporary AK/SK.

In AK/SK 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, which is 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 authentication, you can use an AK/SK to sign requests based on the signature algorithm or using the signing SDK. For details about how to sign requests and use the signing SDK, see **API Request Signing Guide**.

NOTE

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

2.3 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 **create an IAM user**, the request is successful.

Response Header

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

Figure 2-2 shows the response header fields for the API used to **create an IAM user**. The **X-Subject-Token** header field is the desired user token. This token can then be used to authenticate the calling of other APIs.

NOTE

For security purposes, you are advised to set the token in ciphertext in configuration files or environment variables and decrypt it when using it.

Figure 2-2 Header fields of the response to the request for creating an IAM user

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

(Optional) Response Body

The body of a response is often returned in a 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 shows part of the response body for the API used to **create an IAM user**.

```
{
    "user": {
        "id": "c131886aec...",
        "name": "IAMUser",
        "description": "IAM User Description",
```



```
        "areacode": "",
        "phone": "",
        "email": "***@***.com",
        "status": null,
        "enabled": true,
        "pwd_status": false,
        "access_mode": "default",
        "is_domain_owner": false,
        "xuser_id": "",
        "xuser_type": "",
        "password_expires_at": null,
        "create_time": "2024-05-21T09:03:41.000000",
        "domain_id": "d78cbac1.....",
        "xdomain_id": "30086000.....",
        "xdomain_type": "",
        "default_project_id": null
    }
}
```

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

```
{
    "error_msg": "The request message format is invalid.",
    "error_code": "IMG.0001"
}
```

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

3 API

3.1 UCS Clusters

3.1.1 Obtaining the Cluster List

Function

This API is used to obtain the cluster list.

URI

GET /v1/clusters

Table 3-1 Query parameters

Parameter	Mandatory	Type	Description
category	No	String	Cluster category.
enablestatus	No	Boolean	Whether to obtain the resource information of a cluster. If this parameter is not specified or set to **true**, the cluster resource summary information is returned. If this parameter is set to **false**, the cluster status is not returned. The default value is **true**.
clustergroupid	No	String	Fleet ID. If this parameter is not specified, all clusters are returned. If this parameter is specified, clusters that belong to the fleet are returned.

Parameter	Mandatory	Type	Description
limit	No	Integer	The number of records allowed on each page when the list is queried by page. The default value is **-1**.
offset	No	Integer	Start offset when the list is queried by page. The default value is **0**.
order_by	No	String	Sorting parameter when the list is queried by page. The value can be **create_at** or **update_at**.
order	No	String	Sorting order when the list is queried by page. The value can be **desc** or **asc**.
managetype	No	String	Cluster type for listing the clusters. The value can be **all**, **grouped**, or **discrete**. If this parameter is not specified, the default value is **all**. • **grouped**: clusters added to a fleet • **discrete**: clusters not in any fleet • **all**: all clusters
clusterids	No	String	Cluster ID. If there are multiple IDs, separate them using commas (,).

Request Parameters

Table 3-2 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-3 Parameters in the response body

Parameter	Type	Description
items	Array of **Cluster** objects	List of cluster members
total	Integer	Total number of clusters

Table 3-4 Cluster

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	**ObjectMeta** object	Basic information about the cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Details about the cluster. UCS creates or updates the cluster by **spec**.
status	**ClusterStatus** object	Cluster status

Table 3-5 ObjectMeta

Parameter	Type	Description
uid	String	Cluster ID
name	String	Cluster name
labels	Map<String,String>	Labels
creationTimestamp	String	Creation time. It is the UTC time in the RFC 3339 format.
updateTimestamp	String	Update timestamp

Table 3-6 ClusterSpec

Parameter	Type	Description
syncMode	String	Synchronization mode between the cluster and the Karmada control plane

Parameter	Type	Description
clusterGroupID	String	Fleet ID
manageType	String	Cluster type. The options are as follows: • **grouped**: clusters added to a fleet • **discrete**: clusters not in any fleet
ruleNamespaces	Array of **RuleNamespace** objects	List of namespaces associated with permission policies in a cluster
apiEndpoint	String	API server address
secretRef	**LocalSecretReference** object	Secret information for accessing a cluster
insecureSkipTLS-Verification	Boolean	Whether to skip HTTPS verification
proxyURL	String	Proxy URL
provider	String	Provider
type	String	Type
category	String	Category
enableDistMgt	Boolean	Whether CCE Turbo clusters can manage edge infrastructure
region	String	Region
country	String	Country
city	String	City
projectID	String	Project ID
projectName	String	Project name
zone	String	Zone
taints	Array of **Taint** objects	Taints
IsDownloadedCert	Boolean	Whether the certificate has been downloaded
policyId	String	Policy management ID

Table 3-7 RuleNamespace

Parameter	Type	Description
rules	Array of **RuleInfo** objects	Permission policy list
namespaces	Array of strings	Namespace list

Table 3-8 RuleInfo

Parameter	Type	Description
ruleID	String	Permission policy ID
ruleName	String	Permission policy name

Table 3-9 LocalSecretReference

Parameter	Type	Description
namespace	String	Namespace that the resource belongs to
name	String	Resource name

Table 3-10 Taint

Parameter	Type	Description
key	String	Key
value	String	Value
effect	String	Effect information
timeadded	String	Timestamp information

Table 3-11 ClusterStatus

Parameter	Type	Description
kubernetesVersion	String	Kubernetes version
conditions	Array of **ConditionStatus** objects	Conditions

Parameter	Type	Description
nodeSummary	**NodeSummary** object	Node statistics
resourceSummary	**ResourceSummary** object	Resource statistics
endpoints	**Endpoint** object	Endpoint
phase	String	Phase information
reason	String	Reason of the last change
message	String	Details about the last state transition
arrearFreeze	String	Frozen due to arrears
policeFreeze	String	Frozen for legal reasons
apiEnablements	Array of **APIEnablement** objects	List of enabled resources

Table 3-12 ConditionStatus

Parameter	Type	Description
type	String	Status type
status	String	Status
observedgeneration	Integer	Version of a status object
lasttransitiontime	String	Time of the last transition
reason	String	Cause of status
message	String	Status information

Table 3-13 NodeSummary

Parameter	Type	Description
totalNum	String	The number of all nodes in a cluster
readyNum	String	The number of ready nodes in a cluster

Table 3-14 ResourceSummary

Parameter	Type	Description
allocatable	ResourceList object	Allocable resources
allocating	ResourceList object	Resources in allocation
allocated	ResourceList object	Allocated resources
capacity	ResourceList object	Total resources

Table 3-15 allocatable

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-16 allocating

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-17 allocated

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-18 capacity

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-19 Endpoint

Parameter	Type	Description
url	String	URL
type	String	Port type
status	String	Port status

Table 3-20 APIEnablement

Parameter	Type	Description
groupVersion	String	Resource group and version
resources	Array of **APIResource** objects	Resource type and name

Table 3-21 APIResource

Parameter	Type	Description
name	String	Resource name
kind	String	Resource category

Status code: 400

Table 3-22 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-23 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-24 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

Status code: 200

Information about all clusters is obtained.


```
{
  "items" : [ {
    "kind" : "Cluster",
    "apiVersion" : "v1",
    "metadata" : {
      "name" : "test-cluster",
      "uid" : "b0d1ecb5-7947-11ee-9467-0255ac1001bf",
      "creationTimestamp" : "2023-11-02T06:36:14Z",
      "labels" : {
        "FeatureGates" : "elbv3,SupportClientCertificateRevocation,xGPU"
      },
      "annotations" : {
        "vpcId" : "11c9fe72-5a90-4295-bcfe-774726fb9066"
      }
    },
    "spec" : {
      "syncMode" : "",
      "clusterGroupID" : "bffbb35b-7949-11ee-886c-0255ac100037",
      "manageType" : "grouped",
      "provider" : "huaweicloud",
      "type" : "cce",
      "category" : "self",
      "region" : "cn-north-4",
      "country" : "CN",
      "city" : "150900",
      "projectID" : "b6315dd3d0ff4be5b31a963256794989",
      "projectName" : "cn-north-4",
      "IsDownloadedCert" : false,
      "operatorNamespace" : "2cd7ebd02e4743eba4e6342c09e49344"
    },
    "status" : {
      "kubernetesVersion" : "v1.25",
      "conditions" : [ {
        "type" : "Ready",
        "status" : "True",
        "lastTransitionTime" : "2023-11-27T11:05:09+08:00",
        "reason" : "ClusterAvailable"
      }, {
        "type" : "Cluster",
        "status" : "Available",
        "lastTransitionTime" : "2023-11-27T11:05:09+08:00",
        "reason" : "ClusterAvailable"
      }, {
        "type" : "Federation",
        "status" : "Federalized",
        "lastTransitionTime" : "2023-11-14T14:31:58.744215+08:00"
      } ],
      "endpoints" : [ {
```



```
      "url" : "https://192.168.1.251:5443",
      "type" : "Internal"
    } ],
    "phase" : "Available",
    "arrearFreeze" : "false",
    "policeFreeze" : "false"
  }
 } ],
 "total" : 1
}
```


Status Codes

Status Code	Description
200	Information about all clusters is obtained.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.1.2 Obtaining a Cluster

Function

This API is used to obtain a cluster. The cluster ID must comply with the Kubernetes UUID format rules, and you must have the required permissions on the cluster. Otherwise, the authentication fails.

URI

GET /v1/clusters/{clusterid}

Table 3-25 Path parameters

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-26 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-27 Parameters in the response body

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	**ObjectMeta** object	Basic information about the cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Details about the cluster. UCS creates or updates the cluster by **spec**.
status	**ClusterStatus** object	Cluster status

Table 3-28 ObjectMeta

Parameter	Type	Description
uid	String	Cluster ID
name	String	Cluster name
labels	Map<String,String>	Labels
creationTimestamp	String	Creation time. It is the UTC time in the RFC 3339 format.
updateTimestamp	String	Update timestamp

Table 3-29 ClusterSpec

Parameter	Type	Description
syncMode	String	Synchronization mode between the cluster and the Karmada control plane
clusterGroupID	String	Fleet ID
manageType	String	Cluster type. The options are as follows: • **grouped**: clusters added to a fleet • **discrete**: clusters not in any fleet
ruleNamespaces	Array of **RuleNamespace** objects	List of namespaces associated with permission policies in a cluster
apiEndpoint	String	API server address
secretRef	**LocalSecretReference** object	Secret information for accessing a cluster
insecureSkipTLSVerification	Boolean	Whether to skip HTTPS verification
proxyURL	String	Proxy URL
provider	String	Provider
type	String	Type
category	String	Category
enableDistMgt	Boolean	Whether CCE Turbo clusters can manage edge infrastructure
region	String	Region
country	String	Country
city	String	City
projectID	String	Project ID
projectName	String	Project name
zone	String	Zone
taints	Array of **Taint** objects	Taints
IsDownloadedCert	Boolean	Whether the certificate has been downloaded
policyId	String	Policy management ID

Table 3-30 RuleNamespace

Parameter	Type	Description
rules	Array of **RuleInfo** objects	Permission policy list
namespaces	Array of strings	Namespace list

Table 3-31 RuleInfo

Parameter	Type	Description
ruleID	String	Permission policy ID
ruleName	String	Permission policy name

Table 3-32 LocalSecretReference

Parameter	Type	Description
namespace	String	Namespace that the resource belongs to
name	String	Resource name

Table 3-33 Taint

Parameter	Type	Description
key	String	Key
value	String	Value
effect	String	Effect information
timeadded	String	Timestamp information

Table 3-34 ClusterStatus

Parameter	Type	Description
kubernetesVersion	String	Kubernetes version
conditions	Array of **ConditionStatus** objects	Conditions

Parameter	Type	Description
nodeSummary	**NodeSummary** object	Node statistics
resourceSummary	**ResourceSummary** object	Resource statistics
endpoints	**Endpoint** object	Endpoint
phase	String	Phase information
reason	String	Reason of the last change
message	String	Details about the last state transition
arrearFreeze	String	Frozen due to arrears
policeFreeze	String	Frozen for legal reasons
apiEnablements	Array of **APIEnablement** objects	List of enabled resources

Table 3-35 ConditionStatus

Parameter	Type	Description
type	String	Status type
status	String	Status
observedgeneration	Integer	Version of a status object
lasttransitiontime	String	Time of the last transition
reason	String	Cause of status
message	String	Status information

Table 3-36 NodeSummary

Parameter	Type	Description
totalNum	String	The number of all nodes in a cluster
readyNum	String	The number of ready nodes in a cluster

Table 3-37 ResourceSummary

Parameter	Type	Description
allocatable	ResourceList object	Allocable resources
allocating	ResourceList object	Resources in allocation
allocated	ResourceList object	Allocated resources
capacity	ResourceList object	Total resources

Table 3-38 allocatable

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-39 allocating

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-40 allocated

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-41 capacity

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-42 Endpoint

Parameter	Type	Description
url	String	URL
type	String	Port type
status	String	Port status

Table 3-43 APIEnablement

Parameter	Type	Description
groupVersion	String	Resource group and version
resources	Array of **APIResource** objects	Resource type and name

Table 3-44 APIResource

Parameter	Type	Description
name	String	Resource name
kind	String	Resource category

Status code: 400

Table 3-45 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-46 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-47 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-48 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

Status code: 200

Cluster information, such as its status and synchronization mode between the cluster and Karmada control plane


```
{
  "kind" : "Cluster",
  "apiVersion" : "v1",
  "metadata" : {
    "name" : "test-cluster",
    "uid" : "b0d1ecb5-7947-11ee-9467-0255ac1001bf",
    "creationTimestamp" : "2023-11-02T06:36:14Z",
    "labels" : {
      "FeatureGates" : "elbv3,SupportClientCertificateRevocation,xGPU"
    },
    "annotations" : {
      "vpcId" : "11c9fe72-5a90-4295-bcfe-774726fb9066"
    }
  },
  "spec" : {
    "syncMode" : "",
    "clusterGroupID" : "bffbb35b-7949-11ee-886c-0255ac100037",
    "manageType" : "grouped",
    "provider" : "huaweicloud",
    "type" : "cce",
    "category" : "self",
    "region" : "cn-north-4",
    "country" : "CN",
    "city" : "150900",
    "projectID" : "b6315dd3d0ff4be5b31a963256794989",
    "projectName" : "cn-north-4",
    "IsDownloadedCert" : false,
    "operatorNamespace" : "2cd7ebd02e4743eba4e6342c09e49344"
  },
  "status" : {
    "kubernetesVersion" : "v1.25",
    "conditions" : [ {
      "type" : "Ready",
      "status" : "True",
```



```
    "lastTransitionTime" : "2023-11-27T11:05:09+08:00",
    "reason" : "ClusterAvailable"
   }, {
    "type" : "Cluster",
    "status" : "Available",
    "lastTransitionTime" : "2023-11-27T11:05:09+08:00",
    "reason" : "ClusterAvailable"
   }, {
    "type" : "Federation",
    "status" : "Federalized",
    "lastTransitionTime" : "2023-11-14T14:31:58.744215+08:00"
   } ],
   "endpoints" : [ {
    "url" : "https://192.168.1.251:5443",
    "type" : "Internal"
   } ],
   "phase" : "Available",
   "arrearFreeze" : "false",
   "policeFreeze" : "false"
  }
}
```


Status Codes

Status Code	Description
200	Cluster information, such as its status and synchronization mode between the cluster and Karmada control plane
400	Client request error. The server could not execute the request.
403	The server refused the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.1.3 Registering a Cluster

Function

This API is used to register a cluster. Third-party clusters and CCE clusters can be registered.

URI

POST /v1/clusters

Request Parameters

Table 3-49 Parameter in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-50 Parameters in the request body

Parameter	Mandatory	Type	Description
kind	Yes	String	Resource type. For a registered cluster, set this parameter to **Cluster**.
apiVersion	Yes	String	API version. The current version is **v1**.
metadata	Yes	**metadata** object	Cluster metadata information
spec	Yes	**spec** object	Cluster specifications

Table 3-51 metadata

Parameter	Mandatory	Type	Description
UID	No	String	Cluster ID. This parameter is used only when a CCE cluster is imported for registration. For other types of clusters, you do not need to set this parameter.
name	Yes	String	CCE cluster name or a custom cluster name (for other types of clusters).
labels	No	Map<String,String>	Label information. This parameter can be left blank. If this parameter is not left blank, the value must comply with the Kubernetes label specifications. A maximum of 100 labels are supported.

Parameter	Mandatory	Type	Description
annotations	No	Map<String,String>	Cluster annotations. The **kubeconfig** field is mandatory for an attached cluster, and its value is the content of the kubeconfig file. For details about how to obtain the kubeconfig file, see **Obtaining a kubeconfig File**.

Table 3-52 spec

Parameter	Mandatory	Type	Description
clusterGroupID	No	String	Fleet ID.
category	Yes	String	Cluster category. The value must meet the requirements for **provider** and **type**. For details, see **Cluster Categories and Types**.
type	Yes	String	Cluster type. The value must meet the requirements for **provider** and **category**. For details, see **Cluster Categories and Types**.
provider	Yes	String	Provider. The value must the requirements for **category** and **type**. For details, see **Cluster Categories and Types**.
country	Yes	String	Country code.
city	Yes	String	City code. For details, see **City Codes**. Only cities in China are supported.
region	No	String	Region information. This parameter is used only when a CCE cluster is imported for registration. You can obtain the value from the **region** field in the API for **querying CCE clusters that are not registered with UCS**.

Parameter	Mandatory	Type	Description
projectID	No	String	Project ID. This parameter is used only when a CCE cluster is imported for registration. You can obtain the value from the **projectID** field in the API for **querying CCE clusters that are not registered with UCS**.
manageType	Yes	String	Cluster management type. Options: • **grouped**: clusters added to a fleet • **discrete**: clusters not in any fleet

Table 3-53 NetworkConfig

Parameter	Mandatory	Type	Description
podCIDR	No	String	Container CIDR block
serviceCIDR	No	String	Service CIDR block

Response Parameters

Status code: 201

Table 3-54 Parameter in the response body

Parameter	Type	Description
uid	String	Cluster ID

Status code: 400

Table 3-55 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-56 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-57 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 409

Table 3-58 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-59 Parameter in the response body

Parameter	Type	Description
-	String	

Example Requests

- Registering a Huawei Cloud CCE cluster

```
POST https://ucs.myhuaweicloud.com/v1/clusters

{
  "metadata" : {
    "uid" : "44052cdd-8cd2-11ee-abd1-0255ac1001bd"
  },
  "spec" : {
    "region" : "cn-north-7",
    "category" : "self",
    "type" : "turbo",
    "projectID" : "05495693df80d3c92fa1c01795c2be02",
    "clusterGroupID" : "",
    "manageType" : "discrete"
  }
}
```

- Registering an attached cluster

```
POST https://ucs.myhuaweicloud.com/v1/clusters
```



```
{
  "kind" : "Cluster",
  "apiVersion" : "v1",
  "metadata" : {
    "name" : "ack-cluster",
    "annotations" : {
      "kubeconfig" : "{\"kind\":\"Config\",\"apiVersion\":\"v1\",\"preferences\":{},\"clusters\":[{\"name
\":\"internalCluster\",\"cluster\":{\"server\":\"https://
kubernetes.default.svc.cluster.local:443\",\"insecure-skip-tls-verify\":true}}],\"users\":[{\"name\":\"ucs-
user\",\"user\":{\"token
\":\"eyJhbGciOiJSUzI1NiIsImtpZCI6Ik9IT0RDSVhaa3BmQTNVWUNyRVFIYktQZGVtcFJISjNsZUctbjdsT1Z3
ZzAifQ.eyJpc3MiOiJrdWJlcm5ldGVzL3NlcnZpY2VhY2NvdW50Iiwia3ViZXJuZXRlcy5pby9zZXJ2aWNlYWNj
b3VudC9uYW1lc3BhY2UiOiJkZWZhdWx0Iiwia3ViZXJuZXRlcy5pby9zZXJ2aWNlYWNjb3VudC9zZWNyZX
QubmFtZSI6InVjcy11c2VyLXRva2VuIiwia3ViZXJuZXRlcy5pby9zZXJ2aWNlYWNjb3VudC9zZXJ2aWNlLWFj
Y291bnQubmFtZSI6InVjcy11c2VyIiwia3ViZXJuZXRlcy5pby9zZXJ2aWNlYWNjb3VudC9zZXJ2aWNlLWFjY2
91bnQudWlkIjoiY2QzMmRmODEtY2NlOC00MTRlLWFjMTUtNzE5ZThmOWU0MjJjIiwic3ViIjoic3lzdGVtO
nNlcnZpY2VhY2NvdW50OmRlZmF1bHQ6dWNzLXVzZXIifQ.n7m_9THJMrNQzNMh06RBLJpf328a227ZF
nNFwNJ26E-
SUnIzovtZ2BFQsFIpewXsHZ1OrW5dTcYfaCp50vplmplWdWWPYdgMoSGBu7IIauPmd2lQisDRXoqvYrL8v-
xSSf3fbEnaPZH9T0KKk7pilfVyW8sDQME5K-
JqzFTgo7mEUeEOK7mAnp9ZsdJegYUWYgrltbL78eglKDUOdV4CI7CbA47-E13UW5kLaIxDmDxI-
s3jzXwt47372CXbwqjThZ6QiG_YJu8YtGL-
lySIwAuqGXCzJVldWONffQRp7XWjdcC3V5yWX9737DieH5TN8dor1dLQMTAMCUfIAU6T3Q
\"}}],\"contexts\":[{\"name\":\"internal\",\"context\":{\"cluster\":\"internalCluster\",\"user\":\"ucs-user
\"}}],\"current-context\":\"internal\"}"
    },
    "labels" : { }
  },
  "spec" : {
    "category" : "attachedcluster",
    "clusterGroupID" : "",
    "manageType" : "discrete",
    "city" : "110000",
    "country" : "CN",
    "CLUSTER_PROVIDER" : {
      "ALI" : "aliyun",
      "TENCENT" : "tencentcloud",
      "AWS" : "aws",
      "GOOGLE" : "googlecloud",
      "AZURE" : "azure",
      "OPENSHIFT" : "openshift",
      "HUAWEISTACK" : "huaweicloudstack",
      "HUAWEI" : "huaweicloud",
      "PRIVATEK8S" : "privatek8s",
      "OTHER" : "other",
      "FLEXIBLEENGINE" : "FlexibleEngine",
      "FLEXIBLEENGINESTACK" : "FlexibleEngineStack",
      "OPENTELEKOMCLOUD" : "OpenTelekomCloud",
      "OPENTELEKOMCLOUDSTACK" : "OpenTelekomCloudStack",
      "TIANYI" : "ctcloud",
      "MOBILE" : "cmcloud"
    },
    "type" : "ack"
  }
}
```


Example Response

Status code: 201

The cluster has been registered, and the ID of the registered cluster is returned.


```
{
  "uid" : "b0d1ecb5-7947-11ee-9467-0255ac1001bf"
}
```


Status Codes

Status Code	Description
201	The cluster has been registered, and the ID of the registered cluster is returned.
400	Client request error. The server could not execute the request.
403	The server refused the request.
404	Resources not found.
409	There was a request conflict.
500	Internal server error.

Error Codes

For details, see **Error Codes**.

3.1.4 Updating a Cluster

Function

This API is used to update a cluster. Currently, only the countries and cities of an attached cluster and an on-premises cluster can be updated.

URI

PUT /v1/clusters/{clusterid}

Table 3-60 Path parameter

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-61 Parameter in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-62 Parameters in the request body

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **Cluster** and cannot be changed.
apiVersion	Yes	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	No	**ObjectMeta** object	Basic information about the cluster. Metadata is a collection of attributes.
spec	No	**UpdateClusterSpec** object	Details about the cluster. UCS creates or updates the cluster based on **spec**.

Table 3-63 ObjectMeta

Parameter	Mandatory	Type	Description
uid	No	String	Cluster ID
name	No	String	Cluster name
labels	No	Map<String,String>	Labels
creationTimestamp	No	String	Creation time. It is a UTC time in the RFC 3339 format.
updateTimestamp	No	String	Update timestamp

Table 3-64 UpdateClusterSpec

Parameter	Mandatory	Type	Description
country	No	String	Country where the cluster is located
city	No	String	City where the cluster is located

Table 3-65 WorkerConfig

Parameter	Mandatory	Type	Description
replicas	No	Integer	The number of nodes

Parameter	Mandatory	Type	Description
strategy	No	**NodeUpgradeStrategy** object	Node update policy

Table 3-66 NodeUpgradeStrategy

Parameter	Mandatory	Type	Description
type	No	String	Policy type
rollingUpdate	No	**RollingUpdateNodeUpgradeStrategy** object	Rolling update

Table 3-67 RollingUpdateNodeUpgradeStrategy

Parameter	Mandatory	Type	Description
maxUnavailable	No	Object	Maximum number of unavailable nodes
maxSurge	No	Object	Maximum number of nodes allowed beyond the expected count
deletePolicy	No	String	Deletion policy. The options are **Random**, **Oldest**, and **Newest**.

Response Parameters

Status code: 200

Table 3-68 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-69 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-70 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-71 Parameter in the response body

Parameter	Type	Description
-	String	

Example Request

Updating the country and city of a cluster

```
PUT https://ucs.myhuaweicloud.com/v1/clusters/{clusterid}

{
  "kind" : "Cluster",
  "apiVersion" : "v1",
  "metadata" : {
    "annotations" : {
      "kubeconfig" : "{\"kind\":\"Config\",\"apiVersion\":\"v1\",\"preferences\":{},\"clusters\":[{\"name
\":\"internalCluster\",\"cluster\":{\"server\":\"https://100.94.13.93:5443\",\"insecure-skip-tls-verify
\":true}}],\"users\":[{\"name\":\"user\",\"user\":{\"client-certificate-data\":\"\",\"client-key-data
\":\"\"}}],\"contexts\":[{\"name\":\"internal\",\"context\":{\"cluster\":\"internalCluster\",\"user\":\"user
\"}}],\"current-context\":\"internal\"}"
    }
  },
  "spec" : {
    "country" : "AL",
    "city" : "AL"
  }
}
```

Example Response

None

Status Codes

Status Code	Description
200	Information information updated.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

For details, see **Error Codes**.

3.1.5 Unregistering a Cluster

Function

This API is used to unregister a cluster. The cluster ID must comply with the Kubernetes UUID format rules, and you must have the required permissions on the corresponding cluster. Otherwise, the authentication fails.

URI

DELETE /v1/clusters/{clusterid}

Table 3-72 Path parameters

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-73 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-74 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-75 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-76 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-77 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	The cluster has been unregistered.
400	Client request error. The server could not execute the request.

Status Code	Description
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.1.6 Obtaining Cluster Access Information

Function

This API is used to obtain cluster access information. The input cluster ID must comply with the Kubernetes UUID format. In addition, you must have permission to obtain the cluster certificate. Otherwise, the authentication fails. The agent certificate can be downloaded only once. This API is only used to obtain the access information of third-party clusters. If a CCE cluster ID is transferred, 400 will be returned.

URI

GET /v1/clusters/{clusterid}/accessinfo

Table 3-78 Path parameter

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Table 3-79 Query parameters

Parameter	Mandatory	Type	Description
vpcendpoint	No	String	IP address of the VPC endpoint. This parameter is mandatory for clusters accessed over the private network. The third-party network and the cloud network must be connected. For details about how to create a VPC endpoint and query its IP address, see **Creating a VPC Endpoint**.

Parameter	Mandatory	Type	Description
region	No	String	Access region. This parameter is mandatory for clusters accessed over the private network.

Request Parameters

Table 3-80 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-81 Parameter in the response body

Parameter	Type	Description
[Array]	Array of strings	

Status code: 400

Table 3-82 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-83 Parameter in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-84 Parameter in the response body

Parameter	Type	Description
-	String	

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	The cluster access information was returned. If the API has been called, the message "Downloaded" was returned.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

For details, see **Error Codes**.

3.1.7 Activating a Cluster

Function

This API is used to activate a cluster. The cluster ID must comply with the Kubernetes UUID format rules, and you must have the required permission on the corresponding cluster. Otherwise, the authentication fails.

URI

PUT /v1/clusters/{clusterid}/activation

Table 3-85 Path parameters

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-86 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-87 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-88 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-89 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Activating a cluster

```
POST https://ucs.myhuaweicloud.com/v1/clusters/{clusterid}/activation
```

Example Responses

None

Status Codes

Status Code	Description
200	The cluster has been activated.
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.1.8 Associating a Cluster with Permission Policies

Function

This API is used to associate a cluster with permission policies.

URI

PUT /v1/clusters/{clusterid}/associatedrules

Table 3-90 Path parameters

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-91 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-92 Parameters in the request body

Parameter	Mandatory	Type	Description
ruleIDNamespaces	No	Array of **RuleIDNamespaces** objects	Permission policy ID and namespaces related to the permission policy

Table 3-93 RuleIDNamespaces

Parameter	Mandatory	Type	Description
ruleIDs	No	Array of strings	Permission policy IDs
namespaces	No	Array of strings	Namespaces related to permission policies

Response Parameters

Status code: 200

Table 3-94 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-95 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-96 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-97 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Associating a cluster with permission policies

```
POST https://ucs.myhuaweicloud.com/v1/clusters/{clusterid}/associatedrules

{
  "ruleIDNamespaces" : [ {
    "ruleIDs" : [ "f6434332-60d6-11ed-a847-0255ac10003f" ],
    "namespaces" : [ "default", "xxxxx" ]
  } ]
}
```

Example Responses

None

Status Codes

Status Code	Description
200	The cluster has been associated with permission policies.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.1.9 Obtaining the CCE Cluster List of a Tenant

Function

This API is used to obtain the CCE cluster list of the current tenant.

URI

GET /v1/managedclusters

Table 3-98 Query parameters

Parameter	Mandatory	Type	Description
unimported	No	Boolean	Whether to register a cluster with UCS

Request Parameters

Table 3-99 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-100 Parameter in the response body

Parameter	Type	Description
[Array]	Array of **Cluster** objects	CCE clusters that were not registered with UCS were returned.

Table 3-101 Cluster

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	**ObjectMeta** object	Basic information about the cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Details about the cluster. UCS creates or updates the cluster based on **spec**.
status	**ClusterStatus** object	Cluster status

Table 3-102 ObjectMeta

Parameter	Type	Description
uid	String	Cluster ID
name	String	Cluster name
labels	Map<String,String>	Labels

Parameter	Type	Description
creationTimestamp	String	Creation time. It is a UTC time in the RFC 3339 format.
updateTimestamp	String	Update timestamp

Table 3-103 ClusterSpec

Parameter	Type	Description
syncMode	String	Synchronization mode between the cluster and the Karmada control plane
clusterGroupID	String	Fleet ID
manageType	String	Cluster type. The options are as follows: • **grouped**: clusters added to a fleet • **discrete**: clusters not in any fleet
ruleNamespaces	Array of **RuleNamespace** objects	List of namespaces associated with permission policies in a cluster
apiEndpoint	String	API server address
secretRef	**LocalSecretReference** object	Secret information for accessing a cluster
insecureSkipTLSVerification	Boolean	Whether to skip HTTPS verification
proxyURL	String	Proxy URL
provider	String	Provider
type	String	Type
category	String	Category
enableDistMgt	Boolean	Whether CCE Turbo clusters can manage edge infrastructure
region	String	Region
country	String	Country
city	String	City
projectID	String	Project ID
projectName	String	Project name
zone	String	Zone

Parameter	Type	Description
taints	Array of **Taint** objects	Taints
IsDownloadedCert	Boolean	Whether the certificate has been downloaded
policyId	String	Policy management ID

Table 3-104 RuleNamespace

Parameter	Type	Description
rules	Array of **RuleInfo** objects	Permission policy list
namespaces	Array of strings	Namespace list

Table 3-105 RuleInfo

Parameter	Type	Description
ruleID	String	Permission policy ID
ruleName	String	Permission policy name

Table 3-106 LocalSecretReference

Parameter	Type	Description
namespace	String	Namespace that the resource belongs to
name	String	Resource name

Table 3-107 Taint

Parameter	Type	Description
key	String	Key
value	String	Value
effect	String	Effect information
timeadded	String	Timestamp information

Table 3-108 ClusterStatus

Parameter	Type	Description
kubernetesVersion	String	Kubernetes version
conditions	Array of **ConditionStatus** objects	Conditions
nodeSummary	**NodeSummary** object	Node statistics
resourceSummary	**ResourceSummary** object	Resource statistics
endpoints	**Endpoint** object	Endpoint
phase	String	Phase information
reason	String	Reason of the last change
message	String	Details about the last state transition
arrearFreeze	String	Frozen due to arrears
policeFreeze	String	Frozen for legal reasons
apiEnablements	Array of **APIEnablement** objects	List of enabled resources

Table 3-109 ConditionStatus

Parameter	Type	Description
type	String	Status type
status	String	Status
observedgeneration	Integer	Version of a status object
lasttransitiontime	String	Time of the last transition
reason	String	Cause of status
message	String	Status information

Table 3-110 NodeSummary

Parameter	Type	Description
totalNum	String	The number of all nodes in a cluster

Parameter	Type	Description
readyNum	String	The number of ready nodes in a cluster

Table 3-111 ResourceSummary

Parameter	Type	Description
allocatable	**ResourceList** object	Allocable resources
allocating	**ResourceList** object	Resources in allocation
allocated	**ResourceList** object	Allocated resources
capacity	**ResourceList** object	Total resources

Table 3-112 allocatable

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-113 allocating

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-114 allocated

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-115 capacity

Parameter	Type	Description
{Custom key}	Map<String,String>	ResourceList is a group of resource name and quantity pairs.

Table 3-116 Endpoint

Parameter	Type	Description
url	String	URL
type	String	Port type
status	String	Port status

Table 3-117 APIEnablement

Parameter	Type	Description
groupVersion	String	Resource group and version
resources	Array of **APIResource** objects	Resource type and name

Table 3-118 APIResource

Parameter	Type	Description
name	String	Resource name
kind	String	Resource category

Status code: 400

Table 3-119 Parameter in the response body

Parameter	Type	Description
-	String	

Example Request

None

Example Response

Status code: 200

CCE clusters that were not registered with UCS were returned.


```
[ {
  "kind" : "Cluster",
  "apiVersion" : "v1",
  "metadata" : {
    "name" : "cluster-test",
    "uid" : "57ef11e7-7d72-11ee-a590-0255ac100b05",
    "creationTimestamp" : "2023-11-07T13:34:15Z",
    "labels" : {
      "FeatureGates" : "elbv3,SupportClientCertificateRevocation,xGPU"
    }
  },
  "spec" : {
    "syncMode" : "",
    "apiEndpoint" : "https://cce-internal.cn-north-4.myhuaweicloud.com",
    "provider" : "huaweicloud",
    "type" : "cce",
    "category" : "self",
    "region" : "cn-north-4",
    "country" : "CN",
    "city" : "150900",
    "projectID" : "b6315dd3d0ff4be5b31a963256794989",
    "projectName" : "cn-north-4",
    "IsDownloadedCert" : false
  },
  "status" : {
    "kubernetesVersion" : "v1.27",
    "conditions" : [ {
      "type" : "Ready",
      "status" : "True",
      "lastTransitionTime" : "2023-11-27T12:42:24.182645394+08:00",
      "reason" : "ClusterAvailable"
    }, {
      "type" : "Cluster",
      "status" : "Available",
      "lastTransitionTime" : "2023-11-27T12:42:24.182646152+08:00",
      "reason" : "ClusterAvailable"
    } ],
    "endpoints" : [ {
      "url" : "https://192.168.1.44:5443",
      "type" : "Internal"
    } ],
    "phase" : "Available"
  }
} ]
```


Status Codes

Status Code	Description
200	CCE clusters that were not registered with UCS were returned.
400	Client request error. The server could not execute the request.

Error Codes

For details, see **Error Codes**.

3.1.10 Querying the Cluster Version List

Function

This API is used to query the list of cluster versions that are supported by UCS.

URI

GET /v1/config/registeredclusterversions

Request Parameters

Table 3-120 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-121 Parameters in the response body

Parameter	Type	Description
versions	Array of strings	Cluster version list

Example Requests

None

Example Responses

Status code: 200

List of supported cluster versions

```
{
  "versions" : [ "v1.19", "v1.20", "v1.21", "v1.22", "v1.23", "v1.24", "v1.25" ]
}
```

Status Codes

Status Code	Description
200	List of supported cluster versions

Error Codes

See **Error Codes**.

3.2 Fleets

3.2.1 Adding a Cluster to a Fleet

Function

This API is used to add a cluster to a fleet.

URI

POST /v1/clusters/{clusterid}/join

Table 3-122 Path parameters

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-123 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-124 Parameters in the request body

Parameter	Mandatory	Type	Description
clusterGroupID	No	String	ID of the fleet that the cluster will be added to

Response Parameters

Status code: 200

Table 3-125 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-126 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-127 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-128 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Adding a cluster to a fleet

```
POST https://ucs.myhuaweicloud.com/v1/clusters/{clusterid}/join

{
  "clustergroupID" : "49077339-f1cd-11ec-a2be-0255ac1001c2"
}
```

Example Responses

None

Status Codes

Status Code	Description
200	The cluster has been added to the fleet.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.2 Removing a Cluster from a Fleet

Function

This API is used to remove a cluster from a fleet.

URI

POST /v1/clusters/{clusterid}/unjoin

Table 3-129 Path parameters

Parameter	Mandatory	Type	Description
clusterid	Yes	String	Cluster ID

Request Parameters

Table 3-130 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-131 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-132 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-133 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-134 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-135 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Removing a cluster from a fleet

```
POST https://ucs.myhuaweicloud.com/v1/clusters/{clusterid}/unjoin
```


Example Responses

None

Status Codes

Status Code	Description
200	The cluster has been removed from the fleet.
400	Client request error. The server could not execute the request.
403	The server refused the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.3 Creating a Fleet

Function

This API is used to create a fleet. You can select clusters during fleet creation.

URI

POST /v1/clustergroups

Request Parameters

Table 3-136 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-137 Parameters in the request body

Parameter	Mandatory	Type	Description
metadata	Yes	**RegisterClusterGroupObjectMeta** object	Fleet metadata information

Parameter	Mandatory	Type	Description
spec	No	RegisterClusterGroupSpec object	Attributes

Table 3-138 RegisterClusterGroupObjectMeta

Parameter	Mandatory	Type	Description
name	Yes	String	Fleet name

Table 3-139 RegisterClusterGroupSpec

Parameter	Mandatory	Type	Description
clusterIds	No	Array of strings	IDs of associated clusters
description	No	String	Fleet description

Response Parameters

Status code: 201

Table 3-140 Parameters in the response body

Parameter	Type	Description
uid	String	Fleet UID

Status code: 400

Table 3-141 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-142 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-143 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Creating a fleet and (optional) adding clusters to the fleet

```
https://ucs.myhuaweicloud.com/v1/clustergroups

{
  "metadata" : {
    "name" : "group02281605"
  },
  "spec" : {
    "clusterIds" : [ "514c1a3c-8ec7-11ec-b384-0255ac100189", "d4804da3-8f03-11ec-b384-0255ac100189" ],
    "description" : "aaaaaaaaa"
  }
}
```

Example Responses

Status code: 201

The UID of the fleet that has been created is returned.

```
{
  "uid" : "6efb4a18-2fa4-11ee-ad1d-0255ac1001c4"
}
```

Status Codes

Status Code	Description
201	The UID of the fleet that has been created is returned.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.4 Deleting a Fleet

Function

This API is used to delete a fleet. A fleet can only be deleted when there are no clusters in it. To delete a fleet, remove the clusters from the fleet first. The cluster IDs must comply with the Kubernetes UUID format rules, and you must have the operation permission on the clusters. Otherwise, the authentication fails.

URI

DELETE /v1/clustergroups/{clustergroupid}

Table 3-144 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-145 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-146 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-147 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-148 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-149 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-150 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	The fleet has been deleted.
400	Client request error. The server could not execute the request.

Status Code	Description
403	The server refused the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.5 Obtaining a Fleet

Function

This API is used to obtain a fleet.

URI

GET /v1/clustergroups/{clustergroupid}

Table 3-151 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-152 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-153 Parameters in the response body

Parameter	Type	Description
kind	String	API type. The value is fixed at **ClusterGroup** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	**ObjectMeta** object	Basic information about the fleet. Metadata is a collection of attributes.
spec	**ClusterGroupSpec** object	Details about the fleet. UCS creates or updates the fleet by **spec**.
status	**ClusterGroupStatus** object	Fleet status

Table 3-154 ObjectMeta

Parameter	Type	Description
uid	String	Cluster ID
name	String	Cluster name
labels	Map<String,String>	Labels
creationTimestamp	String	Creation time. It is the UTC time in the RFC 3339 format.
updateTimestamp	String	Update timestamp

Table 3-155 ClusterGroupSpec

Parameter	Type	Description
ruleNamespaces	Array of strings	List of namespaces associated with a permission policy
federationId	String	Fleet federation ID
description	String	Description
dnsSuffix	Array of strings	DNS suffix of the federation corresponding to the fleet. This parameter is visible after federation is enabled.
federationExpirationTimestamp	String	Federation expiration timestamp

Parameter	Type	Description
policyId	String	Policy management ID
federationVersion	String	Fleet federation version

Table 3-156 ClusterGroupStatus

Parameter	Type	Description
conditions	Array of **ClusterGroupCondition** objects	Federation or permission policy information for a fleet

Table 3-157 ClusterGroupCondition

Parameter	Type	Description
type	String	Type. The options are as follows: • **Federation**: Federation is enabled for the fleet. • **Policy**: Permission policies are enabled for the fleet.
status	String	Status of the federation or permission policy enabled for a fleet
reason	String	Cause of status
message	String	Status information
lastTransitionTime	String	Time when the status was updated

Status code: 400

Table 3-158 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-159 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-160 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-161 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

Status code: 200

Fleet object

```
{
  "kind" : "ClusterGroup",
  "apiVersion" : "v1",
  "metadata" : {
    "name" : "cluster-test",
    "uid" : "bffbb35b-7949-11ee-886c-0255ac100037",
    "creationTimestamp" : "2023-11-02 06:33:35.558128 +0000 UTC",
    "updateTimestamp" : "2023-11-14 06:20:20.446476 +0000 UTC"
  },
  "spec" : {
    "federationId" : "e2f27cc6-82b5-11ee-84e3-0255ac100032",
    "federationVersion" : "v1.7.0-t1109",
    "dnsSuffix" : [ "www.oidc.com" ]
  },
  "status" : {
    "conditions" : [ {
      "type" : "Federation",
      "status" : "Unavailable",
      "reason" : "FederationUnavailable",
      "message" : "component volcano-scheduler is unhealthy",
      "lastTransitionTime" : "0001-01-01T00:00:00Z"
    } ]
```



```
  }
}
```

Status Codes

Status Code	Description
200	Fleet object
400	Client request error. The server could not execute the request.
403	The server refused the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.6 Adding Clusters to a Fleet

Function

This API is used to add clusters to a fleet. One or more clusters can be added at the same time. This API cannot be used to remove all or some clusters from a fleet.

URI

PUT /v1/clustergroups/{clustergroupid}/associatedclusters

Table 3-162 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-163 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-164 Parameters in the request body

Parameter	Mandatory	Type	Description
clusterIds	No	Array of strings	Cluster IDs for updating information about clusters associated with a fleet

Response Parameters

Status code: 200

Table 3-165 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-166 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-167 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Updating clusters in a fleet

```
PUT https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/associatedclusters

{
  "clusterids" : [ "xxxx-xxxx-xxxx" ]
}
```

Example Responses

None

Status Codes

Status Code	Description
200	Clusters have been added to the fleet.
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.7 Updating Fleet Description

Function

This API is used to update the description of a fleet. You must have the permissions to update the fleet.

URI

PUT /v1/clustergroups/{clustergroupid}/description

Table 3-168 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-169 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-170 Parameters in the request body

Parameter	Mandatory	Type	Description
description	Yes	String	Fleet description

Response Parameters

Status code: 200

Table 3-171 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-172 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-173 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-174 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-175 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Updating fleet description


```
PUT https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/description

{
  "description" : "aaaaaaaaa"
}
```

Example Responses

None

Status Codes

Status Code	Description
200	Updated.
400	Client request error. The server could not execute the request.
403	The server refused the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.8 Updating Permission Policies Associated with a Fleet

Function

This API is used to update the permission policies associated with a fleet.

URI

PUT /v1/clustergroups/{clustergroupid}/associatedrules

Table 3-176 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-177 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Token authentication information

Table 3-178 Parameters in the request body

Parameter	Mandatory	Type	Description
ruleIDNamespaces	No	Array of **RuleIDNamespaces** objects	Permission policy ID and namespaces related to the permission policy

Table 3-179 RuleIDNamespaces

Parameter	Mandatory	Type	Description
ruleIDs	No	Array of strings	Permission policy IDs
namespaces	No	Array of strings	Namespaces related to permission policies

Response Parameters

Status code: 200

Table 3-180 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-181 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-182 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-183 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Updating the permission policies associated with a fleet

```
PUT https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/associatedrules

{
  "ruleIDNamespaces" : [ {
    "ruleIDs" : [ "f6434332-60d6-11ed-a847-0255ac10003f" ],
    "namespaces" : [ "default", "kube-system" ]
  } ]
}
```

Example Responses

None

Status Codes

Status Code	Description
200	The fleet has been associated with permission policies.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.9 Updating the Zone Associated with the Federation of a Fleet

Function

This API is used to update the zone associated with the federation of a fleet.

URI

PUT /v1/clustergroups/{clustergroupid}/associatedzones

Table 3-184 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-185 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-186 Parameters in the request body

Parameter	Mandatory	Type	Description
dnsSuffix	No	Array of strings	DNS suffix used to change the root domain name for access

Response Parameters

Status code: 200

Table 3-187 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-188 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-189 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Updating the zone associated with the federation of a fleet

```
POST https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/associatedzones

{
  "dnsSuffix" : [ "wpwebsite.com" ]
}
```

Example Responses

None

Status Codes

Status Code	Description
200	Updated.
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.10 Obtaining the Fleet List

Function

This API is used to obtain the fleet list.

URI

GET /v1/clustergroups

Table 3-190 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	The number of records allowed on each page when the list is queried by page. The default value is **-1**.
offset	No	Integer	Start offset when the list is queried by page. The default value is **0**.
order_by	No	String	Sorting parameter when the list is queried by page. The value can be **create_at** or **update_at**.
order	No	String	Sorting order when the list is queried by page. The value can be **desc** or **asc**.

Request Parameters

Table 3-191 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-192 Parameters in the response body

Parameter	Type	Description
items	Array of **ClusterGroup** objects	Fleet list
total	Integer	Total number of records on all pages

Table 3-193 ClusterGroup

Parameter	Type	Description
kind	String	API type. The value is fixed at **ClusterGroup** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	**ObjectMeta** object	Basic information about the fleet. Metadata is a collection of attributes.
spec	**ClusterGroupSpec** object	Details about the fleet. UCS creates or updates the fleet by **spec**.
status	**ClusterGroupStatus** object	Fleet status

Table 3-194 ObjectMeta

Parameter	Type	Description
uid	String	Cluster ID
name	String	Cluster name
labels	Map<String,String>	Labels
creationTimestamp	String	Creation time. It is the UTC time in the RFC 3339 format.
updateTimestamp	String	Update timestamp

Table 3-195 ClusterGroupSpec

Parameter	Type	Description
ruleNamespaces	Array of strings	List of namespaces associated with a permission policy
federationId	String	Fleet federation ID
description	String	Description
dnsSuffix	Array of strings	DNS suffix of the federation corresponding to the fleet. This parameter is visible after federation is enabled.
federationExpirationTimestamp	String	Federation expiration timestamp

Parameter	Type	Description
policyId	String	Policy management ID
federationVersion	String	Fleet federation version

Table 3-196 ClusterGroupStatus

Parameter	Type	Description
conditions	Array of **ClusterGroupCondition** objects	Federation or permission policy information for a fleet

Table 3-197 ClusterGroupCondition

Parameter	Type	Description
type	String	Type. The options are as follows: • **Federation**: Federation is enabled for the fleet. • **Policy**: Permission policies are enabled for the fleet.
status	String	Status of the federation or permission policy enabled for a fleet
reason	String	Cause of status
message	String	Status information
lastTransitionTime	String	Time when the status was updated

Status code: 400

Table 3-198 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 403

Table 3-199 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-200 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

Status code: 200

The fleet list has been obtained.


```
{
  "items" : [ {
    "kind" : "ClusterGroup",
    "apiVersion" : "v1",
    "metadata" : {
      "name" : "cluster-test",
      "uid" : "bffbb35b-7949-11ee-886c-0255ac100037",
      "creationTimestamp" : "2023-11-02 06:33:35.558128 +0000 UTC",
      "updateTimestamp" : "2023-11-14 06:20:20.446476 +0000 UTC"
    },
    "spec" : {
      "federationId" : "e2f27cc6-82b5-11ee-84e3-0255ac100032",
      "federationVersion" : "v1.7.0-t1109",
      "dnsSuffix" : [ "www.oidc.com" ]
    },
    "status" : {
      "conditions" : [ {
        "type" : "Federation",
        "status" : "Unavailable",
        "reason" : "FederationUnavailable",
        "message" : "component volcano-scheduler is unhealthy",
        "lastTransitionTime" : "0001-01-01T00:00:00Z"
      } ]
    }
  }, {
    "kind" : "ClusterGroup",
    "apiVersion" : "v1",
    "metadata" : {
      "name" : "cluster-dev",
      "uid" : "4557ad49-22bf-11ee-b0c9-0255ac10004b",
      "creationTimestamp" : "2023-07-15 03:25:39.253589 +0000 UTC",
      "updateTimestamp" : "2023-10-19 11:52:14.509405 +0000 UTC"
    },
    "spec" : { },
    "status" : { }
```



```
 }, {
   "kind" : "ClusterGroup",
   "apiVersion" : "v1",
   "metadata" : {
     "name" : "test0131",
     "uid" : "108f5981-a105-11ed-a23e-0255ac100032",
     "creationTimestamp" : "2023-01-31 01:17:44.309185 +0000 UTC",
     "updateTimestamp" : "2023-06-29 01:02:28.78095 +0000 UTC"
   },
   "spec" : { },
   "status" : { }
 } ],
 "total" : 3
}
```


Status Codes

Status Code	Description
200	The fleet list has been obtained.
400	Client request error. The server could not execute the request.
403	The server refused the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.11 Enabling Cluster Federation

Function

This API is used to enable cluster federation for a fleet.

URI

POST /v1/clustergroups/{clustergroupid}/federations

Table 3-201 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Table 3-202 Query parameters

Parameter	Mandatory	Type	Description
retryjoinall	No	Boolean	Whether to retry adding the cluster to the federation.

Request Parameters

Table 3-203 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 201

Table 3-204 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-205 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-206 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-207 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Enabling cluster federation for a fleet

```
POST https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/federations
```

Example Responses

None

Status Codes

Status Code	Description
201	Cluster federation has been enabled.
400	Client request error. The server could not execute the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.12 Disabling Cluster Federation

Function

This API is used to disable cluster federation for a fleet.

URI

DELETE /v1/clustergroups/{clustergroupid}/federations

Table 3-208 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-209 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-210 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-211 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-212 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-213 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	Cluster federation has been disabled.
400	Client request error. The server could not execute the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.13 Querying Federation Enabling Progress

Function

This API is used to query the federation enabling progress.

URI

GET /v1/clustergroups/{clustergroupid}/federations/progress

Table 3-214 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-215 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-216 Parameters in the response body

Parameter	Type	Description
kind	String	API type.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
spec	**JobSpec** object	Details about the job. UCS creates or updates the job by **spec**.
status	**JobStatus** object	Job status

Table 3-217 JobSpec

Parameter	Type	Description
type	String	Job type
federationuid	String	Federation UID
resourceid	String	Resource ID
resourcename	String	Resource name
extendparam	String	Extended parameter
subjobs	Array of **Job** objects	Subjobs

Table 3-218 Job

Parameter	Type	Description
kind	String	API type.
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
spec	**JobSpec** object	Details about the job. UCS creates or updates the job by **spec**.
status	**JobStatus** object	Job status

Table 3-219 JobStatus

Parameter	Type	Description
phase	String	Job phase
reason	String	Job reason
completiontime	String	Job completion time
starttime	String	Job start time

Status code: 400

Table 3-220 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 404

Table 3-221 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-222 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

Status code: 200

Job for enabling cluster federation has been returned.

```
{
  "kind" : "Job",
  "apiVersion" : "v3",
```



```
"metadata" : {
  "uid" : "70b5a14f-2fa4-11ee-bf07-0255ac1000b9",
  "creationTimestamp" : "2023-07-31 13:16:20.715779 +0000 UTC",
  "updateTimestamp" : "2023-07-31 13:17:24.497868 +0000 UTC",
  "annotations" : {
    "currentTimestamp" : "2023-07-31 13:17:24.933313136 +0000 UTC"
  }
},
"spec" : {
  "type" : "CreateFederationContainer",
  "federationUID" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4",
  "resourceID" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4",
  "resourceName" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4",
  "subJobs" : [ {
    "kind" : "Job",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "70b66b9a-2fa4-11ee-bf07-0255ac1000b9",
      "creationTimestamp" : "2023-07-31 13:16:20.740512 +0000 UTC",
      "updateTimestamp" : "2023-07-31 13:16:22.100528 +0000 UTC",
      "annotations" : {
        "currentTimestamp" : "2023-07-31 13:17:24.934274579 +0000 UTC"
      }
    },
    "spec" : {
      "type" : "InstallFederationChart",
      "federationUID" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4"
    },
    "status" : {
      "phase" : "Success",
      "completionTime" : "2023-07-31 13:16:22.100528 +0000 UTC",
      "startTime" : "2023-07-31 13:16:22.100528 +0000 UTC"
    }
  }, {
    "kind" : "Job",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "70b66b68-2fa4-11ee-bf07-0255ac1000b9",
      "creationTimestamp" : "2023-07-31 13:16:20.736232 +0000 UTC",
      "updateTimestamp" : "2023-07-31 13:17:24.490359 +0000 UTC",
      "annotations" : {
        "currentTimestamp" : "2023-07-31 13:17:24.934277116 +0000 UTC"
      }
    },
    "spec" : {
      "type" : "CreateNetworkResource",
      "federationUID" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4",
      "extendParam" : {
        "JobExtendParamKeyElbID" : "69694819-67dc-44ac-ab6e-9b18087c5c4c"
      }
    },
    "status" : {
      "phase" : "Success",
      "completionTime" : "2023-07-31 13:17:24.490359 +0000 UTC",
      "startTime" : "2023-07-31 13:16:20.744891 +0000 UTC"
    }
  }, {
    "kind" : "Job",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "70b66afa-2fa4-11ee-bf07-0255ac1000b9",
      "creationTimestamp" : "2023-07-31 13:16:20.731295 +0000 UTC",
      "updateTimestamp" : "2023-07-31 13:16:22.100452 +0000 UTC",
      "annotations" : {
        "currentTimestamp" : "2023-07-31 13:17:24.934288685 +0000 UTC"
      }
    },
    "spec" : {
      "type" : "CreateCert",
```

```
      "federationUID" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4"
    },
    "status" : {
      "phase" : "Success",
      "completionTime" : "2023-07-31 13:16:22.100452 +0000 UTC",
      "startTime" : "2023-07-31 13:16:22.100452 +0000 UTC"
    }
  }, {
    "kind" : "Job",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "70b66ad0-2fa4-11ee-bf07-0255ac1000b9",
      "creationTimestamp" : "2023-07-31 13:16:20.726434 +0000 UTC",
      "updateTimestamp" : "2023-07-31 13:16:22.093902 +0000 UTC",
      "annotations" : {
        "currentTimestamp" : "2023-07-31 13:17:24.934291673 +0000 UTC"
      }
    },
    "spec" : {
      "type" : "CreateNode",
      "federationUID" : "70acf480-2fa4-11ee-ad1d-0255ac1001c4"
    },
    "status" : {
      "phase" : "Success",
      "completionTime" : "2023-07-31 13:16:22.093902 +0000 UTC",
      "startTime" : "2023-07-31 13:16:20.745187 +0000 UTC"
    }
  } ]
 },
 "status" : {
  "phase" : "Success",
  "completionTime" : "2023-07-31 13:17:24.497868 +0000 UTC",
  "startTime" : "2023-07-31 13:16:20.721007 +0000 UTC"
 }
}
```


Status Codes

Status Code	Description
200	Job for enabling cluster federation has been returned.
400	Client request error. The server could not execute the request.
404	Resources not found.
500	Internal server error.

Error Codes

See **Error Codes**.

3.2.14 Creating a Federation Connection and Downloading kubeconfig

Function

This API is used to create a VPC endpoint for connecting to the federation API server and downloading kubeconfig of the federation API server after federation is enabled for a fleet.

URI

POST /v1/clustergroups/{clustergroupid}/cert

Table 3-223 Path parameter

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-224 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-225 Parameters in the request body

Parameter	Mandatory	Type	Description
projectID	Yes	String	Project ID
vpcID	Yes	String	VPC ID. The VPC must belong to the project specified by **projectID**.
subnetID	Yes	String	Subnet ID. The subnet must belong to the VPC specified by **vpcID**.
duration	Yes	Integer	Validity period of the certificate in kubeconfig, in days Minimum value: **1** Maximum value: **1825**

Response Parameters

Status code: 201

Table 3-226 Parameter in the response body

Parameter	Type	Description
[Array]	Array of strings	-

Example Request

Creating a federation connection and downloading kubeconfig

```
POST https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/cert

{
  "projectID" : "08d44be1ef00d22e2f6fc0061f54a2f1",
  "vpcID" : "11c9fe72-5a90-4295-bcfe-774726fb9066",
  "subnetID" : "0de91d89-1e06-4e24-b371-35d5d3d3779b",
  "duration" : 30
}
```

Example Response

None

Status Codes

Status Code	Description
201	The kubeconfig file content was obtained.

Error Codes

For details, see **Error Codes**.

3.2.15 Creating a Federation Connection

Function

This API is used to create a VPC endpoint for connecting to the federation API server after federation is enabled for a fleet.

URI

POST /v1/clustergroups/{clustergroupid}/connection

Table 3-227 Path parameters

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-228 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-229 Parameters in the request body

Parameter	Mandatory	Type	Description
projectID	Yes	String	Project ID
vpcID	Yes	String	VPC ID, which must belong to the project specified by **projectID**.
subnetID	Yes	String	Network ID of the subnet. The subnet must be in the VPC specified by **vpcID**.

Response Parameters

Status code: 201

Table 3-230 Parameters in the response body

Parameter	Type	Description
id	String	VPC endpoint ID

Example Requests

Creating a federation connection

```
POST https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/connection

{
  "projectID" : "08d44be1ef00d22e2f6fc0061f54a2f1",
  "vpcID" : "11c9fe72-5a90-4295-bcfe-774726fb9066",
```



```
  "subnetID" : "0de91d89-1e06-4e24-b371-35d5d3d3779b"
}
```

Example Responses

Status code: 201

The federation API server has been connected using a VPC endpoint.

```
{
  "id" : "b8c9c1dc-b10f-4644-bc5f-e557efa63782s"
}
```

Status Codes

Status Code	Description
201	The federation API server has been connected using a VPC endpoint.

Error Codes

See **Error Codes**.

3.2.16 Downloading Federation kubeconfig

Function

This API is used to download the kubeconfig after the cluster federation is enabled for a fleet and the federation connection is created.

URI

POST /v1/clustergroups/{clustergroupid}/kubeconfig

Table 3-231 Path parameter

Parameter	Mandatory	Type	Description
clustergroupid	Yes	String	Fleet ID

Request Parameters

Table 3-232 Parameter in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-233 Parameter in the request body

Parameter	Mandatory	Type	Description
duration	Yes	Integer	Validity period of the certificate in kubeconfig, in days Minimum value: **1** Maximum value: **1825**

Response Parameters

Status code: 201

Table 3-234 Parameter in the response body

Parameter	Type	Description
-	File	-

Example Request

Downloading federation kubeconfig

```
POST https://ucs.myhuaweicloud.com/v1/clustergroups/{clustergroupid}/kubeconfig

{
  "duration" : 30
}
```

Example Response

None

Status Codes

Status Code	Description
201	The kubeconfig file content was obtained.

Error Codes

For details, see **Error Codes**.

3.3 Permissions

3.3.1 Creating a Permission Policy

Function

This API is used to create a permission policy.

URI

POST /v1/permissions/rules

Request Parameters

Table 3-235 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-236 Parameters in the request body

Parameter	Mandatory	Type	Description
metadata	Yes	**CreateRuleObjectMeta** object	Basic information about the permission policy. Metadata is a collection of attributes.
spec	Yes	**RuleSpec** object	Details about the permission policy. UCS creates or updates the permission policy by **spec**.

Table 3-237 CreateRuleObjectMeta

Parameter	Mandatory	Type	Description
name	Yes	String	Permission policy name

Table 3-238 RuleSpec

Parameter	Mandatory	Type	Description
iamuserids	No	Array of strings	Information of IAM users associated with a permission policy
type	No	String	Permission policy type. The value can be **readonly**, **develop**, **admin**, or **custom**.

Parameter	Mandatory	Type	Description
contents	No	Array of **Content** objects	Permission policy content
description	No	String	Permission policy description

Table 3-239 Content

Parameter	Mandatory	Type	Description
verbs	No	Array of strings	Action list
resources	No	Array of strings	Resource list

Response Parameters

Status code: 201

Table 3-240 Parameters in the response body

Parameter	Type	Description
uid	String	Permission policy UID

Status code: 400

Table 3-241 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-242 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Creating a permissions policy

```
https://ucs.myhuaweicloud.com/v1/permissions/rules

{
  "metadata" : {
    "name" : "xxxxx"
  },
  "spec" : {
    "type" : "admin",
    "iamUserIDs" : [ "xxxxx" ]
  }
}
```

Example Responses

Status code: 201

The UID of the new permission policy has been returned.

```
{
  "uid" : "xxxx-xxxx-xxxx-xxxx"
}
```

Status Codes

Status Code	Description
201	The UID of the new permission policy has been returned.
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.3.2 Obtaining the Permission Policy List

Function

This API is used to obtain the permission policy list.

URI

GET /v1/permissions/rules

Table 3-243 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	The number of records allowed on each page when the list is queried by page. The default value is **-1**.
offset	No	Integer	Start offset when the list is queried by page. The default value is **0**.
order_by	No	String	Sorting parameter when the list is queried by page. The value can be **create_at** or **update_at**.
order	No	String	Sorting order when the list is queried by page. The value can be **desc** or **asc**.

Request Parameters

Table 3-244 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-245 Parameters in the response body

Parameter	Type	Description
items	Array of **Rule** objects	Permission policy list
total	Integer	Total number of records on all pages

Table 3-246 Rule

Parameter	Type	Description
kind	String	API type.

Parameter	Type	Description
apiVersion	String	API version. The value is fixed at **v1** and cannot be changed.
metadata	**ObjectMeta** object	Basic information.
spec	**RuleSpec** object	Details about the permission policy. UCS creates or updates the permission policy by **spec**.

Table 3-247 ObjectMeta

Parameter	Type	Description
uid	String	Cluster ID
name	String	Cluster name
labels	Map<String,String>	Labels
creationTimestamp	String	Creation time. It is the UTC time in the RFC 3339 format.
updateTimestamp	String	Update timestamp

Table 3-248 RuleSpec

Parameter	Type	Description
iamuserids	Array of strings	Information of IAM users associated with a permission policy
type	String	Permission policy type. The value can be **readonly**, **develop**, **admin**, or **custom**.
contents	Array of **Content** objects	Permission policy content
description	String	Permission policy description

Table 3-249 Content

Parameter	Type	Description
verbs	Array of strings	Action list
resources	Array of strings	Resource list

Status code: 400

Table 3-250 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-251 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

Status code: 200

Permission policy list

```
{
  "items" : [ {
    "metadata" : {
      "name" : "admin",
      "uid" : "3dcdef78-65bb-11ee-bdf2-0255ac100033",
      "creationTimestamp" : "2023-10-08 09:15:36.526016 +0000 UTC",
      "updateTimestamp" : "2023-10-08 09:15:36.526016 +0000 UTC"
    },
    "spec" : {
      "iamUserIDs" : [ "873395a21c8d4d8ba9e37d6d32debc41" ],
      "type" : "admin",
      "contents" : [ {
        "verbs" : [ "*" ],
        "resources" : [ "*" ]
      } ]
    }
  } ],
  "total" : 1
}
```

Status Codes

Status Code	Description
200	Permission policy list

Status Code	Description
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.3.3 Deleting a Permission Policy

Function

This API is used to delete a permission policy.

URI

DELETE /v1/permissions/rules/{ruleid}

Table 3-252 Path parameters

Parameter	Mandatory	Type	Description
ruleid	Yes	String	Permission policy ID

Request Parameters

Table 3-253 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Response Parameters

Status code: 200

Table 3-254 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-255 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-256 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	The permission policy has been deleted.
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

3.3.4 Updating a Permission Policy

Function

This API is used to update a permission policy.

URI

PUT /v1/permissions/rules/{ruleid}

Table 3-257 Path parameters

Parameter	Mandatory	Type	Description
ruleid	Yes	String	Permission policy ID

Request Parameters

Table 3-258 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Identity authentication information

Table 3-259 Parameters in the request body

Parameter	Mandatory	Type	Description
spec	No	**RuleSpec** object	Details about the permission policy. UCS creates or updates the permission policy by **spec**.

Table 3-260 RuleSpec

Parameter	Mandatory	Type	Description
iamuserids	No	Array of strings	Information of IAM users associated with a permission policy
type	No	String	Permission policy type. The value can be **readonly**, **develop**, **admin**, or **custom**.
contents	No	Array of **Content** objects	Permission policy content
description	No	String	Permission policy description

Table 3-261 Content

Parameter	Mandatory	Type	Description
verbs	No	Array of strings	Action list

Parameter	Mandatory	Type	Description
resources	No	Array of strings	Resource list

Response Parameters

Status code: 200

Table 3-262 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 400

Table 3-263 Parameters in the response body

Parameter	Type	Description
-	String	

Status code: 500

Table 3-264 Parameters in the response body

Parameter	Type	Description
-	String	

Example Requests

Updating a permission policy

```
PUT https://ucs.myhuaweicloud.com/v1/permissions/{ruleid}

{
  "spec" : {
    "iamUserIDs" : [ "978ff70ec1494a5680f6218faa3567d9", "5acdb44b47ba4bd79783ad40e5346783" ],
    "type" : "custom",
    "description" : "this is description"
  }
}
```

Example Responses

None

Status Codes

Status Code	Description
200	The permission policy has been updated.
400	Client request error. The server could not execute the request.
500	Internal server error.

Error Codes

See **Error Codes**.

4 Using the Karmada API

Karmada API Description

Karmada API is the application that serves Karmada functionality through a RESTful interface and stores the state of Karmada. Federated resources can be obtained, created, updated, and deleted via HTTP calls (POST, PUT, PATCH, DELETE, and GET) to the API. For details, see **Karmada API**.

UCS can call Karmada API through API Gateway.

Calling Karmada API Through API Gateway

Karmada API can be called through API Gateway. The URL format is **https://** *{fleetname}*.**fleet.ucs.***{region}*-**dev.myhuaweicloud.com/***{uri}*.

Table 4-1 URL parameters

Parameter	Description
{fleetname}	Fleet name, which can be obtained from the basic fleet information on the console.
{region}	Web service entrance URL. It can be obtained from **Endpoints**. Example: The region of CN North-Beijing4 is **cn-north-4**.
{uri}	Access path of an API for performing a specified operation. Obtain the value from the URI of the API. For details, see **Karmada API**. Example: Set this parameter based on the API to be called. For example, if you want to view details about a Deployment, the request method is GET and the API URI is **apis/apps/v1/***{namespaces}***/default/deployments**. *{namespace}* indicates the cluster namespace name. In this example, the value is **default**.

Step 1 Log in to the UCS console and click the name of the target fleet to go to its details page. Then, click **kubectl** in **Fleet Info**.

Step 2 Select a project, VPC, master node subnet, and validity period as prompted and click **Download** to download the kubectl configuration file.

The name of the downloaded file is **kubeconfig.json**.

NOTICE

If the **kubeconfig.json** file is leaked, your clusters may be attacked. Keep it secure.

The validity period of the kubectl configuration file can be set as required. The options are 5 years, 1 year, 6 months, 30 days, and 15 days to 1 day. The minimum value is 1 day.

Step 3 Install and configure kubectl on the executor.

1. Copy kubectl and its configuration file to the **/home** directory on the executor in the selected VPC and subnet.
2. Log in to your executor and configure kubectl.

   cd /home

   chmod +x kubectl

   mv -f kubectl /usr/local/bin

   mkdir -p $HOME/.kube

   mv -f kubeconfig.json $HOME/.kube/config

Step 4 Determine the requested URL based on the URL format.

- *{fleetname}* indicates the fleet name, which can be obtained from the basic fleet information on the console.
- *{region}* indicates the web service entrance URL. It can be obtained from **Endpoints**.
- *{uri}* indicates the path from which the API requests the resource. Obtain the value from the URI of the API. For details, see **Karmada API**.

The following is an example URL for calling the API to view information about all Deployments in the federation:

```
https://r******.fleet.ucs.cn-north-4-dev.myhuaweicloud.com/apis/apps/v1/namespaces/default/deployments
```

Step 5 Obtain the bearer token corresponding to the request for creating an Admin Role.

1. Save the following content to the **admin-role.yaml** file:

```
kind: ClusterRoleBinding
apiVersion: rbac.authorization.k8s.io/v1
metadata:
  name: admin
  annotations:
    rbac.authorization.kubernetes.io/autoupdate: "true"
roleRef:
  kind: ClusterRole
  name: cluster-admin
  apiGroup: rbac.authorization.k8s.io
subjects:
- kind: ServiceAccount
  name: admin
  namespace: kube-system
---
apiVersion: v1
kind: ServiceAccount
```



```
metadata:
  name: admin
  namespace: kube-system
  labels:
    kubernetes.io/cluster-service: "true"
    addonmanager.kubernetes.io/mode: Reconcile
```

2. Run the **kubectl apply -f admin-role.yaml** command to create the service account and permissions.
3. Run the **kubectl create token admin --namespace kube-system** command to obtain the bearer token of the service account.
4. Set the environment variable **token** to the bearer token obtained in the previous step.

Step 6 Use the request method specified by the API and set the request header parameters. If parameters in the body need to be added, add the structure corresponding to the API by referring to **Karmada API**.

Example curl command to call the API for creating a Deployment using POST and adding the corresponding body:

In this example, the **nginx.json** file is used to create a Deployment named **nginx**. The Deployment uses the **nginx:latest** image and contains two pods. Each pod occupies 100m CPU and 200 MiB of memory. After the Deployment is created, you can refer to the preceding steps to obtain the URI of PropagationPolicy from **Karmada API** and create a distribution policy.

```
curl --location --request POST 'https://r*****.fleet.ucs.cn-north-4-dev.myhuaweicloud.com/apis/apps/v1/deployments' \
--header 'Content-Type: application/json' \
--header 'Authorization: Bearer $token' \
--data @nginx.json
```

The following table lists the header parameters contained in the request.

Table 4-2 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format), for example, application/json.
Authorization	Yes	String	For details about how to obtain the bearer token, see **Step 5**.

The content of the **nginx.json** file is as follows:

```
{
   "apiVersion": "apps/v1",
   "kind": "Deployment",
   "metadata": {
      "name": "nginx"
   },
   "spec": {
      "replicas": 2,
      "selector": {
         "matchLabels": {
            "app": "nginx"
```



```
        }
      },
      "template": {
        "metadata": {
          "labels": {
            "app": "nginx"
          }
        },
        "spec": {
          "containers": [
            {
              "image": "nginx:latest",
              "name": "container-0",
              "resources": {
                "limits": {
                  "cpu": "100m",
                  "memory": "200Mi"
                },
                "requests": {
                  "cpu": "100m",
                  "memory": "200Mi"
                }
              }
            }
          ],
          "imagePullSecrets": [
            {
              "name": "default-secret"
            }
          ]
        }
      }
    }
}
```

----End

5 Appendix

5.1 Status Codes

- Normal values

Returned Value	Description
200 OK	The results of **GET** and **PUT** operations are returned as expected.
201 Created	The results of the **POST** operation are returned as expected.
202 Accepted	The request has been accepted for processing.
204 No Content	The results of the **DELETE** operation are returned as expected.

- Abnormal values

Returned Value	Description
400 Bad Request	The server failed to process the request.
401 Unauthorized	You must enter a username and password to access the requested page.
403 Forbidden	You are forbidden to access the requested page.
404 Not Found	The server could not find the requested page.
405 Method Not Allowed	You are not allowed to use the method specified in the request.
406 Not Acceptable	The response generated by the server could not be accepted by the client.

Returned Value	Description
407 Proxy Authentication Required	You must first authenticate yourself with the proxy.
408 Request Timeout	The server timed out waiting for the request.
409 Conflict	The request could not be processed due to a conflict.
500 Internal Server Error	The request failed due to a service error.
501 Not Implemented	The request failed because the server does not support the requested function.
502 Bad Gateway	The request failed because the request is invalid.
503 Service Unavailable	The request failed because the system is temporarily abnormal.
504 Gateway Timeout	A gateway timeout error occurred.

5.2 Error Codes

If an exception occurs during the execution of an operation request and the request is not processed, an error message is returned. The error message contains the error code and description. **Table 5-1** lists the common error codes and error messages. You can rectify the errors following the description.

Table 5-1 Error code description

Error Code	Status Code	Error Message	Description
UCS.00000001	400	Failed to obtain the user information.	Failed to obtain the user information.
UCS.00000003	400	Failed to obtain the federation information.	Failed to obtain the federation information.
UCS.00000004	403	Request forbidden.	Forbidden request.
UCS.00000005	500	Database operation failed.	Failed to operate the database.
UCS.00000006	500	Server internal error.	Internal server error.
UCS.00000007	500	Data transform error.	Data conversion failed.

Error Code	Status Code	Error Message	Description
UCS.00000008	500	Error add event.	Failed to add the event.
UCS.00000009	500	Data unmarshal error.	Failed to deserialize data.
UCS.00000010	500	Data marshal error.	Failed to serialize data.
UCS.00000011	400	Bad query parameter value.	Invalid request parameter.
UCS.00000012	400	Invalid request body.	Invalid request body.
UCS.00000013	404	No requested resources found.	The requested resource cannot be found.
UCS.00000014	500	Failed to encrypt data.	Data encryption failed.
UCS.00000015	500	Failed to decrypt data.	Data decryption failed.
UCS.00000016	400	Invalid header value.	Invalid request header.
UCS.00000017	400	Insufficient quota	Insufficient quota.
UCS.00000018	401	Authorization failed.	Authorization failed.
UCS.00010001	500	Failed to get iam connection.	IAM connection failed.
UCS.00010002	403	Sub-user has no authority to create agency.	The IAM user does not have the permission for creating an agency.
UCS.00010003	400	Failed to create agency.	Failed to create an agency.
UCS.00010004	500	Failed to get role id for te_admin.	Failed to obtain the te_admin role.
UCS.00010005	500	Failed to get admin token from iam.	Failed to obtain the admin token.
UCS.00010006	500	Failed to get agency list from iam.	Failed to obtain the agency list.

Error Code	Status Code	Error Message	Description
UCS.00010007	500	Failed to get agency grants from iam.	Failed to obtain the agency grants.
UCS.00010008	500	Failed to update agency role.	Failed to update the agency role.
UCS.00010009	400	Failed to get project token by agency	Failed to obtain the project token through the agency.
UCS.00010010	400	Failed to get op_svc account domain token	Failed to obtain the token of the op account.
UCS.00010011	400	Failed to get project id by project name.	Failed to obtain the project ID.
UCS.00010012	400	IAM agency quota insufficient, please expand agency quota	IAM agency quota exceeded.
UCS.00010013	400	fail to get iam pdp authorize result	Failed to obtain the PDP authentication result.
UCS.00010014	403	iam pdp authentication denied	PDP authentication rejected.
UCS.00010015	403	iam rbac authentication denied	RBAC authentication rejected.
UCS.00020001	500	Failed to get aeskey.	Failed to obtain the aeskey.
UCS.00020002	500	Failed to get certs.	Failed to obtain the certificate.
UCS.00020003	500	Failed to create certs.	Failed to create the certificate.
UCS.00020003	500	Failed to delete certs.	Failed to delete the certificate.
UCS.00030001	404	Cluster Not Found.	No clusters found.
UCS.00030002	400	Failed to obtain the cluster information.	Failed to obtain the cluster information.
UCS.00030003	400	Failed to get resourceJob info with cluster status	Failed to obtain the resource job.
UCS.00040001	400	Failed to obtain the mesh information.	Failed to obtain the mesh information.

Error Code	Status Code	Error Message	Description
UCS.00090001	500	Failed to create DNSRecord	Failed to create the record set.
UCS.00100001	400	Failed to publish message to smn.	Failed to publish messages to SMN.
UCS.00100002	400	smn topic error.	Invalid SMN topic.
UCS.00100003	400	smn subscription error.	SMN subscription error.
UCS.00110001	400	SDR failed to get billing raw data	Failed to obtain billing data.
UCS.00110002	400	Formatting raw billing data to SDR format error	Failed to format billing data.
UCS.00120001	400	CBC failed to update resources status	Failed to update the CBC resource status.
UCS.00130001	400	Get UCS Agency info error	Failed to obtain the UCS agency.
UCS.00140001	400	Create ClusterRole failed	Failed to create a ClusterRole.
UCS.00140002	400	Delete ClusterRole failed	Failed to delete a ClusterRole.
UCS.00140003	400	Update ClusterRole failed	Failed to update a ClusterRole.
UCS.00140004	400	Get ClusterRole failed	Failed to obtain the ClusterRole information.
UCS.00140005	400	Create ClusterRoleBinding failed	Failed to create a ClusterRoleBinding.
UCS.00140006	400	Delete ClusterRoleBinding failed	Failed to delete a ClusterRoleBinding.
UCS.00140007	400	Update ClusterRoleBinding failed	Failed to update a ClusterRoleBinding.
UCS.00140008	400	Get ClusterRoleBinding failed	Failed to obtain the ClusterRoleBinding information.
UCS.00140009	400	Create Role failed	Failed to create a role.
UCS.00140010	400	Delete Role failed	Failed to delete a role.

Error Code	Status Code	Error Message	Description
UCS.00140011	400	Update Role failed	Failed to update a role.
UCS.00140012	400	Get Role failed	Failed to obtain the role information.
UCS.00140013	400	Create RoleBinding failed	Failed to create a RoleBinding.
UCS.00140014	400	Delete RoleBinding failed	Failed to delete a RoleBinding.
UCS.00140015	400	Update RoleBinding failed	Failed to update a RoleBinding.
UCS.00140016	400	Get RoleBinding failed	Failed to obtain the RoleBinding information.
UCS.00150001	400	Cluster policy validate failed.	Cluster policy verification failed.
UCS.00150002	400	ClusterGroup policy validate failed.	Cluster group policy verification failed.
UCS.00150003	400	Cluster has enable policy.	The policy has been enabled for the cluster.
UCS.00150004	400	ClusterGroup has enable policy.	The policy has been enabled for the cluster group.
UCS.00150005	400	Cluster not enable policy.	The policy is not enabled for the cluster.
UCS.00150006	400	ClusterGroup not enable policy.	The policy is not enabled for the cluster group.
UCS.00150007	500	Get policy job failed.	Failed to obtain the policy task.
UCS.01000001	400	Failed to obtain the user information.	Failed to obtain the user information.
UCS.01000002	429	The throttling threshold has been reached.	Throttling threshold reached.
UCS.01000003	401	Authorization failed.	Authorization failed.

Error Code	Status Code	Error Message	Description
UCS.01000004	403	Request forbidden.	Forbidden request.
UCS.01000005	500	Database operation failed.	Failed to operate the database.
UCS.01000006	500	Server internal error.	Internal server error.
UCS.01000007	500	Data transform error.	Data conversion failed.
UCS.01000008	500	Error add event.	Failed to add the event.
UCS.01000009	500	Data unmarshal error.	Failed to deserialize data.
UCS.01000010	500	Data marshal error.	Failed to serialize data.
UCS.01000011	400	Bad query parameter value.	Invalid request parameter.
UCS.01000012	400	Invalid request body.	Invalid request body.
UCS.01000013	404	No requested resources found.	The requested resource cannot be found.
UCS.01000014	500	Failed to encrypt data.	Data encryption failed.
UCS.01000015	500	Failed to decrypt data.	Data decryption failed.
UCS.01000016	400	Invalid header value.	Invalid request header.
UCS.01000017	400	Insufficient quota	Insufficient quota.
UCS.01000018	400	Quota info validate failed	Quota parameter verification failed.
UCS.01000019	500	Quota update failed	Quota update failed.
UCS.01010001	500	Failed to get iam connection.	IAM connection failed.
UCS.01010002	500	Failed to get project token by agency	Failed to obtain the project token through the agency.

Error Code	Status Code	Error Message	Description
UCS.010100 03	403	No access permission. Please contact the administrator.	No permissions.
UCS.010100 04	400	get deployment region's projectID error	Failed to obtain the project ID.
UCS.010100 05	400	get IAM agency's token error	Failed to obtain the agency token.
UCS.010100 06	400	fail to get iam pdp authorize result	Failed to obtain the PDP authentication result.
UCS.010100 07	403	iam pdp authentication denied	PDP authentication rejected.
UCS.010100 08	403	iam rbac authentication denied	RBAC authentication rejected.
UCS.010200 01	500	Failed to get aeskey.	Failed to obtain the aeskey.
UCS.010200 02	500	Failed to get certs.	Failed to obtain the certificate.
UCS.010200 03	500	Failed to create certs.	Failed to create the certificate.
UCS.010200 04	500	Failed to delete certs.	Failed to delete the certificate.
UCS.010300 01	404	Cluster Not Found.	No clusters found.
UCS.010300 02	400	Failed to obtain the cluster information.	Failed to obtain the cluster information.
UCS.010300 03	409	The same cluster already exists.	The cluster name already exists.
UCS.010300 04	400	Cluster status is unavailable, please fix cluster first.	The cluster is unavailable.
UCS.010300 05	403	No authorization for cluster	Failed to authorize the cluster.
UCS.010300 06	400	Create resource job for cluster error	Failed to create a resource job in the cluster.
UCS.010300 07	400	Create on-demand order for cluster error	Failed to create the pay-per-use order.

Error Code	Status Code	Error Message	Description
UCS.01030008	400	Cluster kubeconfig format error.	Incorrect kubeconfig format of the cluster.
UCS.01030009	400	This cluster does not support unregister	The cluster does not support unregistration.
UCS.01030010	400	Failed to obtain cce cluster information.	Failed to obtain the CCE cluster information.
UCS.01030011	400	Cluster category not supported	The cluster type is not supported.
UCS.01030012	400	Register cce cluster error	Failed to register the CCE cluster.
UCS.01030013	400	Register attached cluster error	Failed to register the attached cluster.
UCS.01030014	400	Register on-premise cluster error	Failed to register the on-premises cluster.
UCS.01030016	400	Cluster has been frozen	The cluster has been frozen.
UCS.01050001	400	RecordSet create failed.	Failed to create the record set.
UCS.01080001	400	Failed to obtain the federation information.	Failed to obtain the federation information.
UCS.01080002	400	Cluster group has federalized.	Federation has been enabled for the fleet.
UCS.01080003	500	Cluster group federation failed.	Federation operation failed.
UCS.01080004	400	Cluster group federation validate failed.	Failed to enable federation verification.
UCS.01080005	400	Retry join all clusters to federation failed.	Failed to federate all clusters again.
UCS.01080006	400	Cluster group has not been federalized.	Federation is not enabled for the fleet.

Error Code	Status Code	Error Message	Description
UCS.01080007	400	Retry join cluster to federation failed.	Failed to add the cluster to the federation again.
UCS.01090001	400	Failed to obtain the mesh information.	Failed to obtain the mesh information.
UCS.01100001	403	No authorization for cluster group	The fleet is not authorized.
UCS.01100002	400	associate cluster with clustergroup error	Failed to add the cluster to the fleet.
UCS.01100003	400	associate cluster with rule error	Failed to associate the permission policy with the fleet.
UCS.01100004	409	The same clustergroup already exists.	The fleet name already exists.
UCS.01100005	404	ClusterGroup Not Found.	The fleet does not exist.
UCS.01100006	400	Cluster number in fleet exceed limit.	Too many clusters in the fleet.
UCS.01100007	400	Update associated clusters validate failed	Failed to verify the update of the associated cluster.
UCS.01110001	400	resource notification to SMN error	Failed to send notifications to SMN.
UCS.01120001	400	Create ClusterRole failed	Failed to create a ClusterRole.
UCS.01120002	400	Delete ClusterRole failed	Failed to delete a ClusterRole.
UCS.01120003	400	Update ClusterRole failed	Failed to update a ClusterRole.
UCS.01120004	400	Get ClusterRole failed	Failed to obtain the ClusterRole information.
UCS.01120005	400	Create ClusterRoleBinding failed	Failed to create a ClusterRoleBinding.
UCS.01120006	400	Delete ClusterRoleBinding failed	Failed to delete a ClusterRoleBinding.

Error Code	Status Code	Error Message	Description
UCS.01120007	400	Update ClusterRoleBinding failed	Failed to update a ClusterRoleBinding.
UCS.01120008	400	Get ClusterRoleBinding failed	Failed to obtain the ClusterRoleBinding information.
UCS.01120009	400	Create Role failed	Failed to create a role.
UCS.01120010	400	Delete Role failed	Failed to delete a role.
UCS.01120011	400	Update Role failed	Failed to update a role.
UCS.01120012	400	Get Role failed	Failed to obtain the role information.
UCS.01120013	400	Create RoleBinding failed	Failed to create a RoleBinding.
UCS.01120014	400	Delete RoleBinding failed	Failed to delete a RoleBinding.
UCS.01120015	400	Update RoleBinding failed	Failed to update a RoleBinding.
UCS.01120016	400	Get RoleBinding failed	Failed to obtain the RoleBinding information.
UCS.01130001	400	policy management create reconcile job failed	Failed to create a coordination job in policy management.
UCS.01130002	400	policy management create disable job failed	Failed to create a disabling job in policy management.
UCS.01130003	400	cluster policy validate failed.	Cluster policy verification failed.
UCS.01130004	400	clusterGroup policy validate failed.	Cluster group policy verification failed.
UCS.01130005	400	cluster policy management is in installing or closing status	Cluster policy management is being installed or has been disabled.

Error Code	Status Code	Error Message	Description
UCS.01130006	400	cluster group policy management is in installing or closing status	Cluster group policy management is being installed or has been disabled.

5.3 Obtaining a Project ID

Scenarios

A project ID is required for some URLs when an API is called. Therefore, you need to obtain a project ID in advance. Two methods are available:

- **Call an API**.
- **Use the console**.

Obtain the Project ID by Calling an API

You can obtain a project ID by calling the API used to **query projects based on specified criteria**.

The API used to obtain a project ID is "GET https://*{Endpoint}*/v3/projects". *{Endpoint}* is the IAM endpoint and can be obtained from **Regions and Endpoints**. For details about API authentication, see **Authentication**.

The following is an example response. The value of **id** is the project ID.

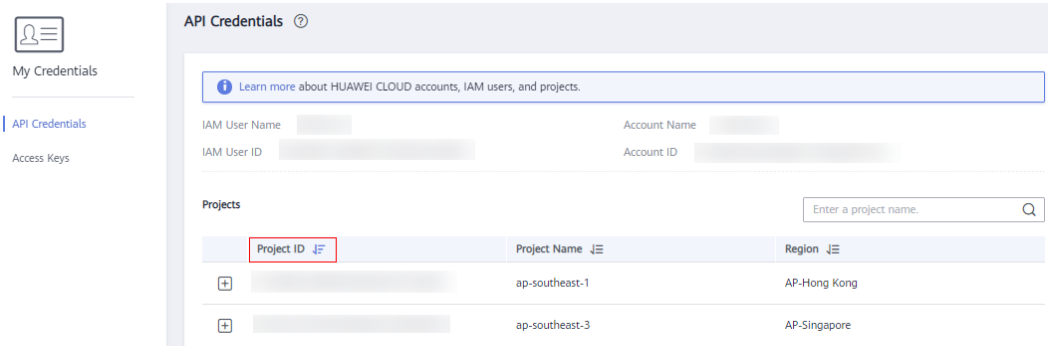
```
{
    "projects": [
        {
            "domain_id": "65382450e8f64ac0870cd180d14e684b",
            "is_domain": false,
            "parent_id": "65382450e8f64ac0870cd180d14e684b",
            "name": "project_name",
            "description": "",
            "links": {
                "next": null,
                "previous": null,
                "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
            },
            "id": "a4a5d4098fb4474fa22cd05f897d6b99",
            "enabled": true
        }
    ],
    "links": {
        "next": null,
        "previous": null,
        "self": "https://www.example.com/v3/projects"
    }
}
```

Obtain a Project ID from the Console

To obtain a project ID from the console, perform the following operations:

1. Log in to the management console.
2. Click the username and select **My Credentials** from the drop-down list.
   On the **API Credentials** page, view the project ID in the project list.

Figure 5-1 Viewing the project ID

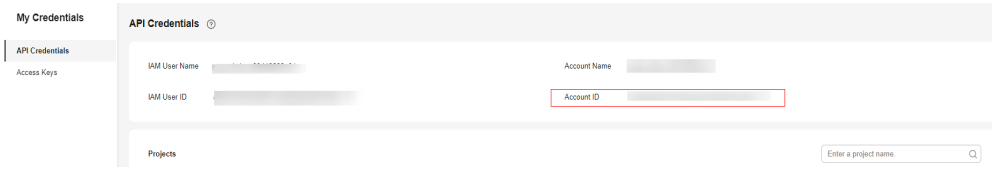


5.4 Obtaining an Account ID

An account ID is required for some URLs when an API is called. To obtain the account ID, take the following steps:

1. Register an account and log in to the management console.
2. Click the username and select **My Credentials** from the drop-down list.
   On the **API Credentials** page, view **Account ID**.

Figure 5-2 Obtaining an account ID



5.5 City Codes

- 110000: Beijing
- 120000: Tianjin
- 130000: Hebei
- 130100: Shijiazhuang
- 130200: Tangshan
- 130300: Qinhuangdao
- 130400: Handan
- 130500: Xingtai
- 130600: Baoding
- 130700: Zhangjiakou
- 130800: Chengde

- 130900: Cangzhou
- 131000: Langfang
- 131100: Hengshui
- 140000: Shanxi
- 140100: Taiyuan
- 140200: Datong
- 140300: Yangquan
- 140400: Changzhi
- 140500: Jincheng
- 140600: Shuozhou
- 140700: Jinzhong
- 140800: Yuncheng
- 140900: Xinzhou
- 141000: Linfen
- 141100: Lvliang
- 150000: Inner Mongolia Autonomous Region
- 150100: Hohhot
- 150200: Baotou
- 150300: Wuhai
- 150400: Chifeng
- 150500: Tongliao
- 150600: Ordos
- 150700: Hulunbuir
- 150800: Bayannur
- 150900: Ulanqab
- 152200: Hinggan League
- 152500: Xilingol League
- 152900: Alxa League
- 210000: Liaoning
- 210100: Shenyang
- 210200: Dalian
- 210300: Anshan
- 210400: Fushun
- 210500: Benxi
- 210600: Dandong
- 210700: Jinzhou
- 210800: Yingkou
- 210900: Fuxin
- 211000: Liaoyang
- 211100: Panjin

- 211200: Tieling
- 211300: Chaoyang
- 211400: Huludao
- 220000: Jilin
- 220100: Changchun
- 220200: Jilin
- 220300: Siping
- 220400: Liaoyuan
- 220500: Tonghua
- 220600: Baishan
- 220700: Songyuan
- 220800: Baicheng
- 222400: Yanbian Korean Autonomous Prefecture
- 230000: Heilongjiang
- 230100: Harbin
- 230200: Qiqihar
- 230300: Jixi
- 230400: Hegang
- 230500: Shuangyashan
- 230600: Daqing
- 230700: Yichun
- 230800: Jiamusi
- 230900: Qitaihe
- 231000: Mudanjiang
- 231100: Heihe
- 231200: Suihua
- 232700: Daxing'anling Prefecture
- 310000: Shanghai
- 320000: Jiangsu
- 320100: Nanjing
- 320200: Wuxi
- 320300: Xuzhou
- 320400: Changzhou
- 320500: Suzhou
- 320600: Nantong
- 320700: Lianyungang
- 320800: Huai'an
- 320900: Yancheng
- 321000: Yangzhou
- 321100: Zhenjiang

- 321200: Taizhou
- 321300: Suqian
- 330000: Zhejiang
- 330100: Hangzhou
- 330200: Ningbo
- 330300: Wenzhou
- 330400: Jiaxing
- 330500: Huzhou
- 330600: Shaoxing
- 330700: Jinhua
- 330800: Quzhou
- 330900: Zhoushan
- 331000: Taizhou
- 331100: Lishui
- 340000: Anhui
- 340100: Hefei
- 340200: Wuhu
- 340300: Bengbu
- 340400: Huainan
- 340500: Ma'anshan
- 340600: Huaibei
- 340700: Tongling
- 340800: Anqing
- 341000: Huangshan
- 341100: Chuzhou
- 341200: Fuyang
- 341300: Suzhou
- 341500: Lu'an
- 341600: Bozhou
- 341700: Chizhou
- 341800: Xuancheng
- 350000: Fujian
- 350100: Fuzhou
- 350200: Xiamen
- 350300: Putian
- 350400: Sanming
- 350500: Quanzhou
- 350600: Zhangzhou
- 350700: Nanping
- 350800: Longyan

- 350900: Ningde
- 360000: Jiangxi
- 360100: Nanchang
- 360200: Jingdezhen
- 360300: Pingxiang
- 360400: Jiujiang
- 360500: Xinyu
- 360600: Yingtan
- 360700: Ganzhou
- 360800: Ji'an
- 360900: Yichun
- 361000: Fuzhou
- 361100: Shangrao
- 370000: Shandong
- 370100: Jinan
- 370200: Qingdao
- 370300: Zibo
- 370400: Zaozhuang
- 370500: Dongying
- 370600: Yantai
- 370700: Weifang
- 370800: Jining
- 370900: Tai'an
- 371000: Weihai
- 371100: Rizhao
- 371300: Linyi
- 371400: Dezhou
- 371500: Liaocheng
- 371600: Binzhou
- 371700: Heze
- 410000: Henan
- 410100: Zhengzhou
- 410200: Kaifeng
- 410300: Luoyang
- 410400: Pingdingshan
- 410500: Anyang
- 410600: Hebi
- 410700: Xinxiang
- 410800: Jiaozuo
- 410900: Puyang

- 411000: Xuchang
- 411100: Louhe
- 411200: Sanmenxia
- 411300: Nanyang
- 411400: Shangqiu
- 411500: Xinyang
- 411600: Zhoukou
- 411700: Zhumadian
- 419001: Jiyuan
- 420000: Hubei
- 420100: Wuhan
- 420200: Huangshi
- 420300: Shiyan
- 420500: Yichang
- 420600: Xiangyang
- 420700: Ezhou
- 420800: Jingmen
- 420900: Xiaogan
- 421000: Jingzhou
- 421100: Huanggang
- 421200: Xianning
- 421300: Suizhou
- 422800: Enshi Tujia Miao Autonomous Prefecture
- 429004: Xiantao
- 429005: Qianjiang
- 429006: Tianmen
- 429021: Shennongjia Forestry District
- 430000: Hunan
- 430100: Changsha
- 430200: Zhuzhou
- 430300: Xiangtan
- 430400: Hengyang
- 430500: Shaoyang
- 430600: Yueyang
- 430700: Changde
- 430800: Zhangjiajie
- 430900: Yiyang
- 431000: Chenzhou
- 431100: Yongzhou
- 431200: Huaihua

- 431300: Loudi
- 433100: Xiangxi Tujia and Miao Autonomous Prefecture
- 440000: Guangdong
- 440100: Guangzhou
- 440200: Shaoguan
- 440300: Shenzhen
- 440400: Zhuhai
- 440500: Shantou
- 440600: Foshan
- 440700: Jiangmen
- 440800: Zhanjiang
- 440900: Maoming
- 441200: Zhaoqing
- 441300: Huizhou
- 441400: Meizhou
- 441500: Shanwei
- 441600: Heyuan
- 441700: Yangjiang
- 441800: Qingyuan
- 441900: Dongguan
- 442000: Zhongshan
- 445100: Chaozhou
- 445200: Jieyang
- 445300: Yunfu
- 450000: Guangxi Zhuang Autonomous Region
- 450100: Nanning
- 450200: Liuzhou
- 450300: Guilin
- 450400: Wuzhou
- 450500: Beihai
- 450600: Fangchenggang
- 450700: Qinzhou
- 450800: Guigang
- 450900: Yulin
- 451000: Baise
- 451100: Hezhou
- 451200: Hechi
- 451300: Laibin
- 451400: Chongzuo
- 460000: Hainan

- 460100: Haikou
- 460200: Sanya
- 460300: Sansha
- 460400: Danzhou
- 469001: Wuzhishan
- 469002: Qionghai
- 469005: Wenchang
- 469006: Wanning
- 469007: Dongfang
- 469021: Ding'an County
- 469022: Tunchang County
- 469023: Chengmai County
- 469024: Lingao County
- 469025: Baisha Li Autonomous County
- 469026: Changjiang Li Autonomous County
- 469027: Ledong Li Autonomous County
- 469028: Lingshui Li Autonomous County
- 469029: Baoting Li and Miao Autonomous County
- 469030: Qiongzhong Li Miao Autonomous County
- 500000: Chongqing
- 510000: Sichuan
- 510100: Chengdu
- 510300: Zigong
- 510400: Panzhihua
- 510500: Luzhou
- 510600: Deyang
- 510700: Mianyang
- 510800: Guangyuan
- 510900: Suining
- 511000: Neijiang
- 511100: Leshan
- 511300: Nanchong
- 511400: Meishan
- 511500: Yibin
- 511600: Guang'an
- 511700: Dazhou
- 511800: Ya'an
- 511900: Bazhong
- 512000: Ziyang
- 520000: Guizhou

- 520100: Guiyang
- 520200: Liupanshui
- 520300: Zunyi
- 520400: Anshun
- 520500: Bijie
- 520600: Tongren
- 522300: Qianxinan Buyei and Miao Autonomous Prefecture
- 522600: Qiandongnan Miao and Dong Autonomous Prefecture
- 522700: Qiannan Buyei and Miao Autonomous Prefecture
- 530000: Yunnan
- 530100: Kunming
- 530300: Qujing
- 530400: Yuxi
- 530500: Baoshan
- 530600: Zhaotong
- 530700: Lijiang
- 530800: Pu'er
- 530900: Lincang
- 532300: Chuxiong Yi Autonomous Prefecture
- 532500: Honghe Hani and Yi Autonomous Prefecture
- 532600: Wenshan Zhuang and Miao Autonomous Prefecture
- 532800: Xishuangbanna Dai Autonomous Prefecture
- 532900: Dali Bai Autonomous Prefecture
- 533100: Dehong Dai and Jingpo Autonomous Prefecture
- 533300: Nujiang Liyu Autonomous Prefecture
- 540000: Xizang
- 540100: Lhasa
- 540200: Shigatse
- 540300: Changdu
- 540400: Linzhi
- 540500: Shannan
- 540600: Naqu
- 542500: Ngari Prefecture
- 610000: Shaanxi
- 610100: Xi'an
- 610200: Tongchuan
- 610300: Baoji
- 610400: Xianyang
- 610500: Weinan
- 610600: Yan'an

- 610700: Hanzhong
- 610800: Yulin
- 610900: Ankang
- 611000: Shangluo
- 620000: Gansu
- 620100: Lanzhou
- 620200: Jiayuguan
- 620300: Jinchang
- 620400: Baiyin
- 620500: Tianshui
- 620600: Wuwei
- 620700: Zhangye
- 620800: Pingliang
- 620900: Jiuquan
- 621000: Qingyang
- 621100: Dingxi
- 621200: Longnan
- 622900: Linxia Hui Autonomous Prefecture
- 630000: Qinghai
- 630100: Xining
- 630200: Haidong
- 640000: Ningxia Hui Autonomous Region
- 640100: Yinchuan
- 640200: Shizuishan
- 640300: Wuzhong
- 640400: Guyuan
- 640500: Zhongwei
- 650000: Xinjiang Uygur Autonomous Region
- 650100: Urumqi
- 650200: Karamay
- 650400: Turpan
- 650500: Hami
- 652300: Changji Hui Autonomous Prefecture
- 652700: Bortala Mongol Autonomous Prefecture
- 652800: Bayingolin Mongol Autonomous Prefecture
- 652900: Aksu
- 653000: Kizilsu Kyrgyz Autonomous Prefecture
- 653100: Kashgar Prefecture
- 653200: Hotan Prefecture
- 654000: Ili Kazakh Autonomous Prefecture

- 654200: Tacheng Prefecture
- 654300: Altay Prefecture
- 659001: Shihezi
- 659002: Alar
- 659003: Tumushuk
- 659004: Wujiaqu
- 659005: Beitun
- 659006: Tiemenguan
- 659007: Shuanghe
- 659008: Cokdala
- 659009: Kunyu
- 659010: Huyanghe
- 710000: Taiwan
- 710100: Taipei
- 710200: Kaohsiung
- 710300: Keelung
- 710400: Taichung
- 710500: Tainan
- 710600: Hsinchu
- 710700: Jiayi
- 810000: Hong Kong SAR
- 820000: Macao SAR
- unknown: unknown

5.6 Cluster Categories and Types

Category	Type	Provider
Huawei Cloud cluster (self)	CCE standard cluster (cce)	Huawei Cloud
	CCE Turbo cluster (turbo)	Huawei Cloud
On-premises cluster (onpremises)	On-premises cluster (baremetal)	Huawei Cloud
Attached cluster (attachedcluster)	ACK cluster (ack)	Alibaba Cloud
	AKS cluster (aks)	Azure
	EKS cluster (eks)	AWS
	GKE cluster (gke)	Google Cloud
	TKE cluster (tke)	Tencent Cloud
	OpenShift cluster (openshift)	OpenShift

Category	Type	Provider
	Self-managed cluster (privatek8s)	Private Kubernetes provider

