Intelligent EdgeFabric

API Reference

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Contents

1 Before You Start 1
1.1 Overview 1
1.2 API Calling 1
1.3 Concepts 1
1.4 Message Header for Accessing a Platinum Service Instance 3
2 API Overview 4
3 Calling APIs 5
3.1 Making an API Request 5
3.2 Authentication 10
3.3 Response 11
4 API 14
4.1 Edge Node Management 14
4.1.1 Registering an Edge Node 14
4.1.2 Updating an Edge Node 18
4.1.3 Querying Details About an Edge Node 21
4.1.4 Querying a List of Edge Nodes 25
4.1.5 Deleting an Edge Node 28
4.1.6 Starting or Stopping an Edge Node 29
4.1.7 Updating End Devices for an Edge Node 31
4.1.8 Querying Node Certificates 34
4.1.9 Creating a Node Certificate 37
4.1.10 Deleting a Node Certificate 39
4.1.11 Performing an Edge Node Upgrade Check 40
4.1.12 Upgrading Edge Nodes 42
4.2 End Device Management 43
4.2.1 Registering an End Device 43
4.2.2 Updating an End Device 48
4.2.3 Querying Details About an End Device 51
4.2.4 Querying a List of End Devices 52
4.2.5 Deleting an End Device 55
4.2.6 Updating Edge Nodes for an End Device 56
4.2.7 Querying Twin Properties of an End Device 59

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4.2.8 Updating Twin Properties of an End Device ... 62
4.3 End Device Template Management ... 65
4.3.1 Creating an End Device Template ... 65
4.3.2 Updating an End Device Template ... 70
4.3.3 Querying Details About an End Device Template ... 75
4.3.4 Querying a List of End Device Templates ... 76
4.3.5 Deleting an End Device Template ... 78
4.4 Application Template Management ... 79
4.4.1 Creating an Application Template ... 79
4.4.2 Updating an Application Template ... 83
4.4.3 Querying Details About an Application Template ... 86
4.4.4 Querying a List of Application Templates ... 88
4.4.5 Deleting an Application Template ... 91
4.4.6 Creating an Application Template Version ... 92
4.4.7 Updating an Application Template Version ... 96
4.4.8 Querying Details About an Application Template Version ... 99
4.4.9 Querying a List of Application Template Versions ... 101
4.4.10 Deleting an Application Version ... 103
4.5 Deployment Management ... 104
4.5.1 Creating a Deployment ... 104
4.5.2 Querying a List of Deployments ... 123
4.5.3 Updating a Deployment ... 134
4.5.4 Deleting a Deployment ... 152
4.5.5 Querying Details About a Deployment ... 154
4.5.6 Querying a List of Application Instances ... 164
4.6 Tag Management ... 173
4.6.1 Querying Resource Instances ... 174
4.6.2 Adding or Deleting Resource Tags in Batches ... 180
4.6.3 Adding a Resource Tag ... 183
4.6.4 Deleting a Resource Tag ... 185
4.6.5 Querying Resource Tags ... 187
4.6.6 Querying Project Tags ... 188
4.7 ConfigMap Management ... 190
4.7.1 Creating a ConfigMap ... 190
4.7.2 Updating a ConfigMap ... 193
4.7.3 Querying Details About a ConfigMap ... 196
4.7.4 Querying a List of ConfigMaps ... 198
4.7.5 Deleting a ConfigMap ... 201
4.8 Secret Management ... 202
4.8.1 Creating a Secret ... 202
4.8.2 Updating a Secret ... 205
4.8.3 Querying Secret Details ... 207

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4.8.4 Querying a List of Secrets 209
4.8.5 Deleting a Secret 212
4.9 Endpoint Management 213
4.9.1 Querying a List of Endpoints 213
4.9.2 Creating an Endpoint 216
4.9.3 Querying Details About an Endpoint 221
4.9.4 Deleting an Endpoint 224
4.10 Rule Management 226
4.10.1 Querying a List of Rules 226
4.10.2 Creating a Rule 230
4.10.3 Querying Details About a Rule 236
4.10.4 Deleting a Rule 240
4.10.5 Querying All Errors of a Rule 242
4.10.6 Enabling a Rule 245
4.10.7 Disabling a Rule 247
4.11 System Subscription Event Management 249
4.11.1 Querying the System Subscription Event List 249
4.11.2 Creating a System Subscription Event 254
4.11.3 Querying the System Subscription Event List 260
4.11.4 Deleting the System Subscription Event List 264
4.11.5 Enabling a System Subscription Event 265
4.11.6 Disabling a System Subscription Event 267
4.12 Batch Node Management 268
4.12.1 Creating a Batch Node Registration Job 268
4.12.2 Querying the Batch Node Registration Job List 273
4.12.3 Deleting a Batch Node Registration Job 276
4.12.4 Querying Details About a Batch Node Registration Job 277
4.13 Batch Job Management 280
4.13.1 Creating a Batch Job 280
4.13.2 Querying the List of Batch Jobs 284
4.13.3 Querying Details of a Batch Job 287
4.13.4 Deleting a Batch Job 291
4.13.5 Stopping a Batch Job 292
4.13.6 Resuming a Batch Job 294
4.13.7 Retrying a Batch Job 295
4.14 Quota Management 296
4.14.1 Querying IEF Resource Quotas 297
4.15 Service Management 300
4.15.1 Querying a List of Services 300
4.15.2 Creating a Service 303
4.15.3 Querying Service Details 309
4.15.4 Updating a Service 313

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4.15.5 Deleting a Service 319
5 Data Structure 322
6 Permissions Policies and Supported Actions 350
7 Appendix 355
7.1 Status Codes 355
7.2 Error Codes 356
7.3 Obtaining a Project ID 380

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1 Before You Start

1.1 Overview

By managing your edge nodes, Intelligent EdgeFabric (IEF) extends cloud applications to the edge nodes and associates edge and cloud data to meet your requirements for remote control, data processing, analysis, decision-making, and intelligence of edge computing resources. IEF also provides unified O&M in the cloud, such as edge node and application monitoring and log collection, to offer a complete edge computing solution that contains integrated services under edge-cloud synergy.

This document describes how to use application programming interfaces (APIs) to perform operations on IEF, such as registering or deleting edge nodes. For details about all supported operations, see **API Overview**.

Before calling IEF APIs, ensure that you have understood the basic concepts related to IEF. For details, see **Service Overview**.

1.2 API Calling

IEF supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see **Calling APIs**.

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

For more constraints, see API description.

1.3 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

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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**.

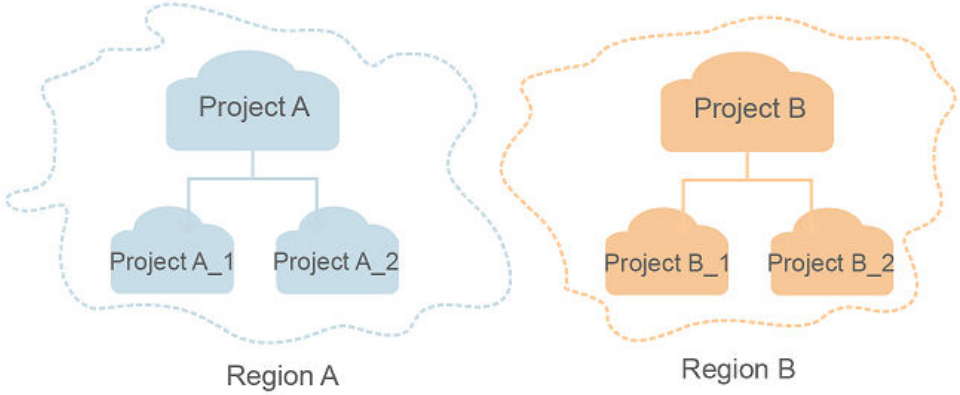
- AZ

  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

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contain resources of multiple regions, and resources can be added to or removed from enterprise projects.

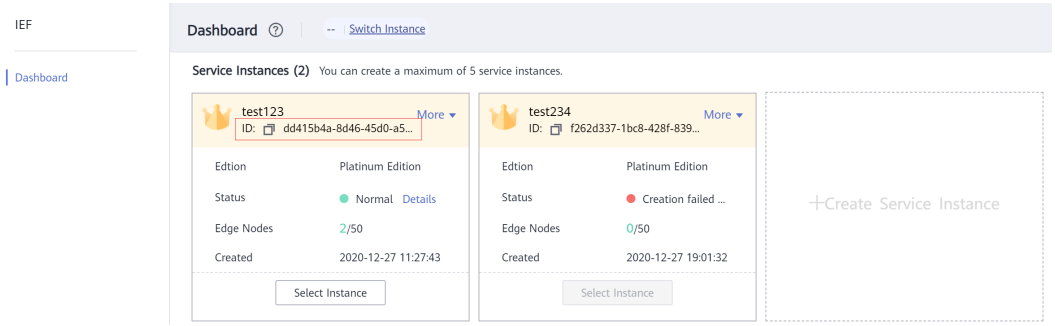
For details about enterprise projects and about how to obtain enterprise project IDs, see ***Enterprise Management User Guide***.

1.4 Message Header for Accessing a Platinum Service Instance

When you call the API of a platinum service instance, you need to add a message header named **ief-instance-id** to the request header. The value of **ief-instance-id** is a platinum service instance ID. For example:

```
POST https://{{ednpoint}}/v2/{project_id}/edgemgr/nodes
Content-Type: application/json
ief-instance-id: db953bf7-9f6c-4e90-9963-0a4453df72ba
```

You can obtain the platinum service instance ID from the IEF console.



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2 API Overview

Type	Description
Edge Node Management	Edge node management APIs, including APIs that create, query, modify, and delete edge nodes.
End Device Management	End device management APIs, including APIs that create, query, modify, and delete end devices.
End Device Template Management	Device template management APIs, including APIs that create, query, modify, and delete device templates.
Application Template Management	Edge application management APIs, including APIs that create, query, modify, and delete edge applications.
Deployment Management	Edge application Deployment management APIs (v3), including APIs that create, query, modify, and delete edge application Deployments.
Tag Management	Tag management APIs, including APIs that create, query, and delete tags.
ConfigMap Management	ConfigMap management APIs, including APIs that create, update, query, and delete ConfigMaps.
Secret Management	Secret management APIs, including APIs that create, update, query, and delete secrets.
Endpoint Management	Endpoint management APIs, including APIs that create, query, and delete endpoints for message routing.
Rule Management	Rule management APIs, including APIs that create, query, and delete rules for message routing.
Service Management	Service APIs, including APIs that create, query, and delete services.

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3 Calling APIs

3.1 Making an API Request

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

Request URI

A request URI is in the following format:

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

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

Table 3-1 URI parameter description

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service endpoint. The endpoint varies between services in different regions. It can be obtained from **Regions and Endpoints**. For example, the endpoint of IAM in the **CN North-Beijing4** region is **iam.cn-north-4.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**.

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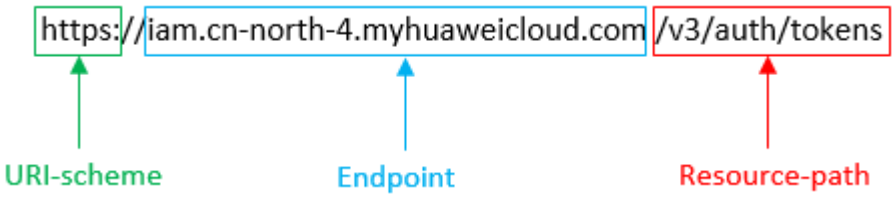
Parameter	Description
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of "*Parameter name=Parameter value*". For example, **?limit=10** indicates that a maximum of 10 data records will be displayed.

For example, to obtain an IAM token in the **CN North-Beijing4** region, obtain the endpoint of IAM **(iam.cn-north-4.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.cn-north-4.myhuaweicloud.com/v3/auth/tokens
```

Figure 3-1 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 3-2 HTTP methods

Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add resources or perform special operations.
DELETE	Requests the server to delete specified resources, for example, an object.
HEAD	Same as GET except that the server must return only the response header.

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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.cn-north-4.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.

Common request header fields are as follows.

Table 3-3 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

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Parameter	Description	Mandatory	Example Value
Content-Type	Specifies the type (or format) of the message body. 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
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: MIIPAgYJKoZIhvcNAQc-Co...ggg1BBIINPXsidG9rZ

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Parameter	Description	Mandatory	Example Value
ief-instance-id	ID of a platinum service instance.	This field is mandatory when a platinum service instance is used.	db953bf7-9f6c-4e90-9963-0a4453df72ba

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 is 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. Therefore, only the **Content-Type** field needs to be added to requests for calling the API. An example of such requests is as follows:

```
POST https://iam.cn-north-4.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 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, cn-north-4. 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.cn-north-4.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json

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

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```
        "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.

3.2 Authentication

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

- AK/SK authentication: Requests are encrypted using AK/SK pairs. AK/SK authentication is recommended because it is more secure than token authentication.
- Token authentication: Requests are authenticated using tokens.

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.

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Token Authentication

NOTE

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

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to requests to get permissions for calling the API. You can obtain a token by calling the **Obtaining a User Token** API.

IMS is a project-level service. When you call the API, set **auth.scope** in the request body to **project**.

```
{
    "auth": {
        "identity": {
            "methods": [
                "password"
            ],
            "password": {
                "user": {
                    "name": "username",   // IAM user name
                    "password": $ADMIN_PASS,  //IAM user password. You are advised to store it in ciphertext in the configuration file or an environment variable and decrypt it when needed to ensure security.
                    "domain": {
                        "name": "domainname"  // Name of the account that the IAM user belongs to
                    }
                }
            }
        },
        "scope": {
            "project": {
                "name": "xxxxxxxx"    // Project name
            }
        }
    }
}
```

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

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3.0/OS-USER/users
Content-Type: application/json
X-Auth-Token: ABCDEFG....
```

3.3 Response

Status Code

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

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

For example, if status code **201** is returned for calling the API used to **create an IAM user**, the request is successful.

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Response Header

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

Figure 3-2 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 3-2 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
    }
}
```


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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.

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4 API

4.1 Edge Node Management

4.1.1 Registering an Edge Node

Function

This API is used to register an edge node.

After the API is successfully called, use Base64 to decode the **node.package** field in the response body to a tar.gz file. Then, download EdgeCore from the console and install it on the edge node to enable IEF to manage the node.

URI

POST /v2/{project_id}/edgemgr/nodes

Table 4-1 Path parameter

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

Request

Request parameters

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Table 4-2 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-3 Parameters in the request body

Parameter	Mandatory	Type	Description
node	Yes	Table 4-4 object	Parameters about the edge node.

Table 4-4 node

Parameter	Mandatory	Type	Description
name	Yes	String	Edge node name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. This parameter is mandatory and must be unique in the account.
description	No	String	Edge node description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
enable_gpu	No	Boolean	Whether to enable the Graphics Processing Unit (GPU) on the edge node. Default value: false.

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Parameter	Mandatory	Type	Description
log_configs	No	Array of **Table 5-2** objects	Log configuration of the edge node.
device_infos	No	Array of **Table 5-3** objects	Information about bound end devices.
enable_npu	No	Boolean	Whether NPU is enabled on the edge node. The value **true** indicates that NPU is enabled, and the value **false** indicates that NPU is not enabled. The default value is **false**.
npu_type	No	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.
attributes	No	Array of **Table 5-26** objects	Properties of the edge node. An edge node can be associated with a maximum of 32 properties.
enable_docker	No	Boolean	Whether Docker is enabled on the edge node. The default value is **true**.
tags	No	Array of **Table 5-27** objects	Tags of the edge node. An edge node can be configured with a maximum of 20 tags.
mqtt_config	No	**Table 5-38** object	MQTT configuration.

Example request

```
{
   "node": {
      "name": "node_test",
      "description": "This is a test node",
      "enable_gpu": false,
      "log_configs": [
         {
            "component": "app",
            "type": "local",
            "level": "debug",
            "size": 100,
            "rotate_num": 5,
            "rotate_period": "daily"
         }
      ]
   }
}
```


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Response

Response parameters

Table 4-5 Parameters in the response body

Parameter	Type	Description
node	Table 5-1 object	Details about the edge node.

Example response


```
{
   "node": {
      "id": "86715318-a5a7-4507-a289-7238d53d5fed",
      "project_id": "05041fffa40025702f6dc009cc6f8f33",
      "name": "node_test",
      "description": "This is a test node",
      "created_at": "2020-08-11T01:23:55.527805447Z",
      "updated_at": "",
      "state": "UNCONNECTED",
      "master_addr": "https://ief2-placement.cn-north-4.myhuaweicloud.com:443",
      "arch": "",
      "enable_gpu": false,
      "gpu_info": [],
      "gpu_num": 0,
      "memory": 0,
      "os_version": "",
      "os_name": "",
      "device_infos": [],
      "os_type": "",
      "pause_docker_image": "swr.cn-north-4.myhuaweicloud.com/huawei-ief-internal-app/pause",
      "host_name": "",
      "cpu": 0,
      "log_configs": [
         {
            "level": "",
            "rotate_num": 5,
            "component": "app",
            "rotate_period": "daily",
            "type": "local",
            "id": "9b795f5e-01b7-47e8-b1ae-6dc59b9c0005",
            "size": 100
         },
         {
            "level": "false",
            "rotate_num": 5,
            "component": "app",
            "rotate_period": "daily",
            "type": "LTS",
            "id": "e419ab7f-17ea-4757-b62e-311fc777af69",
            "size": 50
         },
         {
            "level": "",
            "rotate_num": 5,
            "component": "system",
            "rotate_period": "daily",
            "type": "local",
            "id": "56dabbb7-4fb1-46cc-85df-dc80a2bd24f8",
            "size": 50
         },
         {
```


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```
            "level": "false",
            "rotate_num": 5,
            "component": "system",
            "rotate_period": "daily",
            "type": "LTS",
            "id": "0f6935c1-e59d-4b0d-a0db-1ba07b2ac8d1",
            "size": 50
        }
    ],
    "host_ips": [],
    "edged_version": "",
    "deployment_num": 0,
    "device_num": 0,
    "upgrade_history": [],
    "ief_node_version": "",
    "comment": "",
    "ca": "",
    "relation": "",
    "certificate": "",
    "private_key": "",
    "attributes": [],
    "package": "",
    "tags": null,
    "product_id": "",
    "mqtt_mode": "internal",
    "mqtt_internal": "tls://docker0:8883,tls://127.0.0.1:8883",
    "mqtt_external": "",
    "enable_npu": false,
    "docker_enable": true,
    "npu_num": 0,
    "npu_info": [],
    "node_type": "",
    "ntp_configs": null,
    "nics": [],
    "error_reason": "",
    "container_runtime_version": ""
  }
}
```


Error Codes

For details, see **Error Codes**.

4.1.2 Updating an Edge Node

Function

This API is used to update an edge node.

URI

PUT /v2/{project_id}/edgemgr/nodes/{node_id}

Table 4-6 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	Edge node ID.

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Request

Request parameters

Table 4-7 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-8 Parameters in the request body

Parameter	Mandatory	Type	Description
description	No	String	Edge node description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
log_configs	No	**Table 5-2** object	Log configuration of an edge node.
ntp_servers	No	Array of strings	NTP server address. Each node can be configured with a maximum of two NTP server addresses.
attributes	No	Array of **Table 5-26** objects	Properties of the edge node. An edge node can be associated with a maximum of 32 properties.

Example request

```
{
    "node": {
        "description": "This is a new test node"
```


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```
  }
}
```

Response

Response parameters

Table 4-9 Parameters in the response body

Parameter	Type	Description
node	Table 5-1 object	Details about the edge node.

Example response


```
{
    "node":{
        "edged_version":null,
        "ca":null,
        "updated_at":"2018-11-08T04:11:02.138839+08:00",
        "device_infos":[ ],
        "upgrade_history":[ ],
        "pause_docker_image":null,
        "ief_node_version":null,
        "id":"59710cd5-2ade-4b87-b2f8-5752f308a25b",
        "device_num":1,
        "certificate":null,
        "gpu_num":null,
        "os_version":null,
        "state":"UNCONNECTED",
        "memory":null,
        "project_id":"",
        "private_key":null,
        "os_name":null,
        "description":"This is a new test node.",
        "gpu_info":[ ],
        "arch":null,
        "host_ips":[ ],
        "enable_gpu":false,
        "name":"node_test7",
        "deployment_num":0,
        "package":null,
        "container_runtime_version":null,
        "created_at":"2018-11-08T04:03:43.215561+08:00",
        "cpu":null,
        "host_name":null,
        "os_type":null,
        "log_configs":[ {
            "level":"off",
            "rotate_num":null,
            "component":"app",
            "rotate_period":null,
            "type":"LTS",
            "id":"79a1d6fb-4411-4e7e-8d15-b3d5c1b8612b",
            "size":null
        },
        {
            "level":null,
            "rotate_num":5,
            "component":"system",
            "rotate_period":"daily",
            "type":"local",
            "id":"7e6419ac-05e8-4264-a082-f0824cbcd3bb",
```


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```
                "size":50
            },
            {
                "level":"off",
                "rotate_num":null,
                "component":"system",
                "rotate_period":null,
                "type":"LTS",
                "id":"b5150a39-325a-4872-8b1c-d4585424875e",
                "size":null
            },
            {
                "level":"on",
                "rotate_num":5,
                "component":"app",
                "rotate_period":"daily",
                "type":"local",
                "id":"4a19d570-05b6-49e5-9851-cc25f33eb1c3",
                "size":100
            }
        ]
    }
}
```


Error Codes

For details, see **Error Codes**.

4.1.3 Querying Details About an Edge Node

Function

This API is used to query details about an edge node.

URI

GET /v2/{project_id}/edgemgr/nodes/{node_id}

Table 4-10 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	Edge node ID.

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Request

Table 4-11 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-12 Parameters in the response body

Parameter	Type	Description
node	Table 5-1 object	Details about the edge node.

Example response


```
{
   "node": {
      "edged_version": "2.6.0",
      "mqtt_internal": "tls://0.0.0.0:8883",
      "ca": null,
      "updated_at": "2019-07-24T06:11:54.649516+08:00",
      "node_type": null,
      "docker_enable": true,
      "device_infos": [],
      "upgrade_history": [
         {
            "to_version": "2.3.0",
            "upgrade_time": 1557987888,
            "result": "install_success",
            "id": 0
         },
         {
            "from_version": "2.3.0",
            "to_version": "2.3.0",
            "result": "install_success",
            "dur_time": 2248264,
```


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```
            "upgrade_time": 1560236152,
            "id": 1
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.3.0",
            "result": "install_success",
            "dur_time": 87129,
            "upgrade_time": 1560323281,
            "id": 2
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.3.0",
            "result": "install_success",
            "dur_time": 158246,
            "upgrade_time": 1560481527,
            "id": 3
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.5.0",
            "result": "install_success",
            "dur_time": 1466742,
            "upgrade_time": 1561948269,
            "id": 4
        },
        {
            "from_version": "2.5.0",
            "to_version": "2.5.0",
            "result": "install_success",
            "dur_time": 884941,
            "upgrade_time": 1562833210,
            "id": 5
        },
        {
            "from_version": "2.5.0",
            "to_version": "2.6.0",
            "result": "install_success",
            "dur_time": 1106868,
            "upgrade_time": 1563940078,
            "id": 6
        }
    ],
    "pause_docker_image": null,
    "ntp_configs": {
        "ntp_servers": [
            "10.127.1.0",
            "ntp.myhuaweicloud.com"
        ],
        "ntp_enabled": true
    },
    "ief_node_version": "2.6.0",
    "id": "699de693-8493-4912-89dc-882134c5bf13",
    "device_num": 0,
    "certificate": null,
    "nics": [
        {
            "interface": "eth0",
            "ip": "10.0.0.41"
        }
    ],
    "gpu_num": 0,
    "os_version": "3.10.0-957.21.3.el7.x86_64",
    "state": "RUNNING",
    "error_reason": null,
    "memory": 990,
    "mqtt_mode": "internal",
    "project_id": "",
```


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```
    "private_key": null,
    "os_name": "CentOS Linux 7 (Core)",
    "description": "",
    "gpu_info": [],
    "mqtt_external": null,
    "arch": "x86_64",
    "host_ips": [
       "10.0.0.41"
    ],
    "enable_gpu": false,
    "enable_npu": false,

    "name": "ief-node",
    "deployment_num": 0,
    "package": null,
    "container_runtime_version": "docker://19.03.0",
    "created_at": "2019-05-16T06:19:10.303502+08:00",
    "cpu": 1,
    "product_id": null,
    "host_name": "iefnode",
    "attributes": [],
    "os_type": "linux",
    "log_configs": [
       {
          "level": "info",
          "rotate_num": 5,
          "component": "system",
          "rotate_period": "daily",
          "type": "local",
          "id": "ccc1080e-e156-48d2-b2d0-20044900d6ac",
          "size": 50
       },
       {
          "level": "on",
          "rotate_num": 5,
          "component": "app",
          "rotate_period": "daily",
          "type": "local",
          "id": "e42f9c75-e010-4320-ad2d-a7501a3aa543",
          "size": 50
       },
       {
          "level": "off",
          "rotate_num": 5,
          "component": "system",
          "rotate_period": "yearly",
          "type": "LTS",
          "id": "b29659b5-364a-4d7e-8447-b5525b6b46d0",
          "size": 50
       },
       {
          "level": "off",
          "rotate_num": 5,
          "component": "app",
          "rotate_period": "yearly",
          "type": "LTS",
          "id": "c4ac8c83-64f5-4b84-b163-33581f08b1a8",
          "size": 50
       }
    ]
  }
}
```


Error Codes

For details, see **Error Codes**.

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4.1.4 Querying a List of Edge Nodes

Function

This API is used to query a list of edge nodes.

URI

GET /v2/{project_id}/edgemgr/nodes?
{name=xxx,limit=xxx,app_name=xxx,tags=xxx.xxx,device_id=xxx,device_name=xxx}

Table 4-13 Path parameter

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

Table 4-14 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Edge node name, which supports fuzzy match.
limit	No	String	Number of records displayed on each page. The value range is 1–1000. The default value is **500**.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.
device_id	No	String	Search by end device ID.
device_name	No	String	Search by the name of the bound end device.
app_name	No	String	Search by application name.
tags	No	String	The key and value of a tag are separated by dots (.), and multiple tags are separated by commas (,). For example, tags=key1.value1,key2.value2.

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NOTE

- If no query parameter is specified, all edge nodes about an account are returned.
- **app_name** cannot be combined with **tags** for a compound query. If the two parameters are both specified, only the edge nodes that meet the **tags** parameter are returned. If multiple other query parameters are specified, the edge nodes that meet all the specified query parameters are returned.

Request

Table 4-15 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-16 Parameters in the response body

Parameter	Type	Description
nodes	Array of **Table 5-1** objects	Edge node list.
count	Integer	Number of edge nodes that meet the conditions.

Example response

```
{
   "count": 1,
   "nodes": [
      {
         "comment": null,
         "enable_npu": null,
         "edged_version": "2.6.0",
         "mqtt_internal": "tls://0.0.0.0:8883",
```


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```
    "ca": null,
    "updated_at": "2019-07-24T03:52:53.545185+08:00",
    "node_type": null,
    "docker_enable": true,
    "device_infos": [],
    "upgrade_history": [
        {
            "to_version": "2.3.0",
            "upgrade_time": 1557987888,
            "result": "install_success",
            "id": 0
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.3.0",
            "result": "install_success",
            "dur_time": 2248264,
            "upgrade_time": 1560236152,
            "id": 1
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.3.0",
            "result": "install_success",
            "dur_time": 87129,
            "upgrade_time": 1560323281,
            "id": 2
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.3.0",
            "result": "install_success",
            "dur_time": 158246,
            "upgrade_time": 1560481527,
            "id": 3
        },
        {
            "from_version": "2.3.0",
            "to_version": "2.5.0",
            "result": "install_success",
            "dur_time": 1466742,
            "upgrade_time": 1561948269,
            "id": 4
        },
        {
            "from_version": "2.5.0",
            "to_version": "2.5.0",
            "result": "install_success",
            "dur_time": 884941,
            "upgrade_time": 1562833210,
            "id": 5
        },
        {
            "from_version": "2.5.0",
            "to_version": "2.6.0",
            "result": "install_success",
            "dur_time": 1106868,
            "upgrade_time": 1563940078,
            "id": 6
        }
    ],
    "pause_docker_image": null,
    "ntp_configs": {
        "ntp_servers": [
            "10.127.1.0",
            "ntp.myhuaweicloud.com"
        ],
        "ntp_enabled": true
    },
```


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```
        "ief_node_version": "2.6.0",
        "id": "699de693-8493-4912-89dc-882134c5bf13",
        "device_num": 0,
        "certificate": null,
        "nics": [
           {
              "interface": "eth0",
              "ip": "10.0.0.41"
           }
        ],
        "gpu_num": 0,
        "os_version": "3.10.0-957.21.3.el7.x86_64",
        "state": "RUNNING",
        "error_reason": null,
        "memory": 990,
        "mqtt_mode": "internal",
        "project_id": "",
        "private_key": null,
        "os_name": "CentOS Linux 7 (Core)",
        "description": "",
        "gpu_info": [],
        "attributes": [],
        "mqtt_external": null,
        "arch": "x86_64",
        "host_ips": [
           "10.0.0.41"
        ],
        "enable_gpu": false,
        "enable_npu": false,

        "name": "ief-node",
        "deployment_num": 0,
        "package": null,
        "container_runtime_version": "docker://19.03.0",
        "created_at": "2019-05-16T06:19:10.303502+08:00",
        "cpu": 1,
        "product_id": null,
        "host_name": "iefnode",
        "relation": null,
        "os_type": "linux",
        "log_configs": []
     }
  ]
}
```


Error Codes

For details, see **Error Codes**.

4.1.5 Deleting an Edge Node

Function

This API is used to delete an edge node.

URI

DELETE /v2/{project_id}/edgemgr/nodes/{node_id}

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Table 4-17 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	Edge node ID.

Request

Table 4-18 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.1.6 Starting or Stopping an Edge Node

Function

This API is used to start or stop an edge node. A stopped edge node cannot connect to cloud services. You can use the following URI to restore the edge node connection.

URI

POST /v2/{project_id}/edgemgr/nodes/{node_id}/action

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Table 4-19 Path parameters

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

Request

Request parameters

Table 4-20 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-21 Parameters in the request body

Parameter	Mandatory	Type	Description
node	Yes	**Table 4-22** object	Node information.

Table 4-22 action

Parameter	Mandatory	Type	Description
action	Yes	String	Starting or stopping an edge node. The value can be **start** or **stop**.

Example request

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```
{
    "node": {
        "action": "start"
    }
}
```

Response

Response parameters

Table 4-23 Parameters in the response body

Parameter	Type	Description
node	**Table 4-24** object	Node information.

Table 4-24 action

Parameter	Type	Description
action	String	Starting or stopping an edge node. The value can be **start** or **stop**.

Example response

```
{
    "node": {
        "action": "start"
    }
}
```

Error Codes

For details, see **Error Codes**.

4.1.7 Updating End Devices for an Edge Node

Function

This API is used to bind an end device to or unbind an end device from an edge node.

URI

PUT /v2/{project_id}/edgemgr/nodes/{node_id}/devices

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Table 4-25 Path parameters

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

Request

Request parameters

Table 4-26 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-27 Parameters in the request body

Parameter	Mandatory	Type	Description
devices	Yes	**Table 4-28** object	End device information.

Table 4-28 devices

Parameter	Mandatory	Type	Description
added	No	**Table 4-29** object	Details about the end device to be bound.
removed	No	Array of strings	ID of the end device to be unbound.

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Table 4-29 added

Parameter	Mandatory	Type	Description
relation	No	String	Relationship between the node and end device. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
comment	No	String	Description of the relationship between the node and end device. The value contains a maximum of 64 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
device_ids	Yes	Array of strings	A list of end device IDs.

Example request

```
{
   "devices":{
      "added":{
         "relation":"This_is_a_test_relation",
         "comment":"This is a test comment",
         "device_ids": [
            "c59d8205-e786-4455-8883-12578a34ae90"
         ]
      }
   }
}
```

Response

Response parameters

Table 4-30 Parameters in the response body

Parameter	Type	Description
delete_connector	Boolean	Reserved field for industrial devices.
deploy_connector	Array of strings	Reserved field for industrial devices.
deployment_id	String	Reserved field for industrial devices.
update_devices	**Table 4-31** object	Details about the operations on the end devices.

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Table 4-31 devices

Parameter	Type	Description
added	Table 4-32 object	Details about the end device to be bound.
removed	Array of strings	ID of the end device to be unbound.

Table 4-32 added

Parameter	Type	Description
relation	String	Relationship between the node and end device. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
comment	String	Description of the relationship between the node and end device. The value contains a maximum of 64 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
device_ids	Array of strings	A list of end device IDs.

Example response

```
{
   "delete_connector": false,
   "deploy_connector": false,
   "deployment_id": "",
   "update_devices": {
      "added": {
         "comment": "This is a test comment",
         "device_ids": [
            "114a9718-052d-4152-a4f5-cd7ab84e6fad"
         ],
         "relation": "This_is_a_test_relation"
      }
   }
}
```

Error Codes

For details, see **Error Codes**.

4.1.8 Querying Node Certificates

Function

This API is used to query the application and device certificates on an edge node.

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URI

GET /v2/{project_id}/edgemgr/nodes/{node_id}/certs

Table 4-33 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	String	Node ID.

Table 4-34 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.

Request

Table 4-35 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Response

Response parameters

Table 4-36 Parameters in the response body

Parameter	Type	Description
count	Integer	Number of application and device certificates associated with a node.
node_certs	Array of **Table 4-37** objects	Certificate list on the node.

Table 4-37 node_cert

Parameter	Type	Description
id	String	Certificate ID.
name	String	Certificate name.
description	String	Certificate description.
created_at	String	Time when the certificate is created.
node_id	String	Node ID.
type	String	Certificate type. The options are as follows: • **system**: A system certificate is created by default when a node is registered. • **application**: Application certificate. • **device**: Device certificate.
serial_num	String	Certificate SN.

Example response

```
{
   "count": 3,
   "node_certs": [
      {
         "description": "test device cert",
         "created_at": "2020-03-31T14:52:25.405025+08:00",
         "serial_num": null,
         "node_id": "f66bfc52-db62-4701-b93d-50843262cbfb",
         "type": "device",
         "id": "104344d9-3e76-4ddc-8a90-ac601d812251",
         "name": "device-cert"
      },
      {
         "description": "",
         "created_at": "2020-03-31T07:32:36.992162+08:00",
         "serial_num": "",
         "node_id": "f66bfc52-db62-4701-b93d-50843262cbfb",
```


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```
            "type": "system",
            "id": "54c66dbf-d0e9-4c25-8843-146199e434ea",
            "name": "sys-cert"
        },
        {
            "description": "test application cert",
            "created_at": "2020-03-31T14:50:28.544569+08:00",
            "serial_num": null,
            "node_id": "f66bfc52-db62-4701-b93d-50843262cbfb",
            "type": "application",
            "id": "65e8cb68-5b5d-4777-984c-94d16b39753a",
            "name": "app-cert"
        }
    ]
}
```


Error Codes

For details, see **Error Codes**.

4.1.9 Creating a Node Certificate

Function

This API is used to create application and device certificates for an edge node.

URI

POST /v2/{project_id}/edgemgr/nodes/{node_id}/certs

Table 4-38 Path parameters

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

Request

Request parameters

Table 4-39 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-40 Parameters in the request body

Parameter	Mandatory	Type	Description
name	Yes	String	Certificate name.
description	No	String	Certificate description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
type	Yes	String	Certificate type. The options are as follows: • **application**: Application certificate. • **device**: Device certificate.

Example request

```
{
   "name": "app-cert",
   "description": "",
   "type": "application"
}
```

Response

Response parameters

Table 4-41 Parameters in the response body

Parameter	Type	Description
id	String	Certificate ID.
name	String	Certificate name.

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Parameter	Type	Description
description	String	Certificate description.
created_at	String	Time when the certificate is created.
node_id	String	Node ID.
type	String	Certificate type. The options are as follows: • **system**: A system certificate is created by default when a node is registered. • **application**: Application certificate. • **device**: Device certificate.
serial_num	String	Certificate SN.
ca	String	Root certificate.
certificate	String	Certificate.
private_key	String	Private key.
package	String	Base64-encoded character string. This value is obtained after Base64 encoding is performed on the .tar.gz package of the certificate, root certificate, and private key. Before use, decode it into a .tar.gz package using Base64.

Example response

```
{
   "id": "243931b3-2651-4147-becc-d4215c8c2296",
   "name": "app-cert",
   "description": "",
   "created_at": "2020-09-22T17:55:41.577635881Z",
   "node_id": "9ebd8efb-9fdd-44a1-abda-9cdbc287a867",
   "type": "application",
   "serial_num": "",
   "ca": "",
   "certificate": "",
   "private_key": "",
   "package": ""
}
```

Error Codes

For details, see **Error Codes**.

4.1.10 Deleting a Node Certificate

Function

This API is used to delete a certificate from an edge node. (Currently, only application and device certificates can be deleted.)

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URI

DELETE /v2/{project_id}/edgemgr/nodes/{node_id}/certs/{cert_id}

Table 4-42 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	Edge node ID.
cert_id	Yes	Certificate ID.

Request

Table 4-43 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.1.11 Performing an Edge Node Upgrade Check

Function

This API is used to check whether an edge node can be upgraded.

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URI

GET /v2/{project_id}/edgemgr/nodes/{node_id}/upgrade

Table 4-44 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	String	Edge node ID.

Request

Table 4-45 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-46 Parameters in the response body

Parameter	Type	Description
upgrade_enable	Boolean	Whether the edge node can be upgraded.
reason	String	Reason why the upgrade is not supported.
version	String	Edge software version.

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Example response

```
{
  "upgrade_enable": true,
  "reason": "xxx",
  "version": "xxx"
}
```

Error Codes

For details, see **Error Codes**.

4.1.12 Upgrading Edge Nodes

Function

This API is used to upgrade edge nodes.

URI

POST /v2/{project_id}/edgemgr/nodes/{node_id}/upgrade

Table 4-47 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
node_id	Yes	String	Edge node ID.

Request

Table 4-48 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.

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Parameter	Mandatory	Type	Description
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.2 End Device Management

4.2.1 Registering an End Device

Function

This API is used to register an end device.

URI

POST /v2/{project_id}/edgemgr/devices

Table 4-49 Path parameter

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

Request

Request parameters

Table 4-50 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-51 Parameters in the request body

Parameter	Mandatory	Type	Description
device	Yes	**Table 4-52** object	End device information.

Table 4-52 device

Parameter	Mandatory	Type	Description
id	No	String	End device ID. Enter 24 to 64 characters starting with a letter or digit. Only letters, digits, underscores (_), and hyphens (-) are allowed.
name	Yes	String	End device name. The name contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
description	No	String	End device description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\

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Parameter	Mandatory	Type	Description
attributes	No	Object	Static properties. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-6**. The following is an example: `"attributes": { "username": { "value": "test", "optional": true, "metadata": { "type": "string" } } }`
connection_type	No	String	Connection type. The default value is **edge**.
access_protocol	No	String	Access protocol. The options are as follows: • **userdefine**: custom protocol • **modbus**: Modbus protocol • **opc-ua**: OPC UA protocol The default value is **userdefine**.
twin	No	Object	Dynamic properties. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-7**. The following is an example: `"twin": { "devicestate": { "optional": true, "expected": { "value": "running" }, "metadata": { "type": "string" } } }`

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Parameter	Mandatory	Type	Description
access_config	No	Table 5-24 object	Access configuration, which varies depending on **access_protocol**.
property_visitors	No	Object	Twin property configuration. The key must be the same as that of the corresponding twin property. For details about the value format, see Table 5-25.

Example request

```
{
   "device": {
      "access_protocol": "userdefine",
      "name": "device",
      "connection_type": "edge",
      "description": "",
      "attributes": {}
   }
}
```

Response

Response parameters

Table 4-53 Parameters in the response body

Parameter	Type	Description
device	Table 4-54 object	Details about the end device.

Table 4-54 device

Parameter	Type	Description
id	String	End device ID.
name	String	End device name.
access_protocol	String	Access protocol.
description	String	End device description.
project_id	String	Project ID.
created_at	String	Creation time.

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Parameter	Type	Description
updated_at	String	Update time.
attributes	Object	Static properties. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-6**. The following is an example: `"attributes": { "username": { "value": "test", "optional": true, "metadata": { "type": "string" } } }`
twin	Object	Dynamic properties. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-21**. The following is an example: `"devicestate":{ "expected":{ "value":"running", "metadata":{ "timestamp":1536822119463 } }, "optional":true, "metadata": { "type":"string" } }`
access_config	**Table 5-24** object	Access configuration, which varies depending on **access_protocol**.

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Parameter	Type	Description
property_visitors	Object	Twin property configuration, which varies depending on **access_protocol**. The key indicates the property name. For details about the format of value, see **Table 5-25**.
connection_type	String	Connection type. The default value is **edge**.

Example response

```
{
   "device": {
      "id": "1398f13d-f24d-4de4-8cd3-5905db1d6d9f",
      "name": "device",
      "access_protocol": "",
      "project_id": "05e1aef9040010e22fccc009adecb056",
      "description": "",
      "created_at": "2020-09-23T02:00:22.858736Z",
      "updated_at": "",
      "access_config": {},
      "connection_type": "edge"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.2.2 Updating an End Device

Function

This API is used to update an end device.

URI

PUT /v2/{project_id}/edgemgr/devices/{device_id}

Table 4-55 Path parameters

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

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Request

Request parameters

Table 4-56 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-57 Parameters in the request body

Parameter	Mandatory	Type	Description
device	Yes	Table 4-58 object	End device information.

Table 4-58 device

Parameter	Mandatory	Type	Description
description	No	String	End device description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\

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Parameter	Mandatory	Type	Description

attributes	No	Object	Static properties of an end device. A maximum of 64 key-value pairs are supported.
			The key indicates the property name. For details about the format of value, see **Table 5-6**. The following is an example:
			"attributes": {
			"username": {
			"value": "test",
			"optional": true,
			"metadata": {
			"type": "string"
			}
			}
			}

Example request

```
{
   "device": {
      "description": "new description",
      "attributes": {
         "username": {
            "optional": true,
            "value": "test-new",
            "metadata": {
               "type": "string"
            }
         }
      }
   }
}
```

Response

Response parameters

Table 4-59 Parameters in the response body

Parameter	Type	Description
device	**Table 4-54** object	Details about the end device.

Example response

```
{
   "device": {
      "id": "1398f13d-f24d-4de4-8cd3-5905db1d6d9f",
      "name": "device",
```


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```
    "access_protocol": "",
    "project_id": "05e1aef9040010e22fccc009adecb056",
    "description": "new description",
    "created_at": "2020-09-23T02:00:22.858736Z",
    "updated_at": "2020-09-23T02:12:46Z",
    "access_config": {},
    "attributes": {
        "username": {
            "value": "test-new",
            "optional": true,
            "metadata": {
                "type": "string"
            }
        }
    },
    "connection_type": "edge"
  }
}
```


Error Codes

For details, see **Error Codes**.

4.2.3 Querying Details About an End Device

Function

This API is used to query details about an end device.

URI

GET /v2/{project_id}/edgemgr/devices/{device_id}

Table 4-60 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
device_id	Yes	End device ID.

Request

Table 4-61 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-62 Parameters in the response body

Parameter	Type	Description
device	Table 4-54 object	Details about the end device.

Example response

```
{
   "device": {
      "id": "1398f13d-f24d-4de4-8cd3-5905db1d6d9f",
      "name": "device",
      "access_protocol": "",
      "project_id": "05e1aef9040010e22fccc009adecb056",
      "description": "new description",
      "created_at": "2020-09-23T02:00:22.858736Z",
      "updated_at": "2020-09-23T02:12:46Z",
      "access_config": {},
      "attributes": {},
      "connection_type": "edge"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.2.4 Querying a List of End Devices

Function

This API is used to query a list of end devices.

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URI

GET /v2/{project_id}/edgemgr/devices?{name=xxx,tags=xxx,limit=xxx,offset=xxx}

Table 4-63 Path parameter

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

Table 4-64 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	End device name, which supports fuzzy match.
node_id	No	String	Node ID, which supports exact match.
limit	No	String	Number of records displayed on each page. The value range is 1–1000. The default value is **1000**.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.
is_binding	No	String	Whether to bind a device to an edge node. If the value is **true**, a list of devices that have been bound to a node is returned. If the value is **false**, a list of devices that are not bound to a node is returned.
tags	No	String	The key and value of a tag are separated by dots (.), and multiple tags are separated by commas (,). For example, tags=key1.value1,key2.value2.

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NOTE

- If no query parameter is specified, all end devices under an account are returned.
- **tags** and **node_id** can be combined for a compound query. If multiple other query parameters are specified, the edge services that meet all the specified query parameters are returned.
- **is_binding** cannot be combined with **tags** or **node_id** for a compound query.

Request

Table 4-65 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-66 Parameters in the response body

Parameter	Type	Description
devices	Array of Table 4-54 objects	A list of end devices.
count	Integer	Number of end devices that meet the conditions.

Example response

```
{
   "devices": [
      {
         "id": "1398f13d-f24d-4de4-8cd3-5905db1d6d9f",
         "name": "device",
         "access_protocol": "",
         "project_id": "05e1aef9040010e22fccc009adecb056",
```


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```
            "description": "",
            "created_at": "2020-09-23T02:00:22.858736Z",
            "updated_at": "",
            "access_config": {},
            "connection_type": "edge"
        }
    ],
    "count": 1
}
```


Error Codes

For details, see **Error Codes**.

4.2.5 Deleting an End Device

Function

This API is used to delete an end device.

URI

DELETE /v2/{project_id}/edgemgr/devices/{device_id}

Table 4-67 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
device_id	Yes	End device ID.

Request

Table 4-68 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Response

None

Error Codes

For details, see **Error Codes**.

4.2.6 Updating Edge Nodes for an End Device

Function

This API is used to update edge nodes for an end device.

The function is the same as that of the API described in **Updating End Devices for an Edge Node**. The API described in **Updating End Devices for an Edge Node** is recommended.

URI

PUT /v2/{project_id}/edgemgr/devices/{device_id}/nodes

Table 4-69 Path parameters

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

Request

Request parameters

Table 4-70 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.

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Parameter	Mandatory	Type	Description
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-71 Parameters in the request body

Parameter	Mandatory	Type	Description
nodes	Yes	Table 4-72 object	Node information.

Table 4-72 node

Parameter	Mandatory	Type	Description
added	No	Table 4-73 object	Details about the node to be bound.
removed	No	Array of strings	ID of the edge node to be unbound.

Table 4-73 added

Parameter	Mandatory	Type	Description
relation	No	String	Relationship between the device and node. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

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Parameter	Mandatory	Type	Description
comment	No	String	Description of the relationship between the device and node. The description contains a maximum of 64 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
node_ids	Yes	Array of strings	Node ID list. A device can be bound to only one edge node.

Example request

```
{
   "nodes": {
      "added": {
         "node_ids": [
            "592ede18-d030-4cc1-afb8-34ac1bae47f6"
         ],
         "relation": "abcd",
         "comment": "hello world"
      },
      "removed": []
   }
}
```

Response

Response parameters

Table 4-74 Parameters in the response body

Parameter	Type	Description
update_nodes	**Table 4-75** object	Node information.

Table 4-75 update_nodes

Parameter	Type	Description
added	**Table 4-76** object	Details about the node to be bound.
removed	Array of strings	ID of the edge node to be unbound.

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Table 4-76 added

Parameter	Type	Description
relation	String	Relationship between the device and node. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
comment	String	Description of the relationship between the device and node. The description contains a maximum of 64 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
node_ids	Array of strings	Node ID list. A device can be bound to only one edge node.

Example response

```
{
   "update_nodes": {
      "removed": [],
      "added": {
         "comment": "hello world",
         "relation": "abcd",
         "node_ids": [
            "592ede18-d030-4cc1-afb8-34ac1bae47f6"
         ]
      }
   }
}
```

Error Codes

For details, see **Error Codes**.

4.2.7 Querying Twin Properties of an End Device

Function

This API is used to query twin properties of an end device.

URI

GET /v2/{project_id}/edgemgr/devices/{device_id}/twin

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Table 4-77 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
device_id	Yes	End device ID.

Request

Table 4-78 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-79 Parameters in the response body

Parameter	Type	Description
access_protocol	String	Access protocol. The options are as follows: • **userdefine**: custom protocol • **modbus**: Modbus protocol • **opc-ua**: OPC UA protocol

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Parameter	Type	Description
twin	Object	Dynamic properties of an end device. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-21**. The following is an example: "devicestate":{ "expected":{ "value":"running", "metadata":{ "timestamp":1536822119463 } }, "optional":true, "metadata": { "type":"string" } }
property_visitors	**Table 5-25** object	Twin property configuration, which varies depending on **access_protocol**.

Example response

```
{
   "access_protocol": "userdefine",
   "property_visitors": {},
   "twin": {
      "devicestate": {
         "expected": {
            "value": "running",
            "metadata": {
               "timestamp": 1523514289
            }
         },
         "actual": {
            "value": "stop",
            "metadata": {
               "timestamp": 1523514289
            }
         },
         "optional": true,
         "metadata": {
            "type": "string"
         }
      }
   }
}
```

Error Codes

For details, see **Error Codes**.

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4.2.8 Updating Twin Properties of an End Device

Function

This API is used to update twin properties of an end device.

URI

PUT /v2/{project_id}/edgemgr/devices/{device_id}/twin

Table 4-80 Path parameters

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

Request

Request parameters

Table 4-81 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Table 4-82 Parameters in the request body

Parameter	Mandatory	Type	Description
twin	No	Object	Dynamic properties of an end device. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-7**. The following is an example: `"twin": { "devicestate": { "optional": true, "expected": { "value": "running" }, "metadata": { "type": "string" } } }`
property_visitors	No	**Table 5-25** object	Twin property configuration, which varies depending on **access_protocol**.

Example request

```
{
   "twin": {
      "devicestate": {
         "expected": {
            "value": "running"
         }
      }
   },
   "property_visitors": {}
}
```

Response

Response parameters

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Table 4-83 Parameters in the response body

Parameter	Type	Description

twin	Object	Dynamic properties of an end device. A maximum of 64 key-value pairs are supported.
		The key indicates the property name. For details about the format of value, see **Table 5-21**. The following is an example:
		"devicestate":{
		"expected":{
		"value":"running",
		"metadata":{
		"timestamp":1536822119463
		}
		},
		"optional":true,
		"metadata":{ "type":"string" }
		}

property_visitors	**Table 5-25** object	Twin property configuration, which varies depending on **access_protocol**.

Example response

```
{
   "twin": {
      "devicestate": {
         "expected": {
            "value": "running",
            "metadata": {
               "timestamp": 1523514289
            }
         },
         "actual": {
            "value": "stop",
            "metadata": {
               "timestamp": 1523514289
            }
         },
         "optional": true,
         "metadata": {
            "type": "string"
         }
      }
   },
   "property_visitors": {}
}
```


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Error Codes

For details, see **Error Codes**.

4.3 End Device Template Management

4.3.1 Creating an End Device Template

Function

This API is used to create an end device template.

URI

POST /v2/{project_id}/edgemgr/device-templates

Table 4-84 Path parameters

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

Request

Request parameters

Table 4-85 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Table 4-86 Parameters in the request body

Parameter	Mandatory	Type	Description
device_template	Yes	**device_template** object	Device template information.

Table 4-87 device_template

Parameter	Mandatory	Type	Description
name	Yes	String	Device template name. The name contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
access_protocol	No	String	Access protocol. The options are as follows: • **userdefine**: custom protocol • **modbus**: Modbus protocol • **opc-ua**: OPC UA protocol The default value is **userdefine**.
description	No	String	Device template description. The description contains a maximum of 255 characters.
attributes	No	Object	Static properties of an end device. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-6**. The following is an example: `"attributes": { "username": { "value": "test", "optional": true, "metadata": { "type": "string" } } }`

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Parameter	Mandatory	Type	Description
twin	No	Object	Dynamic properties of an end device. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-7**. The following is an example: `"twin": { "devicestate": { "optional": true, "expected": { "value": "running" }, "metadata": { "type": "string" } } }`
tags	No	**Table 4-88** object	Device template tag, in key-value pair format.
property_visitors	No	Object	Twin property configuration, which varies depending on **access_protocol**. The key indicates the property name, which must be the same as the key of **twin**. For details about the value format, see **Table 5-25**.

Table 4-88 ResourceTag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key, which can contain a maximum of 36 Unicode characters. This parameter cannot be left blank and can contain only letters, digits, hyphens (-), and underscores (_).

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Parameter	Mandatory	Type	Description
value	Yes	String	Tag value, which can contain a maximum of 43 Unicode characters. If **value** is specified, tags are deleted by key and value. If **value** is not specified, tags are deleted by key. This parameter cannot be left blank and can contain only letters, digits, hyphens (-), and underscores (_).

Example request

```
{
   "device_template": {
      "name": "CameraTemplate",
      "access_protocol": "userdefine",
      "description": "This is a camera template",
      "attributes": {
         "cameraURL": {
            "value": "127.0.0.1",
            "optional": true,
            "metadata": {
               "type": "string"
            }
         }
      },
      "twin": {
         "runstate": {
            "expected": {
               "value": "running"
            },
            "optional": false,
            "metadata": {
               "type": "string"
            }
         }
      },
      "tags": {
         "dev": "dev1"
      }
   }
}
```

Response

Response parameters

Table 4-89 Parameters in the response body

Parameter	Type	Description
device_template	Table 4-90 object	End device template information.

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Table 4-90 device_template

Parameter	Type	Description
id	String	End device template ID.
name	String	End device template name.
access_protocol	String	Access protocol.
description	String	End device template description.
attributes	Object	Static properties of an end device. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-6**. The following is an example: `"attributes": { "username": { "value": "test", "optional": true, "metadata": { "type": "string" } } }`
twin	Object	Dynamic properties of an end device. A maximum of 64 key-value pairs are supported. The key indicates the property name. For details about the format of value, see **Table 5-21**. The following is an example: `"devicestate":{ "expected":{ "value":"running", "metadata":{ "timestamp":1536822119463 } }, "optional":true, "metadata":{ "type":"string" } }`
project_id	String	Project ID.
created_at	String	Creation time.
access_config	**Table 5-24** object	Access configuration, which varies depending on **access_protocol**.
property_visitors	**Table 5-25** object	Twin property configuration, which varies depending on **access_protocol**.
tags	**Table 4-91** object	Device template tag, in key-value pair format.

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Table 4-91 ResourceTag

Parameter	Type	Description
key	String	Key of a tag. The key must contain 1 to 36 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a tag. The value must contain 0 to 43 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Example response

```
{
   "device_template": {
      "name": "CameraTemplate",
      "description": "This is a camera template",
      "in_use": null,
      "created_at": "2018-07-16T04:01:21.212072",
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "id": "82952098-ec24-4643-94e6-9989174fce05",
      "attributes": {
         "cameraURL": {
            "value": "127.0.0.1",
            "metadata": {
               "type": "string"
            }
         }
         "twin": {
            "runstate": {
               "expected": {
                  "value": "running"
               },
               "metadata": {
                  "type": "string"
               }
            }
         }
      }
   }
}
```

Error Codes

For details, see **Error Codes**.

4.3.2 Updating an End Device Template

Function

This API is used to update an end device template.

URI

PUT /v2/{project_id}/edgemgr/device-templates/{device_template_id}

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Table 4-92 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
device_template_id	Yes	Device template ID.

Request

Request parameters

Table 4-93 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-94 Parameters in the request body

Parameter	Mandatory	Type	Description
device_template	Yes	**device_template** object	Device template information.

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Table 4-95 device_template

Parameter	Mandatory	Type	Description
description	No	String	Device template description. The description contains a maximum of 255 characters.

attributes	No	Object	Static properties of an end device. A maximum of 64 key-value pairs are supported.
			The key indicates the property name. For details about the format of value, see **Table 5-6**. The following is an example:
			`"attributes": {`
			`"value": "test",`
			`"optional": true,`
			`"metadata": {`
			`"type": "string"`
			`}`
			`}`

tags	No	**Table 4-100** object	Device template tag, in key-value pair format.
access_protocol	No	String	Access protocol. The options are as follows: • **userdefine**: custom protocol • **modbus**: Modbus protocol • **opc-ua**: OPC UA protocol
property_visitors	No	**Table 5-25** object	Twin property configuration, which varies depending on **access_protocol**.

Table 4-96 value_in_twin

Parameter	Mandatory	Type	Description
excepted	Yes	**Table 4-97** object	Expected information about dynamic properties.
optional	No	Boolean	Whether the property is optional. The default value is **true**. The value for properties inherited from a template is **false** by default.
metadata	No	**Table 4-98** object	Metadata of dynamic properties.

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Table 4-97 excepted

Parameter	Mandatory	Type	Description
value	Yes	String	Initial value of a dynamic property. The value contains a maximum of 512 characters. Only letters, digits, and special characters (_-.,:/@#) are allowed.
metadata	No	Table 4-99 object	Time when the expected value is set.

Table 4-98 metadata

Parameter	Mandatory	Type	Description
type	Yes	String	Attribute type ID. Value: **string**, **int**, **float**, or **boolean**. The type of boolean is **true** or **false**. Default value: **string**.

Table 4-99 metadata

Parameter	Mandatory	Type	Description
timestamp	No	String	Modification time, which is in Unix timestamp format.

Table 4-100 ResourceTag

Parameter	Mandatory	Type	Description
key	No	String	Key of a tag. The key must contain 1 to 36 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	No	String	Value of a tag. The value must contain 0 to 43 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Example request

```
{
    "device_template":{
    "description":"This is a camera template",
    "attributes":{
        "cameraURL":{
```


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```
            "value":"127.0.0.1",
            "metadata":{
               "type":"string"
            }
         }
      },
      "twin":{
         "runstate":{
            "expected":{
               "value":"running"
            },
            "metadata":{
               "type":"string"
            }
         }
      }
   }
}
```

Response

Response parameters

Table 4-101 Parameters in the response body

Parameter	Type	Description
device_template	**Table 4-90** object	Details about the end device template.

Example response

```
{
   "device_template":{
      "name":"CameraTemplate",
      "description":"This is a camera template",
      "created_at":"2018-07-16T04:01:21.212072",
      "updated_at":"2018-07-18T04:01:21.212017",
      "access_protocol": "userdefine",
      "project_id":"d16e6eb6cc0d49a0941df2f31285757a",
      "id":"82952098-ec24-4643-94e6-9989174fce05",
      "attributes":{
         "cameraURL":{
            "value":"127.0.0.1",
            "metadata":{
               "type":"string"
            }
         },
         "twin":{
            "runstate":{
               "expected":{
                  "value":"running"
               },
               "metadata":{
                  "type":"string"
               }
            }
         }
      }
   }
}
```


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Error Codes

For details, see **Error Codes**.

4.3.3 Querying Details About an End Device Template

Function

This API is used to query details about an end device template.

URI

GET /v2/{project_id}/edgemgr/device-templates/{device_template_id}

Table 4-102 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
device_template_id	Yes	Device template ID.

Request

Table 4-103 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

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Table 4-104 Parameters in the response body

Parameter	Type	Description
device_template	**Table 4-90** object	Details about the end device template.

Example response

```
{
   "device_template": {
      "property_visitors": {},
      "description": "This is a camera template",
      "tags": {},
      "created_at": "2019-11-07T03:20:04.041160+08:00",
      "updated_at": "2019-11-07T03:21:00.347476+08:00",
      "access_protocol": "userdefine",
      "twin": {
         "runstate": {
            "expected": {
               "value": "running"
            },
            "optional": true,
            "metadata": {
               "type": "string"
            }
         }
      },
      "attributes": {
         "cameraURL": {
            "optional": true,
            "value": "127.0.0.1",
            "metadata": {
               "type": "string"
            }
         }
      },
      "project_id": "ed202955e111444e8ced21a1bd75fc59",
      "id": "42e20164-5158-4316-a821-5fe127c483b0",
      "name": "CameraTemplate"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.3.4 Querying a List of End Device Templates

Function

This API is used to query a list of end device templates.

URI

GET /v2/{project_id}/edgemgr/device-templates?{name=xxx,limit=xxx,offset=xxx}

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Table 4-105 Path parameter

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

Table 4-106 Optional query parameters

Parameter	Mandatory	Type	Description
name	No	String	End device name, which supports fuzzy match.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.
limit	No	String	Number of records displayed on each page. The value range is 1–1000. The default value is **1000**.

NOTE

- If no query parameter is specified, all device templates of an account are returned.
- If multiple query parameters are specified, the device templates that meet all the specified query parameters are returned.

Request

Table 4-107 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Response

Response parameters

Table 4-108 Parameters in the response body

Parameter	Type	Description
count	Integer	Number of templates.
device_templates	Array of **Table 4-90** objects	Details about the end device template.

Example response

```
{
   "count": 1,
   "device_templates": [
      {
         "property_visitors": {},
         "description": "",
         "tags": {
            "key1": "value1"
         },
         "created_at": "2019-10-09T00:51:11.890571+08:00",
         "updated_at": null,
         "access_protocol": "userdefine",
         "twin": {},
         "attributes": {
            "ggg": {
               "optional": true,
               "value": "ggg",
               "metadata": {
                  "type": "string"
               }
            }
         },
         "project_id": "13b43583216e426b9dc9fad4000e9e1a",
         "id": "3950b024-7716-4580-8b85-4ab4bd3eeef0",
         "name": "mmmmmmm"
      }
   ]
}
```

Error Codes

For details, see **Error Codes**.

4.3.5 Deleting an End Device Template

Function

This API is used to delete an end device template.

URI

DELETE /v2/{project_id}/edgemgr/device-templates/{device_template_id}

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Table 4-109 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
device_template_id	Yes	Device template ID.

Request

Table 4-110 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.4 Application Template Management

4.4.1 Creating an Application Template

Function

This API is used to create an application template.

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URI

POST /v2/{project_id}/edgemgr/apps

Table 4-111 Path parameter

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

Request

Request parameters

Table 4-112 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-113 Parameters in the request body

Parameter	Mandatory	Type	Description
app	Yes	**Table 4-114** object	Application template information.

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Table 4-114 app

Parameter	Mandatory	Type	Description
name	Yes	String	Application template name. The value contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed. This parameter is mandatory and must be unique in the account.
alias	No	String	Application template alias. The value contains a maximum of 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
description	No	String	Application template description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
icon_url	No	String	URL of the application icon. The value contains a maximum of 2,083 characters.
tags	No	Array of **Table 5-27** objects	Application template tags.

Example request

```
{
   "app": {
      "name": "ief-application-test",
      "alias": "test",
      "description": "This is an application test",
      "icon_url": null,
      "tags": [
         {
            "key": "ief-application-type",
            "value": "test"
         }
      ]
   }
}
```


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Response

Response parameters

Table 4-115 Parameters in the response body

Parameter	Type	Description
app	**Table 4-116** object	Application template details.

Table 4-116 app

Parameter	Type	Description
id	String	Application template ID.
name	String	Application template name.
alias	String	Application template alias.
description	String	Application template description.
icon_url	String	URL of the application icon. The value contains a maximum of 2,083 characters.
created_at	String	Time when the application is created.
project_id	String	Project ID.
visibility	String	Template type.
app_versions	**Table 5-17** object	Application version information.

Example response

```
{
    "app": {
        "name": "test-app-1",
        "icon_url": null,
        "created_at": "2018-05-26T08:41:33",
        "updated_at": null,
        "visibility": null,
        "alias": null,
        "project_id": "{project_id}",
        "id": "6c2c5f97-5c1d-408e-a0ee-c35c287afefe",
        "description": "test",
        "app_versions": [
        ]
```


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```
  }
}
```

Error Codes

For details, see **Error Codes**.

4.4.2 Updating an Application Template

Function

This API is used to update an application template.

URI

PUT /v2/{project_id}/edgemgr/apps/{app_id}

Table 4-117 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.

Request

Request parameters

Table 4-118 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Table 4-119 Parameters in the request body

Parameter	Mandatory	Type	Description
alias	No	String	Application template alias. The value contains a maximum of 64 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
description	No	String	Application template description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\

Example request

```
{
   "app": {
      "alias": "Optical character recognition",
      "description": "This is a test."
   }
}
```

Response

Response parameters

Table 4-120 Parameters in the response body

Parameter	Type	Description
app	**Table 4-121** object	Application template details.

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Table 4-121 app

Parameter	Type	Description
id	String	Application template ID.
name	String	Application template name.
description	String	Application template description.
created_at	String	Time when the application is created.
updated_at	String	Time when the application is updated.
visibility	String	Template type.
app_versions	Table 5-17 object	Application version information.
alias	String	Application template alias.
project_id	String	Project ID.
icon_url	String	URL of the application icon. The value contains a maximum of 2,083 characters.

Example response


```
{
   "app":{
      "name":"test",
      "created_at":"2018-05-25T03:26:33",
      "updated_at":"2018-05-25T03:29:48",
      "visibility":"private",
      "alias":"Optical character recognition",
      "project_id":"{project_id}",
      "id":"2873e595-a55c-4d55-aa8f-eefcbd2b5027",
      "description":"This is a test.",
      "app_versions":[
         {
            "envs":[

            ],
            "created_at":"2018-05-23T03:58:41",
            "args":[

            ],
            "updated_at":null,
            "cpu":0.01,
            "version":"1.0.0",
            "image_url":"",
            "volumes":[

            ],
```


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```
            "memory":1,
            "configs":{
                "host_network":true,
                "privileged":false
            },
            "project_id":"{project_id}",
            "id":"6670f491-72d9-46e8-85f3-3a480b636205"
        }
    ]
  }
}
```


Error Codes

For details, see **Error Codes**.

4.4.3 Querying Details About an Application Template

Function

This API is used to query application template details.

URI

GET /v2/{project_id}/edgemgr/apps/{app_id}

Table 4-122 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.

Request

Table 4-123 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.

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Parameter	Mandatory	Type	Description
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-124 Parameters in the response body

Parameter	Type	Description
app	Table 4-125 object	App template details.

Table 4-125 app

Parameter	Type	Description
id	String	Application template ID.
name	String	Application template name.
description	String	Application template description.
created_at	String	Creation time.
updated_at	String	Update time
project_id	String	Project ID.
icon_url	String	URL of the application icon.
visibility	String	Template type.
app_versions	Table 5-17 object	Application version information.
alias	String	Application template alias.

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Example response


```
{
   "app":{
      "name":"test",
      "created_at":"2018-05-25T03:26:33",
      "updated_at":"2018-05-25T03:29:48",
      "visibility":"private",
      "alias": "Optical character recognition",
      "project_id":"{project_id}",
      "id":"2873e595-a55c-4d55-aa8f-eefcbd2b5027",
      "description":"This is a test.",
      "app_versions":[
         {
            "envs":[

            ],
            "created_at":"2018-05-23T03:58:41",
            "args":[

            ],
            "updated_at":null,
            "cpu":0.01,
            "version":"1.0.0",
            "image_url":"",
            "volumes":[

            ],
            "memory":1,
            "configs":{
               "host_network":true,
               "privileged":false
            },
            "project_id":"{project_id}",
            "id":"6670f491-72d9-46e8-85f3-3a480b636205"
         }
      ]
   }
}
```


Error Codes

For details, see **Error Codes**.

4.4.4 Querying a List of Application Templates

Function

This API is used to query a list of application templates.

URI

GET /v2/{project_id}/edgemgr/apps?
{name=xxx,limit=xxx,offset=xxx,visibility=xxx,alias=xxx}

Table 4-126 Path parameter

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

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Table 4-127 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Application template name, which supports fuzzy match.
limit	No	String	Number of records displayed on each page. The value range is 1–1000. The default value is **1000**.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.
alias	No	String	Used for filtering by alias (fuzzy match).
visibility	No	String	• **public**: Indicates a public template. • **private**: Indicates a user-created application template. It is the default value. • **shared**: Indicates a template shared with third-party applications or other users. This value is reserved and has not been implemented yet.

NOTE

- If no query parameter is specified, all application templates of an account are returned.
- If multiple query parameters are specified, the application templates that meet all the specified query parameters are returned.

Request

Table 4-128 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-129 Parameters in the response body

Parameter	Type	Description
apps	Array of **Table 4-130** objects	List of application templates.
count	Integer	Number of application templates that meet the conditions.

Table 4-130 app

Parameter	Type	Description
id	String	Application template ID.
name	String	Application template name.
description	String	Application template description.
created_at	String	Creation time.
updated_at	String	Update time.
project_id	String	Project ID.
visibility	String	Template type.
app_versions	**Table 5-17** object	Application version information.
alias	String	Application template alias.

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Parameter	Type	Description
icon_url	String	URL of the application icon. The value contains a maximum of 2,083 characters.

Example response


```
{
   "app": [{
      "name": "test",
      "created_at": "2018-05-25T03:26:33",
      "updated_at": "2018-05-25T03:29:48",
      "visibility": "private",
      "alias": "Optical character recognition",
      "icon_url": null,
      "project_id": "{project_id}",
      "id": "2873e595-a55c-4d55-aa8f-eefcbd2b5027",
      "description": "This is a test.",
         "app_versions": [
            {
               "envs": [],
               "created_at": "2018-05-23T03:58:41",
               "args": [],
               "updated_at": null,
               "cpu": 0.01,
               "version": "1.0.0",
               "image_url": "",
               "volumes": [],
               "memory": 1,
               "configs": {
                  "host_network": true,
                  "privileged": false
               },
               "project_id": "{project_id}",
               "id": "6670f491-72d9-46e8-85f3-3a480b636205"
            }
         ]
      }
   ]
}
```


Error Codes

For details, see **Error Codes**.

4.4.5 Deleting an Application Template

Function

This API is used to delete an application template.

URI

DELETE /v2/{project_id}/edgemgr/apps/{app_id}

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Table 4-131 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.

Request

Table 4-132 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.4.6 Creating an Application Template Version

Function

This API is used to create an application template version.

URI

POST /v2/{project_id}/edgemgr/apps/{app_id}/versions

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Table 4-133 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.

Request

Request parameters

Table 4-134 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-135 Parameters in the request body

Parameter	Mandatory	Type	Description
version	Yes	**Table 4-136** object	Application template version.

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Table 4-136 version

Parameter	Mandatory	Type	Description
version	Yes	String	Version description. The value contains a maximum of 64 characters starting with a letter or digit. Only lowercase letters, digits, hyphens (-), and periods (.) are allowed.
image_url	Yes	String	Container image URL. The URL contains a maximum of 2,083 characters and cannot be an empty string.
envs	No	Array of **Table 5-10** objects	Environment variables.
volumes	No	Array of **Table 5-11** objects	Volume configuration.
resources	No	**Table 5-12** object	Container resource configuration.
configs	No	**Table 5-14** object	Advanced configuration parameters.
liveness_probe	No	**Table 5-15** object	Workload liveness probe.
readiness_probe	No	**Table 5-15** object	Workload readiness probe.
arch	No	String	Architecture. Only x86_64, arm32, and arm64 are supported.
command	No	Array of strings	Startup commands.
args	No	Array of String	Parameters.
npu_type	No	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Example request

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```
{
    "version": {
        "version": "v2",
        "image_url": "edge-demo-app:latest",
        "resources": {
            "limits": {
                "cpu": 0.1,
                "memory": 1024,
                "gpu": 3.9
            },
            "requests": {
                "cpu": 0.1,
                "memory": 1024,
                "gpu": 3.9
            }
        },
        "envs": [
            {
                "name": "key",
                "value": "name"
            }
        ],
        "volumes": [
            {
                "name": "test",
                "type": "hostPath",
                "source": "/tmp",
                "destination": "/tmp0",
                "read_only": true
            }
        ],
        "configs": {
            "privileged": true,
            "host_network": true,
            "restart_policy": "Always"
        }
    }
}
```

Response

Response parameters

Table 4-137 Parameters in the response body

Parameter	Type	Description
version	**Table 5-17** object	Application version details.

Example response

```
{
    "version": {
        "envs": [
            {
                "name": "key",
                "value": "name"
            }
        ],
        "created_at": "2018-07-16T14:16:28",
        "updated_at": null,
        "version": "v2",
        "image_url": "edge-demo-app:latest",
```


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```
      "npu_type": "",
      "volumes": [
         {
            "read_only": true,
            "source": "/tmp",
            "destination": "/tmp0",
            "type": "hostPath",
            "name": "test"
         }
      ],
      "configs": {
         "host_network": true,
         "restart_policy": "Always",
         "privileged": true
      },
      "project_id": "{project_id}",
      "id": "9537b861-f4e0-40e5-8b79-da842e0d3ea2",
      "resources": {
         "requests": {
            "gpu": 3.9,
            "cpu": 0.1,
            "memory": 1024
         },
         "limits": {
            "gpu": 3.9,
            "cpu": 0.1,
            "memory": 1024
         }
      }
   }
}
```


Error Codes

For details, see **Error Codes**.

4.4.7 Updating an Application Template Version

Function

This API is used to update an application template version.

URI

PUT /v2/{project_id}/edgemgr/apps/{app_id}/versions/{version_id}

Table 4-138 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.
version_id	Yes	Application template version ID.

Request

Request parameters

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Table 4-139 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-140 Parameters in the request body

Parameter	Mandatory	Type	Description
envs	No	Array of **Table 5-10** objects	Environment variables.
volumes	No	Array of **Table 5-11** objects	Volume configuration.
configs	No	**Table 5-14** object	Advanced configuration parameters.
resources	No	**Table 5-12** object	Container resource configuration.
command	No	Array of strings	Startup commands.
liveness_probe	No	String	Workload liveness probe.
readiness_probe	No	String	Workload readiness probe.
args	No	Array of strings	Parameters.
npu_type	No	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

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Example request

```
{
   "version": {
      "resources": {
         "limits": {
            "cpu": 0.1,
            "memory": 1024,
            "gpu": 3.9
         },
         "requests": {
            "cpu": 0.1,
            "memory": 1024,
            "gpu": 3.9
         }
      },
      "envs": [
         {
            "name": "key",
            "value": "name"
         }
      ],
      "volumes": [
         {
            "name": "test",
            "type": "hostPath",
            "source": "/tmp",
            "destination": "/tmp0",
            "read_only": true
         }
      ],
      "configs": {
         "privileged": true,
         "host_network": true,
         "restart_policy": "Always"
      }
   }
}
```

Response

Response parameters

Table 4-141 Parameters in the response body

Parameter	Type	Description
version	**Table 5-17** object	Application version details.

Example response

```
{
   "envs": [
      {
         "name": "MQ_IP",
         "value": "127.0.0.1"
      }
   ],
   "created_at": "2018-11-08T01:38:17.287510+08:00",
   "updated_at": null,
   "version": "1.11.08",
   "image_url": "",
   "volumes": [],
```


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```
    "readiness_probe": null,
    "configs": {
        "host_network": true,
        "restart_policy": "Always",
        "privileged": false
    },
    "project_id": "{project_id}",
    "liveness_probe": null,
    "id": "8a33dc45-d18f-49b1-8573-6e60f9daa144",
    "npu_type": "",
    "resources": {
        "requests": {
            "cpu": 0.25,
            "memory": 512
        },
        "limits": {
            "cpu": 1,
            "memory": 512
        }
    }
}
```


Error Codes

For details, see **Error Codes**.

4.4.8 Querying Details About an Application Template Version

Function

This API is used to query details about an application template version.

URI

GET /v2/{project_id}/edgemgr/apps/{app_id}/versions/{version_id}

Table 4-142 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.
version_id	Yes	Application template version ID.

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Request

Table 4-143 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-144 Parameters in the response body

Parameter	Type	Description
version	Table 5-17 object	Application template version details.

Example response


```
{
   "version": {
      "envs": [
         {
            "name": "key1",
            "value": "name1"
         },
         {
            "name": "key2",
            "value": "name2"
         }
      ],
      "created_at": "2018-05-25T03:36:50",
      "args": [],
      "updated_at": "2018-05-25T03:49:37",
      "cpu": 1,
      "version": "v2",
      "image_url": "edge-demo-app:latest",
      "npu_type": "",
      "volumes": [
         {
```


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```
                "read_only": true,
                "source": "/tmp",
                "destination": "/tmp0",
                "type": "hostPath",
                "name": "test2"
            }
        ],
        "memory": 1024,
        "configs": {
            "host_network": true,
            "privileged": true
        },
        "project_id": "3a1e645f5b12407d864bcb04c8b9f3ee",
        "id": "9535d8ac-93c1-4e41-8113-f1538aad38a7"
    }
}
```


Error Codes

For details, see **Error Codes**.

4.4.9 Querying a List of Application Template Versions

Function

This API is used to query a list of application template versions.

URI

GET /v2/{project_id}/edgemgr/apps/{app_id}/versions?{limit=xxx,offset=xxx}

Table 4-145 Path parameter

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application template ID.

Table 4-146 Query parameters

Parameter	Mandatory	Type	Description
limit	No	String	Number of records displayed on each page. The value range is 1–1000. The default value is **1000**.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.

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NOTE

- If no query parameter is specified, all application versions of an account are returned.
- If multiple query parameters are specified, the application versions that meet all the specified query parameters are returned.

Request

Table 4-147 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-148 Parameters in the response body

Parameter	Type	Description
versions	Array of **Table 5-17** objects	Application version details.
count	Integer	Number of application versions that meet the conditions.

Example response

```
{
   "count": 1,
   "versions": [
      {
         "envs": [],
         "created_at": "2018-07-26T07:31:29+08:00",
         "updated_at": null,
         "version": "v1",
         "image_url": "busybox:latest",
         "volumes": [],
```


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```
        "npu_type": "",
        "readiness_probe": null,
        "configs": {
            "host_network": true,
            "restart_policy": "Always",
            "privileged": false
        },
        "project_id": "{project_id}",
        "liveness_probe": null,
        "id": "bc35aaff-bdd8-49e8-ace0-a25be2b09380",
        "resources": {
            "requests": {
                "cpu": 0.25,
                "memory": 512
            },
            "limits": {
                "cpu": 1,
                "memory": 512
            }
        }
    }
  ]
}
```


Error Codes

For details, see **Error Codes**.

4.4.10 Deleting an Application Version

Function

This API is used to delete an application version.

URI

DELETE /v2/{project_id}/edgemgr/apps/{app_id}/versions/{version_id}

Table 4-149 Path parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
app_id	Yes	Application ID.
version_id	Yes	Version ID.

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Request

Table 4-150 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.5 Deployment Management

4.5.1 Creating a Deployment

Function

This API is used to create a Deployment.

URI

POST /v3/{project_id}/edgemgr/deployments

Table 4-151 Path parameters

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

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Request

Request parameters

Table 4-152 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-153 Parameters in the request body

Parameter	Mandatory	Type	Description
name	Yes	String	Deployment name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
description	No	String	Deployment description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
source	No	String	Deployment source. The value can be **userdefined** (custom).
group_id	No	String	ID of the node group to which the Deployment is deployed. Specify either **group_id** or **node_ids**.
node_ids	Yes	Array of strings	ID of the edge node to which the Deployment is deployed. Currently, only one edge node is supported.

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Parameter	Mandatory	Type	Description
tags	No	Array of **Table 4-167** objects	Deployment tag.
deployment	Yes	**Table 4-154** object	Deployment parameters.

Table 4-154 CreateAppsInDeploymentV3

Parameter	Mandatory	Type	Description
replicas	Yes	Integer	Number of Deployment instances. The value can only be **1** for the professional edition and less than 100 for the platinum edition.
template	Yes	**Table 4-155** object	Deployment chart.

Table 4-155 PodRequest

Parameter	Mandatory	Type	Description
configs	Yes	**Table 4-166** object	Application instance configuration.
affinity	No	**Table 5-41** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.
init_containers	No	Array of **Table 4-156** objects	init container configuration of the Deployment.
containers	Yes	Array of **Table 4-156** objects	Container configuration of the Deployment.

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Table 4-156 ContainerDef

Parameter	Mandatory	Type	Description
name	Yes	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
image_url	Yes	String	Container image URL.
args	No	Array of strings	Container startup arguments. The value contains a maximum of 65,536 characters.
command	No	Array of strings	Container startup commands. The value contains a maximum of 65,536 characters. The **command** field allows you to define multiple commands using an array. However, only the first command is displayed on the IEF console.
resources	No	**Table 4-164** object	Container resource amount.
envs	No	Array of **Table 4-163** objects	Key-value pair of the container environment variable.
ports	No	Array of **Table 4-161** objects	Container port mapping.
privileged	No	Boolean	Whether the privileged container is enabled. The default value is **false**.
readiness_probe	No	**Table 4-158** object	Workload readiness probe configuration.
liveness_probe	No	**Table 4-158** object	Workload liveness probe configuration.
version	No	String	Container version. The value contains a maximum of 128 characters.
volumes	No	Array of **Table 4-157** objects	Volumes attached to containers.

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Parameter	Mandatory	Type	Description
npu_type	No	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Table 4-157 Volume

Parameter	Mandatory	Type	Description
name	Yes	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	Yes	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Yes	Boolean	Read and write permissions. Volumes of the **configMap** or **secret** type support only the read permission.
source	Yes	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	Yes	String	Volume mount path. It must be a valid path.

Table 4-158 Probe

Parameter	Mandatory	Type	Description
http_get	No	Table 4-160 object	HTTP health check. Specify either this parameter or **exec**.

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Parameter	Mandatory	Type	Description
exec	No	Table 4-159 object	CLI-based check. Specify either this parameter or **http_get**.
initial_delay_seconds	No	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.
timeout_seconds	No	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-159 Exec

Parameter	Mandatory	Type	Description
command	Yes	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

Table 4-160 HttpGet

Parameter	Mandatory	Type	Description
path	Yes	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*
port	Yes	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	No	String	Requested host address. The default value is the IP address of the container.
scheme	No	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

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Table 4-161 HostContainerPortMapping

Parameter	Mandatory	Type	Description
container_port	Yes	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	No	Long	Host port, which is an integer ranging from 1 to 65535. Specify either **host_port** or **host_port_range**.
host_ip	No	String	NIC address of the host.
host_port_range	No	**Table 4-162** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Specify either **host_port_range** or **host_port**. This parameter is available only in the platinum edition.

Table 4-162 HostPortRange

Parameter	Mandatory	Type	Description
min_port	Yes	Long	Lower limit of the host port, which is an integer ranging from 1 to 65535.
max_port	Yes	Long	Upper limit of the host port, which is an integer ranging from 1 to 65535. The value of **max_port** must be greater than that of **min_port**.

Table 4-163 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The key must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.

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Parameter	Mandatory	Type	Description
value	No	String	Value of an environment variable. The value contains a maximum of 20,480 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	No	**Table 4-168** object	Environment variables can be imported from ConfigMaps or secrets.
field_path	No	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

Table 4-164 ResQuest

Parameter	Mandatory	Type	Description
limits	No	**Table 4-165** object	Resource amount limit.
requests	No	**Table 4-165** object	Requested resource amount, which cannot be greater than the resource limit.

Table 4-165 Res

Parameter	Mandatory	Type	Description
cpu	No	String	Number of CPU cores. The value range is 0.01–1000. The value of this parameter does not need to contain a unit in the request.
memory	No	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note: The minimum value of **limits** for the memory is **4**. The value of this parameter does not need to contain a unit in the request.
gpu	No	String	GPU memory size, in MBs. The value range is 0.01–1,024,000. The value of this parameter does not need to contain a unit in the request.

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Parameter	Mandatory	Type	Description
npu	No	String	Number of NPUs. The value range is 1–1000.

Table 4-166 PodConfigs

Parameter	Mandatory	Type	Description
host_network	Yes	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.
host_pid	No	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	No	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	Yes	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**.
toleration_seconds	No	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

Table 4-167 Attribute

Parameter	Mandatory	Type	Description
key	No	String	A maximum of 10 keys are allowed. These keys must be unique and cannot be empty. A key can contain a maximum of 36 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

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Parameter	Mandatory	Type	Description
value	No	String	The value contains a maximum of 43 characters. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

Table 4-168 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-169 object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-170 object	ConfigMap to be referenced by an environment variable.

Table 4-169 secret

Parameter	Mandatory	Type	Description
name	Yes	String	Secret name.
key	Yes	String	Secret key.

Table 4-170 configmap

Parameter	Mandatory	Type	Description
name	Yes	String	ConfigMap name.
key	Yes	String	ConfigMap key.

Response

When the status code is **200**, the response parameters are as follows:

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Table 4-171 Parameters in the response body

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
replicas	Integer	Total number of Deployment instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
group_id	String	ID of the node group to which the Deployment is deployed. Specify either **group_id** or **node_ids**.
node_ids	Array of strings	ID of the edge node to which the Deployment is deployed. Currently, only one edge node is supported.
tags	Array of **Table 4-186** objects	Deployment tag.
api_version	String	Deployment version.
source	String	Deployment source.
project_id	String	Project ID.
created_at	String	Time when the Deployment was created.
updated_at	String	Time when the Deployment was updated.
template	**Table 4-172** object	Application template.
state	String	Application status, which can be **FREEZE**, **PENDING_DELETE**, or **DELETE_FAILED**. This field is reserved.
source_id	String	Reserved.

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Table 4-172 PodRequest

Parameter	Type	Description
configs	**Table 4-185** object	Application instance configuration.
affinity	**Table 5-41** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.
init_containers	Array of **Table 4-173** objects	init container configuration of the Deployment.
containers	Array of **Table 4-173** objects	Container configuration of the Deployment.

Table 4-173 ContainerDef

Parameter	Type	Description
name	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
image_url	String	Container image URL.
args	Array of strings	Container startup arguments.
command	Array of strings	Container startup commands.
resources	**Table 4-181** object	Container resource amount.
envs	Array of **Table 4-180** objects	Key-value pair of the container environment variable.
ports	Array of **Table 4-178** objects	Container port mapping.
privileged	Boolean	Whether the privileged container is enabled. The default value is **false**.
readiness_probe	**Table 4-175** object	Workload readiness probe configuration.
liveness_probe	**Table 4-175** object	Workload liveness probe configuration.

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Parameter	Type	Description
version	String	Container version.
volumes	Array of Table 4-174 objects	Volumes attached to containers.
npu_type	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Table 4-174 Volume

Parameter	Type	Description
name	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Boolean	Read/Write permission. The default value is **read**.
source	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	String	Volume mount path. It must be a valid path.

Table 4-175 Probe

Parameter	Type	Description
http_get	Table 4-176 object	HTTP health check.
exec	Table 4-177 object	CLI-based check.
initial_delay_seconds	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.

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Parameter	Type	Description
timeout_seconds	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-176 HttpGet

Parameter	Type	Description
path	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*
port	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	String	Host address. The default value is the container IP address.
scheme	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

Table 4-177 Exec

Parameter	Type	Description
command	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

Table 4-178 HostContainerPortMapping

Parameter	Type	Description
container_port	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	Long	Host port number, which is an integer ranging from 1 to 65535.
host_ip	String	NIC address of the host.
host_port_range	**Table 4-179** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Specify either **host_port_range** or **host_port**.

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Table 4-179 HostPortRange

Parameter	Type	Description
min_port	Long	Lower limit of the host port, which is an integer ranging from 1 to 65535.
max_port	Long	Upper limit of the host port, which is an integer ranging from 1 to 65535. The value of **max_port** must be greater than that of **min_port**.

Table 4-180 Env

Parameter	Type	Description
name	String	Key of an environment variable. The key must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.
value	String	Value of an environment variable. The value contains a maximum of 2,048 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	**Table 4-187** object	Environment variables can be imported from ConfigMaps or secrets.
field_path	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

Table 4-181 ResQuest

Parameter	Type	Description
limits	**Table 4-182** object	Resource amount limit.
requests	**Table 4-182** object	Requested resource amount.

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Table 4-182 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note that the minimum value of **limits** for the memory is **4**.
gpu	String	GPU size, in MBs. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-183 PodAffinity

Parameter	Type	Description
node_affinity	Array of **Table 4-184** objects	Node affinity.
pod_affinity	Array of **Table 4-184** objects	Application affinity.

Table 4-184 MatchExpression

Parameter	Type	Description
key	String	Key in the affinity rule for the Deployment.
operator	String	Affinity rule. **In** and **Exists** indicate affinity, and **NotIn** and **DoesNotExist** indicate anti-affinity.
values	Array of strings	-

Table 4-185 PodConfigs

Parameter	Type	Description
host_network	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.

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Parameter	Type	Description
host_pid	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**.
toleration_seconds	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

Table 4-186 Attribute

Parameter	Type	Description
key	String	A maximum of 10 keys are allowed. These keys must be unique and cannot be empty. A key can contain a maximum of 36 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	The value contains a maximum of 43 characters. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

Table 4-187 value_from

Parameter	Type	Description
secret	**Table 4-188** object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	**Table 4-189** object	ConfigMap to be referenced by an environment variable.

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Table 4-188 secret

Parameter	Type	Description
name	String	Secret name.
key	String	Secret key.

Table 4-189 configmap

Parameter	Type	Description
name	String	ConfigMap name.
key	String	ConfigMap key.

When the status code is **400**, the response parameters are as follows:

Table 4-190 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error description.

When the status code is **500**, the response parameters are as follows:

Table 4-191 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error description.

Example Request

```
{
   "name": "app",
   "description": "this is a test app",
   "node_ids": [
      "9ebd8efb-9fdd-44a1-abda-9cdbc287a867"
   ],
   "tags": [
      {
         "key": "app",
         "value": "test"
      }
   ],
   "deployment": {
```


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```
    "replicas": 1,
    "template": {
      "configs": {
        "host_network": true,
        "host_pid": true,
        "restart_policy": "Always",
        "toleration_seconds": 300
      },

      "containers": [
        {
          "name": "container-0",
          "image_url": "nginx:alpine",
          "resources": {
            "limits": {
              "cpu": "0.25",
              "memory": "500"
            },
            "requests": {
              "cpu": "0.25",
              "memory": "500"
            }
          }
        }
      ]
    }
  }
}
```

Example Response

Example response with status code 200:

```
{
  "created_at": "2020-09-23 02:38:17.894471458 +0000 UTC",
  "replicas": 1,
  "ready_replicas": 0,
  "description": "this is a test app",
  "group_id": "",
  "node_ids": [
    "9ebd8efb-9fdd-44a1-abda-9cdbc287a867"
  ],
  "id": "66a7fe7e-699a-41b2-9119-f9468a5ed78e",
  "name": "app",
  "source": "",
  "template": {
    "configs": {
      "host_network": true,
      "host_pid": true,
      "restart_policy": "Always",
      "migration": false,
      "toleration_seconds": 300
    },
    "init_containers": []
    "containers": [
      {
        "name": "container-0",
        "image_url": "nginx:alpine",
        "npu_type": "",
        "resources": {
          "limits": {
            "cpu": "0.25",
            "memory": "500"
          },
          "requests": {
            "cpu": "0.25",
            "memory": "500"
          }
        },
```

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```
                "privileged": false,
                "version": ""
            }
        ]
    },
    "state": "",
    "project_id": "05e1aef9040010e22fccc009adecb056",
    "updated_at": "2020-09-23 02:38:17.894471458 +0000 UTC",
    "api_version": "v3",
    "source_id": ""
}
```


Example response with status code 400:


```
{
    "error_code" : "IEF.100001",
    "error_msg" : "PROJECT_ID not found"
}
```


Example response with status code 500:


```
{
    "error_code" : "IEF.100158",
    "error_msg" : "Fail to extract gpu information"
}
```


Error Codes

For details, see **Error Codes**.

4.5.2 Querying a List of Deployments

Function

This API is used to query a list of Deployments.

URI

GET /v3/{project_id}/edgemgr/deployments?
{name=xxx,node_id=xxx,limit=xxx,offset=xxx}

Table 4-192 Path parameter

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

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Table 4-193 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Long	Number of records displayed on each page. The maximum value is **100**. The default value is **10**.
offset	No	Long	Start position for a query. The default value is **0**.
sort	No	String	Sorting style of the query results. **created_at:desc** indicates that the query results are sorted by creation time in descending order. **created_at:asc** indicates that the query results are sorted by creation time in ascending order.
name	No	String	Deployment name. Fuzzy match is supported.
node_id	No	String	Node ID, based on which the list of deployed applications is to be queried. Specify either this parameter or **group_id** in the request.
group_id	No	String	Node group ID, based on which the list of deployed applications is to be queried. Specify either this parameter or **node_id** in the request.

Request

Table 4-194 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Response

When the status code is **200**, the response parameters are as follows:

Table 4-195 Parameters in the response body

Parameter	Type	Description
count	Long	Total number of Deployments.
deployments	Array of **EdgeDeploymentResponseV3** objects	List of Deployments.

Table 4-196 EdgeDeploymentResponseV3

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
replicas	Integer	Total number of Deployment instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
group_id	String	ID of the node group to which the Deployment is deployed. Specify either **group_id** or **node_ids**.
node_ids	Array of strings	ID of the edge node to which the Deployment is deployed. Currently, only one edge node is supported.
tags	Array of **Attribute** objects	Deployment tag.
api_version	String	Deployment version.
source	String	Deployment source. The value can be **userdefined** (custom).

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Parameter	Type	Description
project_id	String	Project ID.
created_at	String	Time when the Deployment was created.
updated_at	String	Time when the Deployment was updated.
template	**PodRequest** object	Deployment chart.
state	String	Application status, which can be **FREEZE**, **PENDING_DELETE**, or **DELETE_FAILED**. This field is reserved.
source_id	String	Reserved.

Table 4-197 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.
affinity	**affinity** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.
init_containers	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-198 ContainerDef

Parameter	Type	Description
name	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
image_url	String	Container image URL.
args	Array of strings	Container startup arguments.
command	Array of strings	Container startup commands.

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Parameter	Type	Description
resources	**ResQuest** object	Container resource amount.
envs	Array of **Env** objects	Key-value pair of the container environment variable.
ports	Array of **HostContainerPortMapping** objects	Container port mapping.
privileged	Boolean	Whether the privileged container is enabled. The default value is **false**.
readiness_probe	**Probe** object	Workload readiness probe configuration.
liveness_probe	**Probe** object	Workload liveness probe configuration.
version	String	Container version.
volumes	Array of **Volume** objects	Volumes attached to containers.
npu_type	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Table 4-199 Volume

Parameter	Type	Description
name	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Boolean	Read/Write permission. The default value is **read**.

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Parameter	Type	Description
source	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	String	Volume mount path. It must be a valid path.

Table 4-200 Probe

Parameter	Type	Description
exec	**Table 4-202** object	CLI-based check.
http_get	**HttpGet** object	HTTP health check.
initial_delay_seconds	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.
timeout_seconds	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-201 HttpGet

Parameter	Type	Description
path	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*
port	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	String	Host address. The default value is the container IP address.
scheme	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

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Table 4-202 Exec

Parameter	Type	Description
command	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

Table 4-203 HostContainerPortMapping

Parameter	Type	Description
container_port	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	Long	Host port number, which is an integer ranging from 1 to 65535.
host_ip	String	NIC address of the host.
host_port_range	**HostPortRange** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Specify either **host_port_range** or **host_port**.

Table 4-204 HostPortRange

Parameter	Type	Description
min_port	Long	Lower limit of the host port, which is an integer ranging from 1 to 65535.
max_port	Long	Upper limit of the host port, which is an integer ranging from 1 to 65535. The value of **max_port** must be greater than that of **min_port**.

Table 4-205 Env

Parameter	Type	Description
name	String	Key of an environment variable. The key must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.

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Parameter	Type	Description
value	String	Value of an environment variable. The value contains a maximum of 2,048 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	**Table 4-210** object	Environment variables can be imported from ConfigMaps or secrets.
field_path	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

Table 4-206 ResQuest

Parameter	Type	Description
limits	**Res** object	Resource amount limit.
requests	**Res** object	Requested resource amount.

Table 4-207 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note that the minimum value of **limits** for the memory is **4**.
gpu	String	GPU size, in MBs. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-208 PodConfigs

Parameter	Type	Description
host_network	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.

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Parameter	Type	Description
host_pid	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**.
toleration_seconds	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

Table 4-209 Attribute

Parameter	Type	Description
key	String	Key of a node property. The key can contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a node property. The value can contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Table 4-210 value_from

Parameter	Type	Description
secret	**Table 4-211** object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	**Table 4-212** object	ConfigMap to be referenced by an environment variable.

Table 4-211 secret

Parameter	Type	Description
name	String	Secret name.

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Parameter	Type	Description
key	String	Secret key.

Table 4-212 configmap

Parameter	Type	Description
name	String	ConfigMap name.
key	String	ConfigMap key.

When the status code is **400**, the response parameters are as follows:

Table 4-213 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error description.

When the status code is **500**, the response parameters are as follows:

Table 4-214 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error description.

Example Request

None

Example Response

Example response with status code 200:

```
{
   "count": 1,
   "deployments": [
      {
         "id": "3e64d98a-37c5-43a6-9bfe-052b9083e362",
         "name": "app-test",
         "replicas": 1,
         "ready_replicas": 1,
         "description": "this is a test app",
         "group_id": "",
```


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```
"node_ids": [
    "29d20c18-c20c-4a45-a087-42c766fc5d97"
],
"tags": [
    {
        "key": "app",
        "value": "test"
    }
],
"api_version": "v3",
"source": "userdefine",
"project_id": "bcd83056c918480f8f190844bd425b23",
"created_at": "2019-10-10T02:20:40.630Z",
"updated_at": "2019-10-10T02:20:40.630Z",
"template": {
    "configs": {
        "host_network": true,
        "host_pid": true,
        "migration": true,
        "restart_policy": "Always",
        "toleration_seconds": 300
    },
    "init_containers": [],
    "containers": [
        {
            "name": "container-0",
            "image_url": "",
            "args": [
                "-c",
                "sleep 1000"
            ],
            "command": [
                "/bin/bash"
            ],
            "resources": {
                "limits": {
                    "cpu": "0.25",
                    "memory": "500",
                    "gpu": "500"
                },
                "requests": {
                    "cpu": "0.25",
                    "memory": "500",
                    "gpu": "500"
                }
            },
            "envs": [
                {
                    "name": "CERT_PATH",
                    "value": "/opt/cert"
                }
            ],
            "ports": [
                {
                    "container_port": 80,
                    "host_port": 80
                }
            ],
            "privileged": true,
            "readiness_probe": {
                "http_get": {
                    "path": "/",
                    "port": 80,
                    "scheme": "http"
                },
                "initial_delay_seconds": 10,
                "timeout_seconds": 10
            },
            "liveness_probe": {
```


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```
                    "http_get": {
                        "path": "/",
                        "port": 80,
                        "scheme": "http"
                    },
                    "initial_delay_seconds": 10,
                    "timeout_seconds": 10
                },
                "version": "1.0",
                "npu_type": "",
                "volumes": [
                    {
                        "name": "log-volume",
                        "type": "hostPath",
                        "read_only": false,
                        "source": "/var/IEF",
                        "destination": "/var/IEF"
                    }
                ]
            }
        ]
    }
  ]
}
```


Example response with status code 400:


```
{
   "error_code" : "IEF.100001",
   "error_msg" : "PROJECT_ID not found"
}
```


Example response with status code 500:


```
{
   "error_code" : "IEF.100158",
   "error_msg" : "Fail to extract gpu information"
}
```


Error Codes

For details, see **Error Codes**.

4.5.3 Updating a Deployment

Function

This API is used to update a Deployment.

URI

PUT /v3/{project_id}/edgemgr/deployments/{deployment_id}

Table 4-215 Path parameters

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

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Parameter	Mandatory	Type	Description
deployment_id	Yes	String	Deployment ID.

Request

Table 4-216 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-217 Parameters in the request body

Parameter	Mandatory	Type	Description
deployment	No	**UpdatePodDeployment** object	New deployment configurations. This API is called to replace all configurations of the Deployment.
description	No	String	New Deployment description. If only the description is modified, the **deployment** parameter does not need to be specified.

Table 4-218 UpdatePodDeployment

Parameter	Mandatory	Type	Description
replicas	Yes	Integer	Number of Deployment instances. The value can only be **1**.

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Parameter	Mandatory	Type	Description
template	Yes	**PodRequest** object	Deployment chart.

Table 4-219 PodRequest

Parameter	Mandatory	Type	Description
configs	Yes	**PodConfigs** object	Application instance configuration.
affinity	No	**affinity** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.
init_containers	No	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Yes	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-220 ContainerDef

Parameter	Mandatory	Type	Description
name	Yes	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
image_url	Yes	String	Container image URL.
args	No	Array of strings	Container startup arguments. The value contains a maximum of 65,536 characters.
command	No	Array of strings	Container startup commands. The value contains a maximum of 65,536 characters.
resources	No	**ResQuest** object	Container resource amount.

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Parameter	Mandatory	Type	Description
envs	No	Array of **Env** objects	Key-value pair of the container environment variable.
ports	No	Array of **HostContainerPortMapping** objects	Container port mapping.
privileged	No	Boolean	Whether the privileged container is enabled. The default value is **false**.
readiness_probe	No	**Probe** object	Workload readiness probe configuration.
liveness_probe	No	**Probe** object	Workload liveness probe configuration.
version	No	String	Container version. The value contains a maximum of 128 characters.
volumes	No	Array of **Volume** objects	Volumes attached to containers.
npu_type	No	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Table 4-221 Volume

Parameter	Mandatory	Type	Description
name	Yes	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	Yes	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Yes	Boolean	Read/Write permission. The default value is **read**.

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Parameter	Mandatory	Type	Description
source	Yes	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	Yes	String	Volume mount path. It must be a valid path.

Table 4-222 Probe

Parameter	Mandatory	Type	Description
http_get	No	**HttpGet** object	HTTP health check. Specify either this parameter or **exec**.
exec	No	**Table 4-224** object	CLI-based check. Specify either this parameter or **http_get**.
initial_delay_seconds	No	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.
timeout_seconds	No	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-223 HttpGet

Parameter	Mandatory	Type	Description
path	Yes	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*

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Parameter	Mandatory	Type	Description
port	Yes	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	No	String	Requested host address. The default value is the IP address of the container.
scheme	No	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

Table 4-224 Exec

Parameter	Mandatory	Type	Description
command	Yes	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

Table 4-225 HostContainerPortMapping

Parameter	Mandatory	Type	Description
container_port	Yes	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	No	Long	Host port number, which is an integer ranging from 1 to 65535.
host_ip	No	String	NIC address of the host.
host_port_range	No	**HostPortRange** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Specify either **host_port_range** or **host_port**. This parameter is available only in the platinum edition.

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Table 4-226 HostPortRange

Parameter	Mandatory	Type	Description
min_port	Yes	Long	Lower limit of the host port, which is an integer ranging from 1 to 65535.
max_port	Yes	Long	Upper limit of the host port, which is an integer ranging from 1 to 65535. The value of **max_port** must be greater than that of **min_port**.

Table 4-227 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The key must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.
value	No	String	Value of an environment variable. The value contains a maximum of 20,480 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	No	**Table 4-231** object	Environment variables can be imported from ConfigMaps or secrets.
field_path	No	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

Table 4-228 ResQuest

Parameter	Mandatory	Type	Description
limits	No	**Res** object	Resource amount limit.
requests	No	**Res** object	Requested resource amount, which cannot be greater than the resource limit.

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Table 4-229 Res

Parameter	Mandatory	Type	Description
cpu	No	String	Number of CPUs. The value range is 0.01–1000. The value of this parameter does not need to contain a unit in the request.
memory	No	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note: The minimum value of **limits** for the memory is **4**. The value of this parameter does not need to contain a unit in the request.
gpu	No	String	GPU memory size, in MBs. The value range is 0.01–1,024,000. The value of this parameter does not need to contain a unit in the request.
npu	No	String	Number of NPUs. The value range is 1–1000.

Table 4-230 PodConfigs

Parameter	Mandatory	Type	Description
host_network	Yes	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.
host_pid	No	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	No	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	Yes	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**. **NOTE** The **restart_policy** parameter value cannot be updated.

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Parameter	Mandatory	Type	Description
toleration_seconds	No	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

Table 4-231 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-232 object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-233 object	ConfigMap to be referenced by an environment variable.

Table 4-232 secret

Parameter	Mandatory	Type	Description
name	Yes	String	Secret name.
key	Yes	String	Secret key.

Table 4-233 configmap

Parameter	Mandatory	Type	Description
name	Yes	String	ConfigMap name.
key	Yes	String	ConfigMap key.

Response

When the status code is **200**, the response parameters are as follows:

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Table 4-234 Parameters in the response body

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
replicas	Integer	Total number of Deployment instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
group_id	String	ID of the node group to which the application is deployed. Specify either **group_id** or **node_ids**.
node_ids	Array of strings	ID of the edge node to which the Deployment is deployed. Currently, only one edge node is supported.
tags	Array of **Attribute** objects	-
api_version	String	Deployment version.
source	String	Deployment source. The value can be **userdefined** (custom).
project_id	String	Project ID.
created_at	String	Time when the Deployment was created.
updated_at	String	Time when the Deployment was updated.
template	**PodRequest** object	Application template.
state	String	Application status, which can be **FREEZE**, **PENDING_DELETE**, or **DELETE_FAILED**. This field is reserved.
source_id	String	Reserved.

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Table 4-235 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.
affinity	**affinity** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.
init_containers	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-236 ContainerDef

Parameter	Type	Description
name	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
image_url	String	Container image URL.
args	Array of strings	Container startup arguments.
command	Array of strings	Container startup commands.
resources	**ResQuest** object	Container resource amount.
envs	Array of **Env** objects	Key-value pair of the container environment variable.
ports	Array of **HostContainerPortMapping** objects	Container port mapping.
privileged	Boolean	Whether the privileged container is enabled. The default value is **false**.
readiness_probe	**Probe** object	Workload readiness probe configuration.
liveness_probe	**Probe** object	Workload liveness probe configuration.

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Parameter	Type	Description
version	String	Container version.
volumes	Array of **Volume** objects	Volumes attached to containers.
npu_type	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Table 4-237 Volume

Parameter	Type	Description
name	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Boolean	Read/Write permission. The default value is **read**.
source	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	String	Volume mount path. It must be a valid path.

Table 4-238 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-240** object	CLI-based check.
initial_delay_seconds	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.

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Parameter	Type	Description
timeout_seconds	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-239 HttpGet

Parameter	Type	Description
path	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*
port	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	String	Host address. The default value is the container IP address.
scheme	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

Table 4-240 Exec

Parameter	Type	Description
command	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

Table 4-241 HostContainerPortMapping

Parameter	Type	Description
container_port	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	Long	Host port number, which is an integer ranging from 1 to 65535.
host_ip	String	NIC address of the host.
host_port_range	**HostPortRange** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Specify either **host_port_range** or **host_port**.

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Table 4-242 HostPortRange

Parameter	Type	Description
min_port	Long	Lower limit of the host port, which is an integer ranging from 1 to 65535.
max_port	Long	Upper limit of the host port, which is an integer ranging from 1 to 65535. The value of **max_port** must be greater than that of **min_port**.

Table 4-243 Env

Parameter	Type	Description
name	String	Key of an environment variable. The key must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.
value	String	Value of an environment variable. The value contains a maximum of 20,480 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	**Table 4-248** object	Environment variables can be imported from ConfigMaps or secrets.
field_path	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

Table 4-244 ResQuest

Parameter	Type	Description
limits	**Res** object	Resource amount limit.
requests	**Res** object	Requested resource amount.

Table 4-245 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.

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Parameter	Type	Description
memory	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note that the minimum value of **limits** for the memory is **4**.
gpu	String	GPU size, in MBs. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-246 PodConfigs

Parameter	Type	Description
host_network	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.
host_pid	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**.
toleration_seconds	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

Table 4-247 Attribute

Parameter	Type	Description
key	String	A maximum of 10 keys are allowed. These keys must be unique and cannot be empty. A key can contain a maximum of 36 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

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Parameter	Type	Description
value	String	The value contains a maximum of 43 characters. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

Table 4-248 value_from

Parameter	Type	Description
secret	**Table 4-249** object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	**Table 4-250** object	ConfigMap to be referenced by an environment variable.

Table 4-249 secret

Parameter	Type	Description
name	String	Secret name.
key	String	Secret key.

Table 4-250 configmap

Parameter	Type	Description
name	String	ConfigMap name.
key	String	ConfigMap key.

When the status code is **400**, the response parameters are as follows:

Table 4-251 Parameters in the response body

Parameter	Type	Description
error_code	String	Error Code
error_msg	String	Error description.

When the status code is **500**, the response parameters are as follows:

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Table 4-252 Parameters in the response body

Parameter	Type	Description
error_code	String	Error Code
error_msg	String	Error description.

Example Request

```
{
   "deployment": {
      "replicas": 1,
      "template": {
         "configs": {
            "host_network": true,
            "host_pid": true,
            "migration": true,
            "restart_policy": "Always",
            "toleration_seconds": 300
         },
         "containers": [
            {
               "name": "container-0",
               "image_url": "",
               "args": [
                  "-c",
                  "sleep 1000"
               ],
               "command": [
                  "/bin/bash"
               ],
               "resources": {
                  "limits": {
                     "cpu": "0.25",
                     "memory": "500",
                     "gpu": "500"
                  },
                  "requests": {
                     "cpu": "0.25",
                     "memory": "500",
                     "gpu": "500"
                  }
               },
               "envs": [
                  {
                     "name": "CERT_PATH",
                     "value": "/opt/cert"
                  }
               ],
               "ports": [
                  {
                     "container_port": 80,
                     "host_port": 80
                  }
               ],
               "privileged": true,
               "readiness_probe": {
                  "http_get": {
                     "path": "/",
                     "port": 80,
                     "scheme": "HTTP"
                  },
                  "initial_delay_seconds": 10,
                  "timeout_seconds": 10
               },
```

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```
                "liveness_probe": {
                    "http_get": {
                        "path": "/",
                        "port": 80,
                        "scheme": "HTTP"
                    },
                    "initial_delay_seconds": 10,
                    "timeout_seconds": 10
                },
                "version": "1.0"
            }
        ]
    }
  },
  "description": "this is a test app"
}
```

Example Response

Example response with status code 200:

```
{
  "id": "3e64d98a-37c5-43a6-9bfe-052b9083e362",
  "name": "app-test",
  "replicas": 1,
  "ready_replicas": 1,
  "description": "this is a test app",
  "group_id": "",
  "node_ids": [
    "29d20c18-c20c-4a45-a087-42c766fc5d97"
  ],
  "tags": [
    {
      "key": "app",
      "value": "test"
    }
  ],
  "api_version": "v3",
  "source": "userdefine",
  "project_id": "bcd83056c918480f8f190844bd425b23",
  "created_at": "2019-10-10T02:21:38.489Z",
  "updated_at": "2019-10-10T02:21:38.489Z",
  "template": {
    "configs": {
      "host_network": true,
      "host_pid": true,
      "migration": true,
      "restart_policy": "Always",
      "toleration_seconds": 300
    },
    "init_containers": []
    "containers": [
      {
        "name": "container-0",
        "image_url": "",
        "npu_type": "",
        "args": [
          "-c",
          "sleep 1000"
        ],
        "command": [
          "/bin/bash"
        ],
        "resources": {
          "limits": {
            "cpu": "0.25",
            "memory": "500",
            "gpu": 500"
          },
```

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```
                "requests": {
                    "cpu": "0.25",
                    "memory": "500",
                    "gpu": "500"
                }
            },
            "envs": [
                {
                    "name": "CERT_PATH",
                    "value": "/opt/cert"
                }
            ],
            "ports": [
                {
                    "container_port": 80,
                    "host_port": 80
                }
            ],
            "privileged": true,
            "readiness_probe": {
                "http_get": {
                    "path": "/",
                    "port": 80,
                    "scheme": "HTTP"
                },
                "initial_delay_seconds": 10,
                "timeout_seconds": 10
            },
            "liveness_probe": {
                "http_get": {
                    "path": "/",
                    "port": 80,
                    "scheme": "HTTP"
                },
                "initial_delay_seconds": 10,
                "timeout_seconds": 10
            },
            "version": "1.0"
        }
    ]
  }
}
```


Example response with status code 400:


```
{
  "error_code" : "IEF.100001",
  "error_msg" : "PROJECT_ID not found"
}
```


Example response with status code 500:


```
{
  "error_code" : "IEF.100158",
  "error_msg" : "Fail to extract gpu information"
}
```


Error Codes

For details, see **Error Codes**.

4.5.4 Deleting a Deployment

Function

This API is used to delete a Deployment.

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URI

DELETE /v3/{project_id}/edgemgr/deployments/{deployment_id}

Table 4-253 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
deployment_id	Yes	String	Deployment ID.

Table 4-254 Deletion parameter

Parameter	Mandatory	Type	Description
force_delete	No	String	Whether the Deployment is forcibly deleted. The default value is **false**.

Request

Table 4-255 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **400**, the response parameters are as follows:

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Table 4-256 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error description.

When the status code is **500**, the response parameters are as follows:

Table 4-257 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_msg	String	Error description.

Example Request

None

Example Response

Example response with status code 400:

```
{
   "error_code" : "IEF.100001",
   "error_msg" : "PROJECT_ID not found"
}
```

Example response with status code 500:

```
{
   "error_code" : "IEF.100158",
   "error_msg" : "Fail to extract gpu information"
}
```

Error Codes

For details, see **Error Codes**.

4.5.5 Querying Details About a Deployment

Function

This API is used to query details about a Deployment.

URI

GET /v3/{project_id}/edgemgr/deployments/{deployment_id}

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Table 4-258 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
deployment_id	Yes	String	Deployment ID.

Request

Table 4-259 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-260 Parameters in the response body

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
replicas	Integer	Total number of Deployment instances.
ready_replicas	Integer	Number of normal instances.

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Parameter	Type	Description
description	String	Deployment description. The description contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
group_id	String	ID of the node group to which the Deployment is deployed. Specify either **group_id** or **node_ids**.
node_ids	Array of strings	ID of the edge node to which the Deployment is deployed. Currently, only one edge node is supported.
tags	Array of **Attribute** objects	-
api_version	String	Deployment version.
source	String	Deployment source. The value can be **userdefined** (custom).
project_id	String	Project ID.
created_at	String	Time when the Deployment was created.
updated_at	String	Time when the Deployment was updated.
template	**PodRequest** object	Application template.
state	String	Application status, which can be **FREEZE**, **PENDING_DELETE**, or **DELETE_FAILED**. This field is reserved.
source_id	String	Reserved.

Table 4-261 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.
affinity	**affinity** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.
init_containers	Array of **ContainerDef** objects	init container configuration of the Deployment.

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Parameter	Type	Description
containers	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-262 ContainerDef

Parameter	Type	Description
name	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
image_url	String	Container image URL.
args	Array of strings	Container startup arguments.
command	Array of strings	Container startup commands.
resources	**ResQuest** object	Container resource amount.
envs	Array of **Env** objects	Key-value pair of the container environment variable.
ports	Array of **HostContainerPortMapping** objects	Container port mapping.
privileged	Boolean	Whether the privileged container is enabled. The default value is **false**.
readiness_probe	**Probe** object	Workload readiness probe configuration.
liveness_probe	**Probe** object	Workload liveness probe configuration.
version	String	Container version.
volumes	Array of **Volume** objects	Volumes attached to containers.
npu_type	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

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Table 4-263 Volume

Parameter	Type	Description
name	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Boolean	Read/Write permission. The default value is **read**.
source	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	String	Volume mount path. It must be a valid path.

Table 4-264 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-266** object	CLI-based check.
initial_delay_seconds	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.
timeout_seconds	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-265 HttpGet

Parameter	Type	Description
path	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*

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Parameter	Type	Description
port	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	String	Host address. The default value is the container IP address.
scheme	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

Table 4-266 Exec

Parameter	Type	Description
command	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

Table 4-267 HostContainerPortMapping

Parameter	Type	Description
container_port	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	Long	Host port number, which is an integer ranging from 1 to 65535.
host_ip	String	NIC address of the host.
host_port_range	**HostPortRange** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Specify either **host_port_range** or **host_port**.

Table 4-268 HostPortRange

Parameter	Type	Description
min_port	Long	Lower limit of the host port, which is an integer ranging from 1 to 65535.
max_port	Long	Upper limit of the host port, which is an integer ranging from 1 to 65535. The value of **max_port** must be greater than that of **min_port**.

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Table 4-269 Env

Parameter	Type	Description
name	String	Key of an environment variable. The key must be unique and can contain a maximum of 20,480 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.
value	String	Value of an environment variable. The value contains a maximum of 2,048 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	**Table 4-274** object	Environment variables can be imported from ConfigMaps or secrets.
field_path	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

Table 4-270 ResQuest

Parameter	Type	Description
limits	**Res** object	Resource amount limit.
requests	**Res** object	Requested resource amount.

Table 4-271 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note that the minimum value of **limits** for the memory is **4**.
gpu	String	GPU size, in MBs. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

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Table 4-272 PodConfigs

Parameter	Type	Description
host_network	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.
host_pid	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**.
toleration_seconds	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

Table 4-273 Attribute

Parameter	Type	Description
key	String	-
value	String	-

Table 4-274 value_from

Parameter	Type	Description
secret	**Table 4-275** object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	**Table 4-276** object	ConfigMap to be referenced by an environment variable.

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Table 4-275 secret

Parameter	Type	Description
name	String	Secret name.
key	String	Secret key.

Table 4-276 configmap

Parameter	Type	Description
name	String	ConfigMap name.
key	String	ConfigMap key.

When the status code is **400**, the response parameters are as follows:

Table 4-277 Parameters in the response body

Parameter	Type	Description
error_code	String	Error Code
error_msg	String	Error description.

When the status code is **500**, the response parameters are as follows:

Table 4-278 Parameters in the response body

Parameter	Type	Description
error_code	String	Error Code
error_msg	String	Error description.

Example Request

None

Example Response

Example response with status code 200:

```
{
    "id": "3e64d98a-37c5-43a6-9bfe-052b9083e362",
    "name": "app-test",
    "replicas": 1,
    "ready_replicas": 1,
    "description": "this is a test app",
```


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```
"group_id": "",
"node_ids": [
    "29d20c18-c20c-4a45-a087-42c766fc5d97"
],
"tags": [
    {
        "key": "app",
        "value": "test"
    }
],
"api_version": "v3",
"source": "userdefine",
"project_id": "bcd83056c918480f8f190844bd425b23",
"created_at": "2019-10-10T02:23:12.272Z",
"updated_at": "2019-10-10T02:23:12.272Z",
"template": {
    "configs": {
        "host_network": true,
        "host_pid": true,
        "migration": true,
        "restart_policy": "Always",
        "toleration_seconds": 300
    },
    "init_containers": [],
    "containers": [
        {
            "name": "container-0",
            "image_url": "",
            "npu_type": "",
            "args": [
                "-c",
                "sleep 1000"
            ],
            "command": [
                "/bin/bash"
            ],
            "resources": {
                "limits": {
                    "cpu": "0.25",
                    "memory": "500",
                    "gpu": "500"
                },
                "requests": {
                    "cpu": "0.25",
                    "memory": "500",
                    "gpu": "500"
                }
            },
            "envs": [
                {
                    "name": "CERT_PATH",
                    "value": "/opt/cert"
                }
            ],
            "ports": [
                {
                    "container_port": 80,
                    "host_port": 80
                }
            ],
            "privileged": true,
            "readiness_probe": {
                "http_get": {
                    "path": "/",
                    "port": 80,
                    "scheme": "http"
                },
                "initial_delay_seconds": 10,
                "timeout_seconds": 10
```


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```
            },
            "liveness_probe": {
                "http_get": {
                    "path": "/",
                    "port": 80,
                    "scheme": "http"
                },
                "initial_delay_seconds": 10,
                "timeout_seconds": 10
            },
            "version": "1.0",
            "volumes": [
                {
                    "name": "log-volume",
                    "type": "hostPath",
                    "read_only": false,
                    "source": "/var/IEF",
                    "destination": "/var/IEF"
                }
            ]
        }
    ]
  }
}
```


Example response with status code 400:


```
{
   "error_code" : "IEF.100001",
   "error_msg" : "PROJECT_ID not found"
}
```


Example response with status code 500:


```
{
   "error_code" : "IEF.100158",
   "error_msg" : "Fail to extract gpu information"
}
```


Error Codes

For details, see **Error Codes**.

4.5.6 Querying a List of Application Instances

Function

This API is used to query a list of application instances.

URI

GET /v3/{project_id}/edgemgr/pods?{node_id=xxx,limit=xxx,offset=xxx}

CAUTION

The URI must contain at least one of the four ID query parameters: **node_id**, **group_id**, **deployment_id** or **deployment_ids**. For details, see **Table 4-280**.

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Table 4-279 Path parameter

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

Table 4-280 Query parameters

Parameter	Mandatory	Type	Description
node_id	No	String	Node ID by which application instances are queried. This field is optional. Specify only one of the four fields: **node_id**, **group_id**, **deployment_id**, and **deployment_ids**.
group_id	No	String	Node group by which application instances are queried. This field is optional. Specify only one of the four fields: **group_id**, **node_id**, **deployment_id**, and **deployment_ids**.
deployment_id	No	String	Deployment ID by which application instances are queried. This field is optional. Specify only one of the four fields: **deployment_id**, **node_id**, **group_id**, and **deployment_ids**.
deployment_ids	No	String	Deployment IDs by which application instances are queried. Multiple IDs are separated by commas (,). This field is optional. Specify only one of the four fields: **deployment_ids**, **node_id**, **group_id**, and **deployment_id**.
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.

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Request

Table 4-281 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-282 Parameters in the response body

Parameter	Type	Description
count	Long	Total number of application instances.
pods	Array of **PodResponse** objects	-

Table 4-283 PodResponse

Parameter	Type	Description
id	String	ID of the application instance.
name	String	Name of the application instance.
configs	**PodConfigs** object	Application instance configuration.
affinity	**affinity** object	Affinity rules for the Deployment. This parameter is available only for platinum service instances.

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Parameter	Type	Description
init_containers	Array of **ContainerResp** objects	init container in the application instance.
containers	Array of **ContainerResp** objects	Service container in the application instance.
node_id	String	Node where the application instance is located.
deployment_id	String	Application ID.
project_id	String	Project ID.
reason	String	Cause of the application instance fault.
message	String	Details about the application instance fault.
created_at	String	Time when the application instance was created.
updated_at	String	Time when the application instance was updated.
state	String	Application instance status.

Table 4-284 ContainerResp

Parameter	Type	Description
args	Array of strings	Container startup arguments.
command	Array of strings	Container startup commands.
name	String	Container name. The name contains a maximum of 32 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
envs	Array of **Env** objects	Key-value pair of the container environment variable.
image_url	String	Container image URL.
version	String	Container image version.
liveness_probe	**Probe** object	Workload liveness probe configuration.
readiness_probe	**Probe** object	Workload readiness probe configuration.

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Parameter	Type	Description
ports	Array of **HostContainerPortMapping** objects	Container port mapping.
resources	**ResQuest** object	Resource amount.
volumes	Array of **Volume** objects	Volumes attached to containers.
restarts	Long	Number of container restarts.
message	String	Container fault details.
reason	String	Container fault cause.
is_ready	String	Health check result.
privileged	Boolean	Whether the privileged container is enabled. The default value is **false**.
container_id	String	Container ID.
state	String	Container status.
npu_type	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.

Table 4-285 Volume

Parameter	Type	Description
name	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
read_only	Boolean	Read/Write permission. The default value is **read**.

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Parameter	Type	Description
source	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	String	Volume mount path. It must be a valid path.

Table 4-286 ResQuest

Parameter	Type	Description
limits	**Res** object	Resource amount limit.
requests	**Res** object	Requested resource amount.

Table 4-287 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note that the minimum value of **limits** for the memory is **4**.
gpu	String	GPU size, in MBs. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-288 HostContainerPortMapping

Parameter	Type	Description
container_port	Long	Container port number, which is an integer ranging from 1 to 65535.
host_port	Long	Container port number, which is an integer ranging from 1 to 65535.
host_ip	String	NIC address of the host.

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Table 4-289 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-291** object	CLI-based check.
initial_delay_seconds	Long	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.
timeout_seconds	Long	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 4-290 HttpGet

Parameter	Type	Description
path	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*
port	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	String	Host address. The default value is the container IP address.
scheme	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

Table 4-291 Exec

Parameter	Type	Description
command	String	Commands to be executed by the probe. The value contains a maximum of 10,240 characters.

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Table 4-292 Env

Parameter	Type	Description
name	String	Key of an environment variable. The key contains a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.
value	String	Value of an environment variable. The value contains a maximum of 20,480 characters.

Table 4-293 PodConfigs

Parameter	Type	Description
host_network	Boolean	Whether the host network is enabled for an application instance. If the host network is not enabled, port mapping is used. The default value is **false**.
host_pid	Boolean	Whether an application instance shares the PID namespace with the host. The default value is **false**.
migration	Boolean	Whether an application instance is migrated when a fault occurs. This parameter is mandatory when the application is deployed to a specified node group. The default value is **false**.
restart_policy	String	Restart policy of an application instance. The value can be **Always**, **OnFailure**, or **Never**.
toleration_seconds	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter takes effect only when the application is deployed to a specified node group.

When the status code is **400**, the response parameters are as follows:

Table 4-294 Parameters in the response body

Parameter	Type	Description
error_code	String	Error Code
error_msg	String	Error description.

When the status code is **500**, the response parameters are as follows:

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Table 4-295 Parameters in the response body

Parameter	Type	Description
error_code	String	Error Code
error_msg	String	Error description.

Example Request

```
GET https://{endpoint}//v3/{project_id}/edgemgr/pods?deployment_ids=a71077f0-a491-4e1c-a41a-7d6910da26cb,77340b19-b52e-4708-83fd-3ca86f5a292e
```

Example Response

Example response with status code 200:

```
{
   "count": 1,
   "pods": [
      {
         "id": "3e64d98a-37c5-43a6-9bfe-052b9083e362",
         "name": "app-test-69f9dc4b67-wfwn6",
         "description": "this is a test pod",
         "configs": {
            "host_network": true,
            "host_pid": true,
            "migration": true,
            "restart_policy": "Always",
            "toleration_seconds": 300
         },
         "containers": [
            {
               "args": [
                  "-c",
                  "sleep 1000"
               ],
               "command": [
                  "/bin/bash"
               ],
               "name": "container-0",
               "envs": [
                  {
                     "name": "CERT_PATH",
                     "value": "/opt/cert"
                  }
               ],
               "image_url": "",
               "npu_type": "",
               "liveness_probe": {
                  "http_get": {
                     "path": "/",
                     "port": 80,
                     "scheme": "http"
                  },
                  "initial_delay_seconds": 10,
                  "timeout_seconds": 10
               },
               "readiness_probe": {
                  "http_get": {
                     "path": "/",
                     "port": 80,
                     "scheme": "http"
                  },
                  "initial_delay_seconds": 10,
```


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```
                    "timeout_seconds": 10
                },
                "ports": [
                    {
                        "container_port": 80,
                        "host_port": 80
                    }
                ],
                "resources": {
                    "limits": {
                        "cpu": 0.25,
                        "memory": 500,
                        "gpu": 500
                    },
                    "requests": {
                        "cpu": 0.25,
                        "memory": 500,
                        "gpu": 500
                    }
                },
                "volumes": [
                    {
                        "name": "log-volume",
                        "type": "hostPath",
                        "read_only": false,
                        "source": "/var/IEF",
                        "destination": "/var/IEF"
                    }
                ],
                "restarts": 0,
                "message": "",
                "reason": ""
            }
        ],
        "node_id": "ff5f5129-f53f-4129-9f7f-ca7837063b5f",
        "project_id": "bcd83056c918480f8f190844bd425b23",
        "reason": "",
        "message": "",
        "created_at": "2019-10-10T02:24:02.325Z",
        "updated_at": "2019-10-10T02:24:02.325Z",
        "state": "RUNNING"
    }
  ]
}
```


Example response with status code 400:


```
{
  "error_code" : "IEF.100001",
  "error_msg" : "PROJECT_ID not found"
}
```


Example response with status code 500:


```
{
  "error_code" : "IEF.100158",
  "error_msg" : "Fail to extract gpu information"
}
```


Error Codes

For details, see **Error Codes**.

4.6 Tag Management

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4.6.1 Querying Resource Instances

Function

This API is used to filter instances by tag.

URI

POST /v2/{project_id}/{resource_type}/resource_instances/action

Table 4-296 Path parameters

Parameter	Type	Description
project_id	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
resource_type	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device

Request

Request parameters

Table 4-297 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Table 4-298 Parameters in the request body

Parameter	Mandatory	Type	Description
tags	No	Array of **tag** objects	The instances to be queried contain tags listed in **tags**. Each instance to be queried contains a maximum of 20 keys. Each tag key has a maximum of 10 tag values. The tag value corresponding to each tag key can be an empty array but the structure cannot be missing. Each tag key must be unique, and each tag value in a tag must be unique. The response returns instances containing all tags in this list. Keys in this list are in the AND relationship and values in each key-value structure are in the OR relationship. If both **tags_any** and **tags** fields are specified, the union set of the two fields is returned after deduplication. If no filtering condition is specified, full data is returned.
tags_any	No	Array of **tag** objects	The instances to be queried contain any tag listed in **tags_any**. Each instance to be queried contains a maximum of 20 keys. Each tag key has a maximum of 10 tag values. Each tag key must be unique, and each tag value in a tag must be unique. The response returns instances containing any tag in this list. Keys in this list are in the OR relationship and values in each key-value structure are also in the OR relationship. If both **tags_any** and **tags** fields are specified, the union set of the two fields is returned after deduplication. If no filtering condition is specified, full data is returned.

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Parameter	Mandatory	Type	Description
not_tags	No	Array of **tag** objects	The instances to be queried do not contain any tag listed in this field. Each instance to be queried contains a maximum of 20 keys. Each tag key has a maximum of 10 tag values. Each tag key must be unique, and each tag value in a tag must be unique. The response returns instances containing no tag in this list. Keys are in the AND relationship and values in each key-value structure is in the OR relationship. If no filtering condition is specified, full data is returned.
not_tags_any	No	Array of **tag** objects	The instances to be queried do not contain all tags listed in this field. Each instance to be queried contains a maximum of 20 keys. Each tag key has a maximum of 10 tag values. Each tag key must be unique, and each tag value in a tag must be unique. The response returns resources containing no tag in this list. Keys in this list are in the OR relationship and values in each key-value structure are also in the OR relationship. If no filtering condition is specified, full data is returned.
limit	No	String	Number of records to be queried. This parameter is not available when **action** is set to **count**. If **action** is set to **filter**, the default value is **1000**. The maximum value is **1000**, and the minimum value is **1**. The value cannot be a negative number.
offset	No	String	Index position. This parameter is not available when **action** is set to **count**. If **offset** is set to *N*, the resource query starts from the N+1 piece of data. If **action** is set to **filter**, the value of **offset** is **0** by default, indicating that the query starts from the first piece of data. The **offset** value must be a number and cannot be a negative number.

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Parameter	Mandatory	Type	Description
action	Yes	String	Operation to be performed. The value can only be **filter** or **count**. If **action** is set to **filter**, the query is performed based on the filter criteria. If **action** is set to **count**, only the total number of records is returned.
matches	No	Array of **match** objects	Search field. The tag key is the field to be matched, for example, **resource_name**. The tag value indicates the value to be matched. The key is a fixed dictionary value and cannot contain duplicate keys or unsupported keys. This field determines whether fuzzy match is required based on the keys. For example, if **key** is **resource_name**, fuzzy match (case insensitive, not supporting *, and supporting character string matching) is used by default. If **value** is empty, an empty list is returned because for IEF, **resource_name** cannot be left blank.
console	No	Boolean	This field is used to check whether the request is initiated from the console to determine whether the content of **resource_detail** is returned. If the value is **true**, the content is returned. If the value is **false** or the parameter is not contained, an empty list is returned.
sorted	No	**Table 5-31** object	Sorting mode of results returned after resources are filtered by tag.

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Table 4-299 tag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key, which can contain a maximum of 36 Unicode characters. It cannot be left blank. The character set of this parameter is not verified during search. **Key** cannot be empty, an empty string, or spaces. Before verifying and using **key**, delete spaces of single-byte character (SBC) before and after the value.
values	No	Array of strings	List of tag values. Each value contains a maximum of 43 Unicode characters. Before verifying and using this field, delete SBC spaces before and after the value. The asterisk (*) is reserved for the system. If the value starts with *, it indicates that fuzzy match is performed based on the value following *. The value cannot contain only asterisks (*). If **values** is left blank, it indicates **any_value** (querying any value). All values of a tag key are in the OR relationship.

Table 4-300 match

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key. Currently, only **resource_name** is supported.
value	No	String	Tag value. Each tag value can contain a maximum of 64 Unicode characters. The character set range is not verified.

Example request

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When **action** is set to **filter**:

```
{
   "action": "filter",
   "limit": "10",
   "offset": "0",
   "matches":[{"key":"resource_name","value":"q"}],
   "tags":[
      {
         "key":"test",
         "values": ["value1","value2"]
      }
      ]
}
```

Response

Response parameters

Table 4-301 Parameters in the response body

Parameter	Mandatory	Type	Description
resources	Yes	Array of **resource** objects	Resource instances.
total_count	Yes	Integer	Total number of records.

Table 4-302 resource

Parameter	Mandatory	Type	Description
resource_id	Yes	String	Resource ID.
tags	Yes	Array of **resource_tag** objects	A list of tags. This parameter is an empty array by default if there is no tag.
resource_name	Yes	String	Resource name. This parameter is an empty string by default if there is no resource name.

Table 4-303 resource_tag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key.
value	Yes	String	Tag value.

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Example response

When **action** is set to **filter**:


```
{
   "total_count": 2,
   "resources": [
      {
         "tags": [
            {
               "value": "",
               "key": "testtest"
            },
            {
               "value": "value2",
               "key": "test"
            }
         ],
         "resource_name": "node_test_0108_1",
         "resource_id": "e25307d4-bd25-4c29-ba7f-176376ed2f99"
      },
      {
         "tags": [
            {
               "value": "value1",
               "key": "key1"
            },
            {
               "value": "",
               "key": "test"
            }
         ],
         "resource_name": "node_test-0109_1",
         "resource_id": "fc3aeee8-24e1-4912-bf7a-54854251d0e5"
      }
   ]
}
```


Response body when **action** is set to **count**:


```
{
"total_count": 2
}
```


Error Codes

For details, see **Error Codes**.

4.6.2 Adding or Deleting Resource Tags in Batches

Function

This API is used to add or delete tags in batches for a specified instance.

A resource can have a maximum of 20 tags.

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NOTE

- This API is an idempotent API. If the request body contains duplicate keys during tag creation, an error is reported.
- During tag creation, duplicate key data is not allowed. If the key already exists in the database, its value is overwritten.
- When a tag is deleted, the character set range of the tag is not verified. If the tag to be deleted does not exist, the deletion is successful by default. The tags structure cannot be missing during deletion. The key cannot be empty or an empty string.

URI

POST /v2/{project_id}/{resource_type}/{resource_id}/tags/action

Table 4-304 Path parameters

Parameter	Type	Description
project_id	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
resource_type	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device
resource_id	String	Resource ID.

Request

Request parameters

Table 4-305 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Table 4-306 Parameters in the request body

Parameter	Mandatory	Type	Description
tags	No	Array of **resource_tag** objects	List of tags.
action	Yes	String	Operation to be performed, which can be **create** or **delete**.

Table 4-307 resource_tag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key, which can contain a maximum of 36 Unicode characters. This parameter cannot be left blank and can contain only letters, digits, hyphens (-), and underscores (_).
value	Yes	String	(This parameter is mandatory when **action** is set to **create** and optional when **action** is set to **delete**.) Tag value. Each value can contain a maximum of 43 Unicode characters. If **value** is specified, tags are deleted by key and value. If **value** is not specified, tags are deleted by key. This parameter cannot be left blank and can contain only letters, digits, hyphens (-), and underscores (_).

Example request

```
{
   "action": "create",
   "tags": [
      {
         "key": "key0",
         "value": "value1_new1"
      },
      {
```


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```
        "key": "key1",
        "value": "value3_new"
    },
    {
        "key": "key2",
        "value": "value1_new1"
    },
    {
        "key": "key3",
        "value": "value3_new"
    },
    {
        "key": "key4",
        "value": "value1_new1"
    },
    {
        "key": "key5",
        "value": "value3_new"
    },
    {
        "key": "key6",
        "value": "value1_new1"
    },
    {
        "key": "key7",
        "value": "value3_new"
    },
    {
        "key": "key8",
        "value": ""
    }
  ]
}
```

Response

None

Error Codes

For details, see **Error Codes**.

4.6.3 Adding a Resource Tag

Function

This API is used to add tags to a resource.

A resource can have a maximum of 20 tags.

This API is an idempotent API. If the tag to be created already exists (with the same key), the existing tag will be overwritten.

URI

POST /v2/{project_id}/{resource_type}/{resource_id}/tags

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Table 4-308 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
resource_type	Yes	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device
resource_id	Yes	String	Resource ID.

Request

Request parameters

Table 4-309 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-310 Parameters in the request body

Parameter	Mandatory	Type	Description
tag	Yes	**tag** object	Whether tags are contained.

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Table 4-311 tag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key, which can contain a maximum of 36 Unicode characters. This parameter cannot be left blank and can contain only letters, digits, hyphens (-), and underscores (_).
value	Yes	String	Tag value. Each value can contain a maximum of 43 Unicode characters. This parameter cannot be left blank and can contain only letters, digits, hyphens (-), and underscores (_).

Example request

```
{
   "tag": {
      "key": "key0",
      "value": "ief-tag-test"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.6.4 Deleting a Resource Tag

Function

This API is used to delete a resource tag.

NOTE

When a tag is deleted, the tag character set is not verified. Before calling this API, encode the URI. The application must decode the URI. If the key to be deleted does not exist, the error message 404 is displayed. The key cannot be empty or an empty string.

URI

DELETE /v2/{project_id}/{resource_type}/{resource_id}/tags/{key}

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Table 4-312 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
resource_type	Yes	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device
resource_id	Yes	String	Resource ID.
key	Yes	String	Tag key.

Request

Table 4-313 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

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4.6.5 Querying Resource Tags

Function

This API is used to query tag information of a specified instance.

URI

GET /v2/{project_id}/{resource_type}/{resource_id}/tags

Table 4-314 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
resource_type	Yes	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device
resource_id	Yes	String	Resource ID.

Request

Table 4-315 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Response

Response parameters

Table 4-316 Parameters in the response body

Parameter	Type	Description
tags	Array of **resource_tag** objects	A list of tags.
count	Integer	Number of tags.

Table 4-317 resource_tag

Parameter	Type	Description
key	String	Tag key.
value	String	Tag value.

Example response

```
{
   "tags": [
      {
         "value": "",
         "key": "testtest"
      },
      {
         "value": "",
         "key": "test"
      }
   ],
   "count": 0
}
```

Error Codes

For details, see **Error Codes**.

4.6.6 Querying Project Tags

Function

This API is used to query all resource tags of instances in a specified project.

URI

GET /v2/{project_id}/{resource_type}/tags

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Table 4-318 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain a project ID, see **Obtaining a Project ID**.
resource_type	Yes	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device

Request

Table 4-319 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-320 Parameters in the response body

Parameter	Type	Description
count	Integer	Number of tags.
tags	Array of **tag** objects	A list of tags.

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Table 4-321 tag

Parameter	Type	Description
key	String	Tag key.
values	Array of strings	A list of tag values.

Example response

```
{
   "count": 5,
   "tags": [
      {
         "values": [
            "hwg"
         ],
         "key": "deployer"
      },
      {
         "values": [
            "batchjob"
         ],
         "key": "batchjob"
      },
      {
         "values": [
            "2"
         ],
         "key": "2"
      },
      {
         "values": [
            "bbb"
         ],
         "key": "aaa"
      },
      {
         "values": [
            "autotest"
         ],
         "key": "autotest"
      }
   ]
}
```

Error Codes

For details, see **Error Codes**.

4.7 ConfigMap Management

4.7.1 Creating a ConfigMap

Function

This API is used to create a ConfigMap.

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URI

POST /v2/{project_id}/edgemgr/configmaps

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

Request

Request parameters

Table 4-322 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-323 Parameters in the request body

Parameter	Mandatory	Type	Description
configmap	Yes	**Table 4-324** object	ConfigMap information.

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Table 4-324 configmap

Parameter	Mandatory	Type	Description
name	Yes	String	ConfigMap name. The value must start with a lowercase letter but cannot end with a hyphen (-). The value contains 4 to 64 characters. Only lowercase letters, digits, and hyphens (-) are allowed.
description	No	String	ConfigMap description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
configs	No	Map<String, String>	**configs** is a dictionary consisting of multiple key-value pairs. The maximum length of the dictionary is 1,048,576 characters after being converted into JSON strings. The keys and values are strings. The key in a key-value pair must contain 1 to 63 characters and start with a letter or hyphen. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed. There is no other restriction on the value in the key-value pair. Note: The length of the configs dictionary is the length after the dictionary is converted into a standard string. For example, after the dictionary {"a": "b"} is converted into a standard string '{"a": "b"}', the length is 10 characters.

Example request

```
{
   "configmap": {
      "name": "test-cm",
      "description": "this is a test cm",
      "configs": {
         "key1": "val1 ",
         "key2": "val2 "
      }
   }
}
```

Response

Response parameters

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Table 4-325 Parameters in the response body

Parameter	Type	Description
configmap	Table 4-326 object	ConfigMap information.

Table 4-326 configmap

Parameter	Type	Description
id	String	ConfigMap ID.
name	String	ConfigMap name.
description	String	ConfigMap description.
configs	Map<String, String>	ConfigMap key list.
project_id	String	Project ID.
created_at	String	Time when the ConfigMap is created.
updated_at	String	Update time.

Example response

```
{
   "configmap": {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-cm",
      "description": "this is a test cm",
      "configs": {
         "key1": "val-1",
         "key2": "val-2"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-18T13:41:25.347335"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.7.2 Updating a ConfigMap

Function

This API is used to update a ConfigMap.

URI

PUT /v2/{project_id}/edgemgr/configmaps/{configmap_id}

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Table 4-327 Path parameters

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

Request

Request parameters

Table 4-328 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-329 Parameters in the request body

Parameter	Mandatory	Type	Description
configmap	Yes	**Table 4-330** object	ConfigMap information.

Table 4-330 configmap

Parameter	Mandatory	Type	Description
description	No	String	ConfigMap description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\

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Parameter	Mandatory	Type	Description
configs	No	Map<String, String>	**configs** is a dictionary consisting of multiple key-value pairs. The maximum length of the dictionary is 1,048,576 characters after being converted into JSON strings. The keys and values are strings. The key in a key-value pair must contain 1 to 63 characters and start with a letter or hyphen. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed. There is no other restriction on the value in the key-value pair. Note: The length of the configs dictionary is the length after the dictionary is converted into a standard string. For example, after the dictionary {"a": "b"} is converted into a standard string '{"a": "b"}', the length is 10 characters.

Example request

```
{
   "configmap": {
      "description": "this is a test cm2",
      "configs": {
         "key1": "val-1",
         "key2": null,
         "key3": "val-3"
      }
   }
}
```

Response

Response parameters

Table 4-331 Parameters in the response body

Parameter	Type	Description
configmap	Table 4-332 object	ConfigMap information.

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Table 4-332 configmap

Parameter	Type	Description
id	String	ConfigMap ID.
name	String	ConfigMap name.
description	String	ConfigMap description.
configs	Map<String, String>	Configuration key list.
project_id	String	Project ID.
created_at	String	Time when the ConfigMap is created.
updated_at	String	Update time.

Example response

```
{
   "configmap": {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-cm",
      "description": "this is a test cm2",
      "configs": {
         "key1": "val1",
         "key3": "val3"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-19T13:41:25.347335"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.7.3 Querying Details About a ConfigMap

Function

This API is used to query details about a ConfigMap.

URI

GET /v2/{project_id}/edgemgr/configmaps/{configmap_id}

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Table 4-333 Path parameters

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

Request

Table 4-334 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-335 Parameters in the response body

Parameter	Type	Description
configmap	**Table 4-336** object	ConfigMap information.

Table 4-336 configmap

Parameter	Type	Description
id	String	ConfigMap ID.
name	String	ConfigMap name.

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Parameter	Type	Description
description	String	ConfigMap description.
configs	Map<String, String>	Configuration key list.
project_id	String	Project ID.
created_at	String	Time when the ConfigMap is created.
updated_at	String	Update time.

Example response

```
{
   "configmap": {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-cm",
      "description": "this is a test cm2",
      "configs": {
         "key1": "val1",
         "key3": "val3"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-19T13:41:25.347335"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.7.4 Querying a List of ConfigMaps

Function

This API is used to query a list of ConfigMaps.

URI

GET /v2/{project_id}/edgemgr/configmaps?{name=xxx,limit=xxx,offset=xxx}

Table 4-337 Path parameter

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

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Table 4-338 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	ConfigMap name, which supports fuzzy match.
limit	No	String	Number of records displayed on each page. The value range is 1–1000. The default value is **1000**.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.

NOTE

- If no query parameter is specified, all ConfigMaps of an account are returned.
- If multiple query parameters are specified, the ConfigMaps that meet all the specified query parameters are returned.

Request

Table 4-339 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

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Table 4-340 Parameters in the response body

Parameter	Type	Description
configmaps	Array of **Table 4-341** objects	ConfigMap list.
count	Integer	Number of ConfigMaps that meet the conditions.

Table 4-341 configmap

Parameter	Type	Description
id	String	ConfigMap ID.
name	String	ConfigMap name.
description	String	ConfigMap description.
configs	Map<String, String>	Configuration key list.
project_id	String	Project ID.
created_at	String	Time when the ConfigMap is created.
updated_at	String	Update time.

Example response

```
{
   "count": 1,
   "configmaps": [
      {
         "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
         "name": "test-cm",
         "description": "this is a test cm2",
         "configs": {
            "key1": "val1",
            "key3": "val3"
         },
         "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
         "created_at": "2018-07-16T13:41:25.347335",
         "updated_at": "2018-07-19T13:41:25.347335"
      }
   ]
}
```

Error Codes

For details, see **Error Codes**.

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4.7.5 Deleting a ConfigMap

Function

This API is used to delete a ConfigMap.

URI

DELETE /v2/{project_id}/edgemgr/configmaps/{configmap_id}

Table 4-342 Path parameters

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

Request

Table 4-343 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

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4.8 Secret Management

4.8.1 Creating a Secret

Function

This API is used to create a secret.

URI

POST /v2/{project_id}/edgemgr/secrets

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

Request

Request parameters

Table 4-344 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-345 Parameters in the request body

Parameter	Mandatory	Type	Description
secret	Yes	**Table 4-346** object	Secret information.

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Table 4-346 secret

Parameter	Mandatory	Type	Description
name	Yes	String	Secret name. The value must start with a lowercase letter but cannot end with a hyphen (-). The value contains 4 to 64 characters. Only lowercase letters, digits, and hyphens (-) are allowed.
type	No	String	Secret type. Currently, only opaque secrets are supported.
description	No	String	Secret description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&* <>()[]{}'"\
secrets	Yes	Map<String, String>	**secrets** is a dictionary consisting of multiple key-value pairs. The maximum length of the dictionary is 1,048,576 characters after being converted into JSON strings. The keys and values are strings. The key in a key-value pair must contain 1 to 63 characters and start with a letter or hyphen. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed. The value in the key-value pair must be a Base64-encoded string. Note: The length of the secrets dictionary is the length after the dictionary is converted into a standard string. For example, after the dictionary {"a": "b"} is converted into a standard string '{"a": "b"}', the length is 10 characters.

Example request

```
{
   "secret": {
      "name": "test-secret",
      "description": "this is a test secret",
      "type": "Opaque",
      "secrets": {
         "key1": "val1",
         "key2": "val2 "
      }
   }
}
```


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Response

Response parameters

Table 4-347 Parameters in the response body

Parameter	Type	Description
secret	Table 4-348 object	KeySecret information.

Table 4-348 secret

Parameter	Type	Description
id	String	Secret ID.
name	String	Secret name.
description	String	Secret description.
secrets	Object	Secret list.
project_id	String	Project ID.
created_at	String	Time when the secret is created.
updated_at	String	Time when the secret is updated.
type	String	Secret type.

Example response

```
{
   "secret": {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-secret",
      "description": "this is a test secret",
      "secrets": {
         "key1": "val-1",
         "key2": "val-2"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-18T13:41:25.347335",
      "type": "Opaque"
   }
}
```

Error Codes

For details, see **Error Codes**.

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4.8.2 Updating a Secret

Function

This API is used to update a secret.

URI

PUT /v2/{project_id}/edgemgr/secrets/{secret_id}

Table 4-349 Path parameters

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

Request

Request parameters

Table 4-350 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-351 Parameters in the request body

Parameter	Mandatory	Type	Description
secret	Yes	**Table 4-352** object	Secret information.

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Table 4-352 secret

Parameter	Mandatory	Type	Description
description	No	String	Secret description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&* <>()[]{}'"\
secrets	No	Map<String, String>	**secrets** is a dictionary consisting of multiple key-value pairs. The maximum length of the dictionary is 1,048,576 characters after being converted into JSON strings. The keys and values are strings. The key in a key-value pair must contain 1 to 63 characters and start with a letter or hyphen. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed. The value in the key-value pair must be a Base64-encoded string. Note: The length of the secrets dictionary is the length after the dictionary is converted into a standard string. For example, after the dictionary {"a": "b"} is converted into a standard string '{"a": "b"}', the length is 10 characters.

Example request

```
{
   "secret": {
      "description": "this is a test secret",
      "secrets": {
         "key1": "val-1",
         "key2": "val-2"
      }
   }
}
```

Response

Response parameters

Table 4-353 Parameters in the response body

Parameter	Type	Description
secret	Table 4-354 object	Secret information.

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Table 4-354 secret

Parameter	Type	Description
id	String	Secret ID.
name	String	Secret name.
description	String	Secret description.
secrets	Object	Secret list.
project_id	String	Project ID.
created_at	String	Time when the secret is created.
updated_at	String	Time when the secret is updated.
type	String	Secret type.

Example response

```
{
   "secret": {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-secret",
      "description": "this is a test secret",
      "secrets": {
         "key1": "val-1",
         "key2": "val-2"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-18T13:41:25.347335",
      "type": "Opaque"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.8.3 Querying Secret Details

Function

This API is used to query the details about a secret.

URI

GET /v2/{project_id}/edgemgr/secrets/{secret_id}

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Table 4-355 Path parameters

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

Request

Table 4-356 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-357 Parameters in the response body

Parameter	Type	Description
secret	**Table 4-358** object	Secret information.

Table 4-358 secret

Parameter	Type	Description
id	String	Secret ID.
name	String	Secret name.

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Parameter	Type	Description
description	String	Secret description.
secrets	Map<String, String>	Secret list.
project_id	String	Project ID.
created_at	String	Time when the secret is created.
updated_at	String	Time when the secret is updated.
type	String	Secret type.

Example response

```
{
   "secret": {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-secret",
      "description": "this is a test secret",
      "secrets": {
         "key1": "val-1",
         "key2": "val-2"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-18T13:41:25.347335",
      "type": "Opaque"
   }
}
```

Error Codes

For details, see **Error Codes**.

4.8.4 Querying a List of Secrets

Function

This API is used to query a list of secrets.

URI

GET /v2/{project_id}/edgemgr/secrets?{name=xxx,limit=xxx,offset=xxx,sort=xxx}

Table 4-359 Path parameter

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

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Table 4-360 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Secret name, which supports fuzzy match.
limit	No	String	Number of records displayed on each page. The value range is 1–1000.
offset	No	String	Start position for a query. The value is a non-negative integer. The default value is **0**.
sort	No	String	Sorting mode. Secrets can be sorted by name, creation time, or update time. The options are as follows: • name • created_at • updated_at By default, the query results are sorted in ascending order. For example, **sort** is set to **name**. If the query results need to be sorted in descending order, set **sort** to **name%3Adesc**.

NOTE

- If no query parameter is specified, all secrets of an account are returned.
- If multiple query parameters are specified, the secrets that meet all the specified query parameters are returned.

Request

Table 4-361 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Response parameters

Table 4-362 Parameters in the response body

Parameter	Type	Description
secrets	Array of **Table 4-363** objects	Secret list.
count	Integer	Number of secrets that meet the conditions.

Table 4-363 secret

Parameter	Type	Description
id	String	Secret ID.
name	String	Secret name.
description	String	Secret description.
secrets	Map<String, String>	Secret list.
project_id	String	Project ID.
created_at	String	Time when the secret is created.
updated_at	String	Time when the secret is updated.
type	String	Secret type.

Example response

```
{
  "count": 1,
```


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```
  "secrets": [
    {
      "id": "12ns9eb6cc0d49a0941df2f31283mds8 ",
      "name": "test-secret",
      "description": "this is a test secret",
      "secrets": {
        "key1": "val1",
        "key3": "val3"
      },
      "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at": "2018-07-16T13:41:25.347335",
      "updated_at": "2018-07-19T13:41:25.347335",
      "type": "Opaque"
    }
  ]
}
```


Error Codes

For details, see **Error Codes**.

4.8.5 Deleting a Secret

Function

This API is used to delete a secret.

URI

DELETE /v2/{project_id}/edgemgr/secrets/{secret_id}

Table 4-364 Path parameters

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

Request

Table 4-365 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

None

Error Codes

For details, see **Error Codes**.

4.9 Endpoint Management

4.9.1 Querying a List of Endpoints

Function

This API is used to obtain details about all endpoints.

If no query parameter is specified, information about all endpoints under the account and all shared endpoints in the system is returned.

If more than one query parameter is specified, information about the endpoints that meet all the specified parameters is returned.

URI

GET /v2/{project_id}/routemgr/endpoints?{name=xxx,limit=xxx,offset=xxx}

Table 4-366 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

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Table 4-367 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Endpoint name.
type	No	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
is_shared	No	Boolean	Whether the endpoint is shared.
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.

Request

Table 4-368 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows.

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Table 4-369 Parameters in the response body

Parameter	Type	Description
count	Long	Number of endpoints that meet the conditions.
endpoints	Array of **EndpointResponse** objects	Endpoint list.

Table 4-370 EndpointResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

When the status code is **401**, the response parameters are as follows.

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Table 4-371 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-372 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

Status Code

Status Code	Description
200	Query succeeded.
401	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.9.2 Creating an Endpoint

Function

This API is used to create an endpoint.

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URI

POST /v2/{project_id}/routemgr/endpoints

Table 4-373 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request

Table 4-374 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-375 Parameters in the request body

Parameter	Mandatory	Type	Description
endpoint	No	**Endpoint** object	Endpoint details.

Table 4-376 Endpoint

Parameter	Mandatory	Type	Description
description	No	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\

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Parameter	Mandatory	Type	Description
ief_instance_id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
name	Yes	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
properties	Yes	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	Yes	String	Endpoint type. The options are as follows: • dis • servicebus • apigw

Response

When the status code is **201**, the response parameters are as follows.

Table 4-377 Parameters in the response body

Parameter	Type	Description
endpoint	**EndpointResponse** object	Endpoint details.

Table 4-378 EndpointResponse

Parameter	Type	Description
created_at	String	Creation time.

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Parameter	Type	Description
description	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

When the status code is **400**, the response parameters are as follows:

Table 4-379 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **401**, the response parameters are as follows.

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Table 4-380 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-381 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

```
{
  "endpoint" : {
    "name" : "dis_example",
    "type" : "dis",
    "properties" : {
      "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
    }
  }
}
```

Example Response

None

Status Codes

Status Code	Description
201	Creation succeeded.
400	Error response.
401	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

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4.9.3 Querying Details About an Endpoint

Function

This API is used to query details about an endpoint.

URI

GET /v2/{project_id}/routemgr/endpoints/{endpoint_id}

Table 4-382 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
endpoint_id	Yes	String	Endpoint ID.

Request

Table 4-383 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-384 Parameters in the response body

Parameter	Type	Description
endpoint	**EndpointResponse** object	Endpoint details.

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Table 4-385 EndpointResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

When the status code is **401**, the response parameters are as follows.

Table 4-386 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

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When the status code is **404**, the response parameters are as follows.

Table 4-387 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-388 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Query succeeded.
401	Error response.
404	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

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4.9.4 Deleting an Endpoint

Function

This API is used to delete an endpoint.

URI

DELETE /v2/{project_id}/routemgr/endpoints/{endpoint_id}

Table 4-389 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
endpoint_id	Yes	String	Endpoint ID.

Request

Table 4-390 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **401**, the response parameters are as follows.

Table 4-391 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.

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Parameter	Type	Description
error_message	String	Error message.

When the status code is **404**, the response parameters are as follows.

Table 4-392 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-393 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

Status Codes

Status Code	Description
204	Deletion succeeded.
401	Error response.
404	Error response.
500	Error response.

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Error Codes

For details, see **Error Codes**.

4.10 Rule Management

4.10.1 Querying a List of Rules

Function

This API is used to query all rules.

URI

GET /v2/{project_id}/routemgr/rules?{name=xxx,limit=xxx,offset=xxx}

Table 4-394 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-395 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Rule name.
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.

Request

Table 4-396 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-397 Parameters in the response body

Parameter	Type	Description
count	Long	Number of rules that meet the conditions.
rules	Array of **RuleResponse** objects	Rule list.

Table 4-398 RuleResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Rule description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
fail_messages	Integer	Number of messages that fail to be forwarded.
id	String	Rule ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
in_using	Boolean	Whether to enable the rule. The default value is **true**, indicating that the rule is enabled.
name	String	Rule name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The rule name must be unique in the account.

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Parameter	Type	Description
project_id	String	Project ID.
source	**EndpointResponse** object	Source endpoint information.
source_resource	Map<String,Object>	Source endpoint resource. Example: • rest: {"path":"<standard uri format>"} • eventbus: {"topic": "<project id>/nodes/<node id>/user/<Customized character string that meets the Eventbus topic requirements>","node_id":"<Node ID>"}
success_messages	Integer	Number of messages that are successfully forwarded.
target	**EndpointResponse** object	Destination endpoint information.
target_resource	Map<String,Object>	Destination endpoint resource. Example: • dis: {"channel": "dis channel name"} • servicebus: {"path": "/request path"} • apigw: {"resource": "http://ssss.com"} • eventbus: {"topic": "/xxxx"}
updated_at	String	Update time.

Table 4-399 EndpointResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.

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Parameter	Type	Description
name	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

When the status code is **401**, the response parameters are as follows.

Table 4-400 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-401 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

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Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Query succeeded.
401	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.10.2 Creating a Rule

Function

This API is used to create a rule.

URI

POST /v2/{project_id}/routemgr/rules

Table 4-402 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request

Table 4-403 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-404 Parameters in the request body

Parameter	Mandatory	Type	Description
rule	No	**Rule** object	Rule details.

Table 4-405 Rule

Parameter	Mandatory	Type	Description
description	No	String	Rule description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
ief_instance_id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
in_using	No	Boolean	Whether to enable the rule. The default value is **true**, indicating that the rule is enabled.
name	Yes	String	Rule name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The rule name must be unique in the account.
source	Yes	String	Source endpoint ID.

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Parameter	Mandatory	Type	Description
source_resource	Yes	Map<String,Object>	Source endpoint resource. Example: • **rest**: The value of **path** must be in the standard URI format. {"path":"/a/b/c"} • **eventbus**: {"topic": "<project id>/nodes/<node id>/user/<Customized character string that meets the Eventbus topic requirements>","node_id":"<Node ID>"}
target	Yes	String	Destination endpoint ID.
target_resource	Yes	Map<String,Object>	Destination endpoint resource. Example: • dis: {"channel": "dis channel name"} • servicebus: {"path": "/request path"} • apigw: {"resource": "http://ssss.com"} • eventbus: {"topic": "/xxxx"}

Response

When the status code is **201**, the response parameters are as follows.

Table 4-406 Parameters in the response body

Parameter	Type	Description
rule	**RuleResponse** object	Rule details.

Table 4-407 RuleResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Rule description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
fail_messages	Integer	Number of messages that fail to be forwarded.

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Parameter	Type	Description
id	String	Rule ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
in_using	Boolean	Whether to enable the rule. The default value is **true**, indicating that the rule is enabled.
name	String	Rule name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The rule name must be unique in the account.
project_id	String	Project ID.
source	**EndpointResponse** object	Source endpoint information.
source_resource	Map<String,Object>	Source endpoint resource. Example: • rest: {"path":"<standard uri format>"} • eventbus: {"topic": "<project id>/nodes/<node id>/user/<Customized character string that meets the Eventbus topic requirements>","node_id":"<Node ID>"}
success_messages	Integer	Number of messages that are successfully forwarded.
target	**EndpointResponse** object	Destination endpoint information.
target_resource	Map<String,Object>	Destination endpoint resource. Example: • dis: {"channel": "dis channel name"} • servicebus: {"path": "/request path"} • apigw: {"resource": "http://ssss.com"} • eventbus: {"topic": "/xxxx"}
updated_at	String	Update time.

Table 4-408 EndpointResponse

Parameter	Type	Description
created_at	String	Creation time.

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Parameter	Type	Description
description	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

When the status code is **400**, the response parameters are as follows:

Table 4-409 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **401**, the response parameters are as follows.

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Table 4-410 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-411 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

```
{
  "rule" : {
    "name" : "haha",
    "source" : "88626dd0-0616-47c0-9980-e702e0fb8f7c",
    "source_resource" : {
      "topic" : "d16e6eb6cc0d49a0941df2f31285757a/device/c978f393-d80a-4aa0-b182-ec8ae879bab8/
messages/#",
      "node_id" : "f90347b6-9659-4f8b-a839-f9396696b2fb"
    },
    "target" : "e7d02d47-961d-4e65-9f15-856272983ca9",
    "target_resource" : {
      "channel" : "AAA"
    }
  }
}
```

Example Response

None

Status Codes

Status Code	Description
201	Creation succeeded.
400	Error response.
401	Error response.
500	Error response.

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Error Codes

For details, see **Error Codes**.

4.10.3 Querying Details About a Rule

Function

This API is used to query details about a rule.

URI

GET /v2/{project_id}/routemgr/rules/{rule_id}

Table 4-412 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
rule_id	Yes	String	Rule ID.

Request

Table 4-413 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

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Table 4-414 Parameters in the response body

Parameter	Type	Description
rule	**RuleResponse** object	Rule details.

Table 4-415 RuleResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Rule description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
fail_messages	Integer	Number of messages that fail to be forwarded.
id	String	Rule ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
in_using	Boolean	Whether to enable the rule. The default value is **true**, indicating that the rule is enabled.
name	String	Rule name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The rule name must be unique in the account.
project_id	String	Project ID.
source	**EndpointResponse** object	Source endpoint information.
source_resource	Map<String,Object>	Source endpoint resource. Example: • rest: {"path":"<standard uri format>"} • eventbus: {"topic": "<project id>/nodes/<node id>/user/<Customized character string that meets the Eventbus topic requirements>","node_id":"<Node ID>"}
success_messages	Integer	Number of messages that are successfully forwarded.
target	**EndpointResponse** object	Destination endpoint information.

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Parameter	Type	Description
target_resource	Map<String,Object>	Destination endpoint resource. Example: • dis: {"channel": "dis channel name"} • servicebus: {"path": "/request path"} • apigw: {"resource": "http://ssss.com"} • eventbus: {"topic": "/xxxx"}
updated_at	String	Update time.

Table 4-416 EndpointResponse

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed. The endpoint name must be unique in the account.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}

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Parameter	Type	Description
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

When the status code is **401**, the response parameters are as follows.

Table 4-417 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **404**, the response parameters are as follows.

Table 4-418 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-419 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

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Example Response

None

Status Codes

Status Code	Description
200	Query succeeded.
401	Error response.
404	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.10.4 Deleting a Rule

Function

This API is used to delete a rule.

URI

DELETE /v2/{project_id}/routemgr/rules/{rule_id}

Table 4-420 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
rule_id	Yes	String	Rule ID.

Request

Table 4-421 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **401**, the response parameters are as follows.

Table 4-422 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **404**, the response parameters are as follows.

Table 4-423 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-424 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

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Example Request

None

Example Response

None

Status Codes

Status Code	Description
204	Deletion succeeded.
401	Error response.
404	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.10.5 Querying All Errors of a Rule

Function

This API is used to query all errors of a specified rule.

URI

GET /v2/{project_id}/routemgr/rules/{rule_id}/errors?{limit=xxx,offset=xxx}

Table 4-425 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
rule_id	Yes	String	Rule ID.

Table 4-426 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Maximum number of records that can be returned.

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Parameter	Mandatory	Type	Description
offset	No	Integer	Offset. The records after this offset will be queried.

Request

Table 4-427 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-428 Parameters in the response body

Parameter	Type	Description
count	Long	Number of errors that meet the conditions.
errors	Array of **Error** objects	Error list.

Table 4-429 Error

Parameter	Type	Description
detail	String	Error details.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Parameter	Type	Description
project_id	String	Project ID.
rule_id	String	Rule ID.
time	String	Time when an error occurs.

When the status code is **401**, the response parameters are as follows.

Table 4-430 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-431 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Query succeeded.
401	Error response.
500	Error response.

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Error Codes

For details, see **Error Codes**.

4.10.6 Enabling a Rule

Function

This API is used to enable a rule.

URI

POST /v2/{project_id}/routemgr/rules/{rule_id}/start

Table 4-432 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
rule_id	Yes	String	Rule ID.

Request

Table 4-433 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **400**, the response parameters are as follows:

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Table 4-434 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **401**, the response parameters are as follows.

Table 4-435 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-436 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

Status Codes

Status Code	Description
201	Enabled.
400	Error response.
401	Error response.

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Status Code	Description
500	Error response.

Error Codes

For details, see **Error Codes**.

4.10.7 Disabling a Rule

Function

This API is used to disable a rule.

URI

POST /v2/{project_id}/routemgr/rules/{rule_id}/stop

Table 4-437 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
rule_id	Yes	String	Rule ID.

Request

Table 4-438 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Response

When the status code is **400**, the response parameters are as follows:

Table 4-439 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **401**, the response parameters are as follows.

Table 4-440 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-441 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

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Status Codes

Status Code	Description
201	Disabled.
400	Error response.
401	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.11 System Subscription Event Management

4.11.1 Querying the System Subscription Event List

Function

This API is used to query the system subscription event list.

URI

GET /v2/{project_id}/routemgr/exchanger/systemevents

Table 4-442 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-443 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	System subscription event name.
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.

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Request

Table 4-444 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

Status code: 200

Table 4-445 Parameter in the response body

Parameter	Type	Description
count	Integer	Quantity.
systemevents	Array of **Event** objects	Details of system subscription events.

Table 4-446 Event

Parameter	Type	Description
id	String	System subscription event ID.
name	String	System subscription event name. The value can contain a maximum of 64 characters, including lowercase letters, digits, underscores (_), and hyphens (-). Names of system subscription events and message rules created under the same account must be unique.
project_id	String	ID of the project to which the system subscription event belongs.
created_at	String	Creation time.

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Parameter	Type	Description
updated_at	String	Update time.
description	String	Description. The value can contain a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
in_using	Boolean	Whether the system subscription rule is enabled. The default value is **true**, indicating that the rule is enabled.
events	String	System subscription event topic. Each topic consists of *edge resource/operation*. Multiple topics are separated by commas (,). The following topics are supported: • **edgeNode/offline**: node offline • **edgeNode/online**: node online • **edgeNode/all**: node offline and node online • **deployment/created**: containerized application creation • **deployment/updated**: containerized application update • **deployment/deleted**: containerized application deletion • **deployment/all**: containerized application creation, update, and deletion • **instance/created**: application instance creation • **instance/updated**: application instance update • **instance/deleted**: application instance deletion • **instance/all**: application instance creation, update, and deletion
target	**EndpointObjResp** object	Destination endpoint.
target_resource	Map<String,String>	Destination endpoint's resource attribute.
success_messages	Integer	Times that messages are successfully sent
fail_messages	Integer	Times that messages failed to send
delete_at	Integer	Deletion time.

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Table 4-447 EndpointObjResp

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value can contain a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-). Endpoint names created under the same account must be unique.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

Example Request

None

Example Response

Status code: 200

Query succeeded.


```
{
  "count" : 2,
  "systemevents" : [ {
    "id" : "e99ec7d8-82ab-4950-a05b-0e3fcefb4b38",
    "project_id" : "xxx",
    "created_at" : "2022-09-14T17:20:43.642043+08:00",
    "updated_at" : "2022-09-14T17:20:43.642043+08:00",
    "name" : "test1",
    "description" : "",
```


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```
    "in_using" : true,
    "events" : "edgeNode/offline",
    "target" : {
      "name" : "test-huyurui",
      "description" : "",
      "type" : "apigw",
      "properties" : {
        "domain_id" : "d0857ebddc514a7381c3673363e61337"
      },
      "ief_instance_id" : "",
      "is_shared" : false,
      "id" : "0ee2e86e-1912-4144-be5a-d9153347d8c2",
      "project_id" : "xxxx",
      "created_at" : "2022-09-14T15:44:04.755785+08:00",
      "updated_at" : "2022-09-14T15:44:04.755785+08:00"
    },
    "target_resource" : {
      "resource" : "xxxx"
    },
    "fail_messages" : 14,
    "success_messages" : 0,
    "delete_at" : 0
  }, {
    "id" : "8683a0db-54ad-43a7-bbda-9937d1abe117",
    "project_id" : "xxxx",
    "created_at" : "2022-08-27T12:40:55.875613+08:00",
    "updated_at" : "2022-08-27T12:40:55.875613+08:00",
    "name" : "instcreated",
    "description" : "",
    "in_using" : true,
    "events" : "instance/created",
    "target" : {
      "name" : "apigw",
      "description" : "",
      "type" : "apigw",
      "properties" : {
        "domain_id" : "d0857ebddc514a7381c3673363e61337"
      },
      "ief_instance_id" : "a",
      "is_shared" : false,
      "id" : "591ba510-8c62-41b8-a0c3-d94262ef97ef",
      "project_id" : "xxxxx",
      "created_at" : "2022-06-02T11:15:26.29972+08:00",
      "updated_at" : "2022-06-02T11:15:26.29972+08:00"
    },
    "target_resource" : {
      "resource" : "xxxxx"
    },
    "fail_messages" : 23,
    "success_messages" : 0,
    "delete_at" : 0
  } ]
}
```


Status Codes

Status Code	Description
200	Query succeeded.

Error Codes

For details, see **Error Codes**.

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4.11.2 Creating a System Subscription Event

Function

This API is used to create a system subscription event.

URI

POST /v2/{project_id}/routemgr/exchanger/systemevents

Table 4-448 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request

Table 4-449 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Table 4-450 Parameter in the request body

Parameter	Mandatory	Type	Description
systemevent	No	**EventCreateDetail** object	Basic information of the system subscription event.

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Table 4-451 EventCreateDetail

Parameter	Mandatory	Type	Description
name	No	String	System subscription event name. The value can contain a maximum of 64 characters, including lowercase letters, digits, underscores (_), and hyphens (-). Names of system subscription events and message rules created under the same account must be unique.
description	No	String	Description. The maximum length is 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\

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Parameter	Mandatory	Type	Description
events	No	String	System subscription event topic. Each topic consists of *edge resource/operation*. Multiple topics are separated by commas (,). The following topics are supported: • **edgeNode/offline**: node offline • **edgeNode/online**: node online • **edgeNode/all**: node offline and node online • **deployment/created**: containerized application creation • **deployment/updated**: containerized application update • **deployment/deleted**: containerized application deletion • **deployment/all**: containerized application creation, update, and deletion • **instance/created**: application instance creation • **instance/updated**: application instance update • **instance/deleted**: application instance deletion • **instance/all**: application instance creation, update, and deletion
target	No	String	Destination endpoint ID.
target_resource	No	**EndpointResource** object	Destination endpoint resource.

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Table 4-452 EndpointResource

Parameter	Mandatory	Type	Description
resource	No	String	Message endpoint resource. Example: - dis: {"channel": "dis channel name"} - servicebus: {"path": "/request path"} - apigw: {"resource": "http://ssss.com"} - eventbus: {"topic": "/xxxx"}

Response

Status code: 201

Table 4-453 Parameter in the response body

Parameter	Type	Description
systemevent	**Event** object	Details of the system subscription events.

Table 4-454 Event

Parameter	Type	Description
id	String	System subscription event ID.
name	String	System subscription event name. The value can contain a maximum of 64 characters, including lowercase letters, digits, underscores (_), and hyphens (-). Names of system subscription events and message rules created under the same account must be unique.
project_id	String	ID of the project to which the system subscription event belongs.
created_at	String	Creation time.
updated_at	String	Update time.
description	String	Description. The value can contain a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
in_using	Boolean	Whether the system subscription rule is enabled. The default value is **true**, indicating that the rule is enabled.

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Parameter	Type	Description
events	String	System subscription event topic. Each topic consists of *edge resource/operation*. Multiple topics are separated by commas (,). The following topics are supported: • **edgeNode/offline**: node offline • **edgeNode/online**: node online • **edgeNode/all**: node offline and node online • **deployment/created**: containerized application creation • **deployment/updated**: containerized application update • **deployment/deleted**: containerized application deletion • **deployment/all**: containerized application creation, update, and deletion • **instance/created**: application instance creation • **instance/updated**: application instance update • **instance/deleted**: application instance deletion • **instance/all**: application instance creation, update, and deletion
target	**EndpointObjResp** object	Destination endpoint.
target_resource	Map<String,String>	Destination endpoint's resource attribute.
success_messages	Integer	Successful requests.
fail_messages	Integer	Failed requests.
delete_at	Integer	Deletion time.

Table 4-455 EndpointObjResp

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value can contain a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\

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Parameter	Type	Description
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-). Endpoint names created under the same account must be unique.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

Example Request

A system subscription event with the node online topic is created.

```
{
  "systemevent" : {
    "name" : "aa",
    "description" : "",
    "events" : "edgeNode/online",
    "target_resource" : {
      "resource" : "https://www.fake.com"
    },
    "target" : "591ba510-8c62-41b8-a0c3-d94262ef97ef"
  }
}
```

Example Response

Status code: 201

Creation succeeded.

```
{
  "systemevent" : {
    "id" : "b79f4d8e-4549-4da4-9a9c-a9d13452c7d6",
    "project_id" : "ed202955e111444e8ced21a1bd75fc59",
    "created_at" : "2022-11-02T07:17:01.372735871Z",
    "updated_at" : "2022-11-02T07:17:01.372735998Z",
```

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```
  "name" : "aa",
  "description" : "",
  "in_using" : true,
  "events" : "edgeNode/online",
  "target" : {
    "name" : "apigw",
    "description" : "",
    "type" : "apigw",
    "properties" : {
      "domain_id" : "d0857ebddc514a7381c3673363e61337"
    },
    "ief_instance_id" : "38898a99-d67c-41f8-a8cb-8c53d6d297ba",
    "is_shared" : false,
    "id" : "591ba510-8c62-41b8-a0c3-d94262ef97ef",
    "project_id" : "ed202955e111444e8ced21a1bd75fc59",
    "created_at" : "2022-06-02T11:15:26.29972+08:00",
    "updated_at" : "2022-06-02T11:15:26.29972+08:00"
  },
  "target_resource" : {
    "resource" : "https://www.fake.com"
  },
  "fail_messages" : 0,
  "success_messages" : 0,
  "delete_at" : 0
 }
}
```


Status Codes

Status Code	Description
201	Creation succeeded.

Error Codes

For details, see **Error Codes**.

4.11.3 Querying the System Subscription Event List

Function

This API is used to query the system subscription event list.

URI

GET /v2/{project_id}/routemgr/exchanger/systemevents/{event_id}

Table 4-456 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
event_id	Yes	String	System subscription event name.

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Request

Table 4-457 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

Status code: 200

Table 4-458 Parameter in the response body

Parameter	Type	Description
systemevent	**Event** object	Details of the system subscription events.

Table 4-459 Event

Parameter	Type	Description
id	String	System subscription event ID.
name	String	System subscription event name. The value can contain a maximum of 64 characters, including lowercase letters, digits, underscores (_), and hyphens (-). Names of system subscription events and message rules created under the same account must be unique.
project_id	String	ID of the project to which the system subscription event belongs.
created_at	String	Creation time.
updated_at	String	Update time.

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Parameter	Type	Description
description	String	Description. The value can contain a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
in_using	Boolean	Whether the system subscription rule is enabled. The default value is **true**, indicating that the rule is enabled.
events	String	System subscription event topic. Each topic consists of *edge resource/operation*. Multiple topics are separated by commas (,). The following topics are supported: • **edgeNode/offline**: node offline • **edgeNode/online**: node online • **edgeNode/all**: node offline and node online • **deployment/created**: containerized application creation • **deployment/updated**: containerized application update • **deployment/deleted**: containerized application deletion • **deployment/all**: containerized application creation, update, and deletion • **instance/created**: application instance creation • **instance/updated**: application instance update • **instance/deleted**: application instance deletion • **instance/all**: application instance creation, update, and deletion
target	**EndpointObjResp** object	Destination endpoint.
target_resource	Map<String,String>	Destination endpoint's resource attribute.
success_messages	Integer	Times that messages are successfully sent
fail_messages	Integer	Times that messages failed to send
delete_at	Integer	Deletion time.

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Table 4-460 EndpointObjResp

Parameter	Type	Description
created_at	String	Creation time.
description	String	Endpoint description. The value can contain a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
id	String	Endpoint ID.
ief_instance_id	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
is_shared	Boolean	Whether the endpoint is shared.
name	String	Endpoint name. The value can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-). Endpoint names created under the same account must be unique.
project_id	String	Project ID.
properties	Map<String,Object>	Endpoint properties to be displayed. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
type	String	Endpoint type. The options are as follows: • dis • servicebus • apigw
updated_at	String	Update time.

Example Request

None

Example Response

Status code: 200

Query succeeded.

```
{
  "systemevent" : {
    "id" : "e99ec7d8-82ab-4950-a05b-0e3fcefb4b38",
    "project_id" : "xxx",
    "created_at" : "2022-09-14T17:20:43.642043+08:00",
    "updated_at" : "2022-09-14T17:20:43.642043+08:00",
    "name" : "test1",
    "description" : "",
    "in_using" : true,
```


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```
  "events" : "edgeNode/offline",
  "target" : {
    "name" : "test-huyurui",
    "description" : "",
    "type" : "apigw",
    "properties" : {
      "domain_id" : "d0857ebddc514a7381c3673363e61337"
    },
    "ief_instance_id" : "",
    "is_shared" : false,
    "id" : "0ee2e86e-1912-4144-be5a-d9153347d8c2",
    "project_id" : "xxxx",
    "created_at" : "2022-09-14T15:44:04.755785+08:00",
    "updated_at" : "2022-09-14T15:44:04.755785+08:00"
  },
  "target_resource" : {
    "resource" : "xxxx"
  },
  "fail_messages" : 14,
  "success_messages" : 0,
  "delete_at" : 0
 }
}
```


Status Codes

Status Code	Description
200	Query succeeded.

Error Codes

For details, see **Error Codes**.

4.11.4 Deleting the System Subscription Event List

Function

This API is used to delete a system subscription event list.

URI

DELETE /v2/{project_id}/routemgr/exchanger/systemevents/{event_id}

Table 4-461 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
event_id	Yes	String	System subscription event name.

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Request

Table 4-462 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

None

Example Request

None

Example Response

None

Status Codes

Status Code	Description
204	Deletion succeeded.

Error Codes

For details, see **Error Codes**.

4.11.5 Enabling a System Subscription Event

Function

This API is used to enable a system subscription event.

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URI

POST /v2/{project_id}/routemgr/exchanger/systemevents/{event_id}/start

Table 4-463 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
event_id	Yes	String	System subscription event ID.

Request

Table 4-464 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

None

Example Request

None

Example Response

None

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Status Codes

Status Code	Description
200	Enabled.

Error Codes

For details, see **Error Codes**.

4.11.6 Disabling a System Subscription Event

Function

This API is used to disable a system subscription event.

URI

POST /v2/{project_id}/routemgr/exchanger/systemevents/{event_id}/stop

Table 4-465 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
event_id	Yes	String	System subscription event ID.

Request

Table 4-466 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

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Response

None

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Disabled.

Error Codes

For details, see **Error Codes**.

4.12 Batch Node Management

4.12.1 Creating a Batch Node Registration Job

Function

This API is used to create a batch node registration job. After the API is successfully called, you can use Base64 to decode the **product.package** field in the response body into a tar.gz product certificate file, download the edge registration software edge-register and edge-installer from the IEF console, and use the product certificate to manage edge nodes in batches.

URI

POST /v2/{project_id}/productmgr/products

Table 4-467 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

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Request

Table 4-468 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Table 4-469 Parameter in the request body

Parameter	Mandatory	Type	Description
product	Yes	**ProductRequest** object	Basic product information.

Table 4-470 ProductRequest

Parameter	Mandatory	Type	Description
name	Yes	String	Product name. The value can contain a maximum of 26 characters, including lowercase letters, digits, and hyphens (-), but cannot start or end with a hyphen (-).
description	No	String	Product description.
attributes	No	Map<String,**ProductAttributes**>	Product attributes.
tags	No	Array of **Attributes** objects	Product tags.

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Table 4-471 ProductAttributes

Parameter	Mandatory	Type	Description
value	No	String	Product attribute.
metadata	No	**ProductMetadata** object	Basic information about product attributes.

Table 4-472 ProductMetadata

Parameter	Mandatory	Type	Description
type	No	String	Product attribute type.

Table 4-473 Attributes

Parameter	Mandatory	Type	Description
key	No	String	Key of a node property. The key can contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	No	String	Value of a node property. The value can contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Response

Status code: 201

Table 4-474 Parameter in the response body

Parameter	Type	Description
product	**ProductResponse** object	Product response parameters.

Table 4-475 ProductResponse

Parameter	Type	Description
id	String	Product ID.

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Parameter	Type	Description
name	String	Product name.
description	String	Product description.
attributes	Map<String,**ProductAttributes**>	Product attributes.
project_id	String	Project ID of the account to which the product belongs.
created_at	Integer	Product creation time.
tags	Array of **Attributes** objects	Product tags.
private_key	String	Product private key.
certificate	String	Product certificate.
ca	String	Product root certificate.
package	String	Base64-encoded character string of the **certificate/ca/private_key** file. Before use, decode it into a .tar.gz package using Base64.
identifier	String	Credential used when a product is registered using a token.

Table 4-476 ProductAttributes

Parameter	Type	Description
value	String	Product attribute.
metadata	**ProductMetadata** object	Basic information about product attributes.

Table 4-477 ProductMetadata

Parameter	Type	Description
type	String	Product attribute type.

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Table 4-478 Attributes

Parameter	Type	Description
key	String	Key of a node property. The key can contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a node property. The value can contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Example Request

A batch node registration job is created. The product name is test.

```
{
  "product" : {
    "name" : "test",
    "description" : "",
    "attributes" : { },
    "tags" : [ ]
  }
}
```

Example Response

Status code: 201

Creation succeeded.

```
{
  "product" : {
    "id" : "52b7e862-7b86-4b4d-b805-f580c4a25b0b",
    "name" : "a",
    "description" : "",
    "attributes" : { },
    "project_id" : "ed202955e111444e8ced21a1bd75fc59",
    "created_at" : 1667214079,
    "private_key" : "",
    "certificate" : "",
    "ca" : "",
    "package" : ""
  }
}
```

Status Codes

Status Code	Description
201	Creation succeeded.

Error Codes

For details, see **Error Codes**.

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4.12.2 Querying the Batch Node Registration Job List

Function

This API is used to query the batch node registration job list.

URI

GET /v2/{project_id}/productmgr/products

Table 4-479 Path parameter

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-480 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.
sort	No	String	How the queried items are sorted and displayed. Use colons (:) to separate the reference value and sequence. For example, **sort=created_at%3Adesc** indicates that items are sorted by creation time in reverse order.

Request

Table 4-481 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.

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Parameter	Mandatory	Type	Description
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

Status code: 200

Table 4-482 Parameter in the response body

Parameter	Type	Description
count	Integer	Number of product jobs.
products	Array of **Product** objects	Product job details.

Table 4-483 Product

Parameter	Type	Description
id	String	Product ID.
name	String	Product name.
description	String	Product description.
attributes	Map<String,**ProductAttributes**>	Product attributes.
project_id	String	Project ID of the account to which the product belongs.
created_at	Integer	Time when a product was created.
tags	Array of **Attributes** objects	Product tags.

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Table 4-484 ProductAttributes

Parameter	Type	Description
value	String	Product attribute.
metadata	**ProductMetadata** object	Basic information about product attributes.

Table 4-485 ProductMetadata

Parameter	Type	Description
type	String	Product attribute type.

Table 4-486 Attributes

Parameter	Type	Description
key	String	Key of a node property. The key can contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a node property. The value can contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Example Request

None

Example Response

Status code: 200

Creation succeeded.

```
{
  "count" : 1,
  "products" : [ {
    "id" : "52b7e862-7b86-4b4d-b805-f580c4a25b0b",
    "name" : "a",
    "description" : "",
    "attributes" : { },
    "project_id" : "ed202955e111444e8ced21a1bd75fc59",
    "created_at" : 1667214079
  } ]
}
```


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Status Codes

Status Code	Description
200	Creation succeeded.

Error Codes

For details, see **Error Codes**.

4.12.3 Deleting a Batch Node Registration Job

Function

This API is used to delete a batch node registration job. After this API is successfully called, the credential used for this batch registration job becomes invalid.

URI

DELETE /v2/{project_id}/productmgr/products/{product_id}

Table 4-487 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
product_id	Yes	String	Batch node registration job ID.

Request

Table 4-488 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

None

Example Request

None

Example Response

None

Status Codes

Status Code	Description
204	Deletion succeeded.

Error Codes

For details, see **Error Codes**.

4.12.4 Querying Details About a Batch Node Registration Job

Function

This API is used to query details about a batch node registration job. It cannot be used to query the product certificate file.

URI

GET /v2/{project_id}/productmgr/products/{product_id}

Table 4-489 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
product_id	Yes	String	Batch node registration job ID.

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Request

Table 4-490 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

Status code: 200

Table 4-491 Parameter in the response body

Parameter	Type	Description
product	**Product** object	Product job details.

Table 4-492 Product

Parameter	Type	Description
id	String	Product ID.
name	String	Product name.
description	String	Product description.
attributes	Map<String,**ProductAttributes**>	Product attributes.
project_id	String	Project ID of the account to which the product belongs.
created_at	Integer	Time when a product was created.
tags	Array of **Attributes** objects	Product tags.

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Table 4-493 ProductAttributes

Parameter	Type	Description
value	String	Product attributes.
metadata	**ProductMetadata** object	Basic information about product attributes.

Table 4-494 ProductMetadata

Parameter	Type	Description
type	String	Product attribute type.

Table 4-495 Attributes

Parameter	Type	Description
key	String	Key of a node property. The key can contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a node property. The value can contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Example Request

None

Example Response

Status code: 200

Query succeeded.

```
{
  "product" : {
    "id" : "52b7e862-7b86-4b4d-b805-f580c4a25b0b",
    "name" : "a",
    "description" : "",
    "attributes" : { },
    "project_id" : "ed202955e111444e8ced21a1bd75fc59",
    "created_at" : 1667214079
  }
}
```


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Status Codes

Status Code	Description
200	Query succeeded.

Error Codes

For details, see **Error Codes**.

4.13 Batch Job Management

4.13.1 Creating a Batch Job

Function

This API is used to create a batch job, which can be a batch node upgrade, batch application deployment, or batch application upgrade.

URI

POST /v2/{project_id}/productmgr/jobs

Table 4-496 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request

Table 4-497 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

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Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Table 4-498 Parameters in the request body

Parameter	Mandatory	Type	Description
job_name	Yes	String	Batch job name. The value can contain a maximum of 26 characters, including lowercase letters, digits, and hyphens (-), but cannot start or end with a hyphen (-).
job_type	Yes	String	Batch job type, including: • **node_upgrade**: node upgrade • **deployment_deploy**: application deployment • **deployment_upgrade**: application upgrade
job_content	No	**JobContentInfo** object	Batch job details.
description	No	String	Batch job description.
tags	No	Array of **Attributes** objects	Batch job tags.

Table 4-499 JobContentInfo

Parameter	Mandatory	Type	Description
target_type	No	String	Type of the batch job target, including: • **node**: edge node • **node_group**: edge node group • **deployment**: edge application
targets	No	Array of **Target** objects	Batch job target details.

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Parameter	Mandatory	Type	Description
task_data	No	String	Batch job content. This parameter is mandatory only for a batch application deployment or upgrade. The value is the **deployment** parameter value in the request body of the API for creating a deployment compiled in the JSON format, and must be converted into a string.

Table 4-500 Target

Parameter	Mandatory	Type	Description
extension_info	No	Array of **Extension** objects	Basic information about the batch job target.
target_id	Yes	String	Batch job target ID.

Table 4-501 Extension

Parameter	Mandatory	Type	Description
key	No	String	Attribute name. The value can be **node_name**.
value	No	String	Attribute value.

Table 4-502 Attributes

Parameter	Mandatory	Type	Description
key	No	String	Key of a node property. The key can contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	No	String	Value of a node property. The value can contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

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Response

Status code: 201

Table 4-503 Parameters in the response body

Parameter	Type	Description
job_id	String	Batch job ID.
job_name	String	Batch job name.
created_at	Integer	Batch job creation time.

Example Request

A batch application deployment job is created. The batch job target type is edge node.

```
{
  "job_name" : "aaa",
  "job_type" : "deployment_deploy",
  "job_content" : {
    "target_type" : "node",
    "targets" : [ {
      "target_id" : "72eb5df1-295b-41f6-baed-d1a56728b0e0",
      "extension_info" : [ {
        "key" : "node_name",
        "value" : "test1"
      } ]
    }, {
      "target_id" : "b1c0e722-ee98-4ae3-9224-881224cb32c9",
      "extension_info" : [ {
        "key" : "node_name",
        "value" : "test-node"
      } ]
    } ],
    "task_data" : "{\"deployment\":{\"replicas\":1,\"template\":{\"configs\":{\"host_network
\":false,\"restart_policy\":\"Always\",\"host_pid\":false},\"containers\":[{\"name
\":\"container-06fefd36\",\"version\":\"latest\",\"image_url\":\"sample:latest\",\"envs\":[],\"volumes\":
[],\"resources\":{\"limits\":{\"cpu\":\"0.25\",\"memory\":\"512\"},\"requests\":{\"cpu\":\"0.25\",\"memory
\":\"512\"}},\"privileged\":false,\"ports\":[]}]}},\"source\":\"userdefined\",\"name_prex\":\"aaa\",\"tags\":
[],\"description\":\"\"}"
  },
  "tags" : [ ],
  "description" : ""
}
```

Example Response

Status code: 201

Creation succeeded.

```
{
  "job_name" : "aaa",
  "job_id" : "66273c66-f72e-4607-8769-3663d255fb83",
  "created_at" : 1667218308
}
```


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Status Codes

Status Code	Description
201	Creation succeeded.

Error Codes

For details, see **Error Codes**.

4.13.2 Querying the List of Batch Jobs

Function

This API is used to query the list of batch jobs.

URI

GET /v2/{project_id}/productmgr/jobs

Table 4-504 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-505 Query parameters

Parameter	Mandatory	Type	Description
job_type	No	String	Batch job type, including: • **node_upgrade**: node upgrade • **deployment_deploy**: application deployment • **deployment_upgrade**: application upgrade
limit	No	Integer	Maximum number of records that can be returned.
offset	No	Integer	Offset. The records after this offset will be queried.

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Parameter	Mandatory	Type	Description
sort	No	String	Sorting style of the query results. **created_at:desc** indicates that the query results are sorted by creation time in descending order. **created_at:asc** indicates that the query results are sorted by creation time in ascending order.

Request

Table 4-506 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

Status code: 200

Table 4-507 Parameters in the response body

Parameter	Type	Description
job_count	Integer	Batch job quantity.
jobs	Array of **BatchJobForList** objects	Batch job details.

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Table 4-508 BatchJobForList

Parameter	Type	Description
job_id	String	Batch job ID.
job_name	String	Batch job name.
job_type	String	Batch job type, including: • **node_upgrade**: node upgrade • **deployment_deploy**: application deployment • **deployment_upgrade**: application upgrade
created_at	Integer	Creation time.
status	String	Execution status.
task_total_count	Integer	Total number of tasks.
task_success_count	Integer	Number of successfully tasks.
task_failed_count	Integer	Number of failed tasks.
status_last_updated_at	Integer	Time when the status was updated.
description	String	Task description.

Example Request

None

Example Response

Status code: 200

Query succeeded.


```
{
  "job_count" : 2,
  "jobs" : [ {
    "job_name" : "aaa",
    "job_type" : "deployment_deploy",
    "job_id" : "66273c66-f72e-4607-8769-3663d255fb83",
    "status" : "Successful",
    "created_at" : 1667218308,
    "status_last_updated_at" : 1667218329,
    "task_total_count" : 2,
    "task_failed_count" : 0,
    "task_success_count" : 2,
    "description" : ""
  }, {
    "job_name" : "test0929-pm",
    "job_type" : "deployment_deploy",
```


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```
    "job_id" : "0a95c8df-eab5-4a8b-a63b-df9f208ad0ce",
    "status" : "Successful",
    "created_at" : 1664444410,
    "status_last_updated_at" : 1664444411,
    "task_total_count" : 1,
    "task_failed_count" : 0,
    "task_success_count" : 1,
    "description" : ""
  } ]
}
```


Status Codes

Status Code	Description
200	Query succeeded.

Error Codes

For details, see **Error Codes**.

4.13.3 Querying Details of a Batch Job

Function

This API is used to query details of a batch job.

URI

GET /v2/{project_id}/productmgr/jobs/{job_id}

Table 4-509 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
job_id	Yes	String	Batch job ID.

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Request

Table 4-510 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

Status code: 200

Table 4-511 Parameters in the response body

Parameter	Type	Description
job_id	String	Batch job ID.
job_name	String	Batch job name.
job_type	String	Batch job type, including **node_upgrade** (node upgrade), **deployment_deploy** (application deployment), and **deployment_upgrade** (application upgrade).
description	String	Description
created_at	Integer	Creation time.
status	String	Execution status.
task_total_count	Integer	Total number of tasks.
task_failed_count	Integer	Number of successfully tasks.
task_success_count	Integer	Number of failed tasks.

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Parameter	Type	Description
target_type	String	Batch job target type, including **node** (edge node), **node_group** (edge node group), and **deployment** (edge application).
task_data	String	Batch job content. This parameter is mandatory only for batch application deployment and upgrade. The value is the **deployment** parameter in the request body of the API for creating a deployment compiled in the JSON format. The value should be converted into a string.
tasks	Array of **Task** objects	Details of job tasks.
targets	Array of **Target** objects	Batch job target details.
status_last_updated_at	Integer	Time when the status was updated.

Table 4-512 Task

Parameter	Type	Description
task_id	String	Task ID.
task_name	String	Task name.
status	String	Task status.
reason	String	Task failure cause.
created_at	Integer	Creation time.
target_id	String	Batch job target ID.
extension_info	Array of **Extension** objects	Basic information about the batch job target.

Table 4-513 Target

Parameter	Type	Description
extension_info	Array of **Extension** objects	Basic information about the batch job target.
target_id	String	Batch job target ID.

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Table 4-514 Extension

Parameter	Type	Description
key	String	Attribute name. The value can be **node_name**.
value	String	Attribute value.

Example Request

None

Example Response

Status code: 200

Query succeeded.


```
{
  "job_name" : "aaa",
  "job_id" : "66273c66-f72e-4607-8769-3663d255fb83",
  "job_type" : "deployment_deploy",
  "target_type" : "node",
  "description" : "",
  "targets" : [ {
    "target_id" : "72eb5df1-295b-41f6-baed-d1a56728b0e0",
    "extension_info" : [ {
      "key" : "node_name",
      "value" : "test1"
    } ]
  }, {
    "target_id" : "b1c0e722-ee98-4ae3-9224-881224cb32c9",
    "extension_info" : [ {
      "key" : "node_name",
      "value" : "test2"
    } ]
  } ],
  "task_data" : "{\"deployment\":{\"replicas\":1,\"template\":{\"configs\":{\"host_network
\":false,\"restart_policy\":\"Always\",\"host_pid\":false},\"containers\":[{\"name
\":\"container-06fefd36\",\"version\":\"latest\",\"image_url\":\"sample:latest\",\"envs\":[],\"volumes\":
[],\"resources\":{\"limits\":{\"cpu\":\"0.25\",\"memory\":\"512\"},\"requests\":{\"cpu\":\"0.25\",\"memory
\":\"512\"}},\"privileged\":false,\"ports\":[]}]}},\"source\":\"userdefined\",\"name_prex\":\"aaa\",\"tags\":
[],\"description\":\"\"}",
  "status" : "Successful",
  "created_at" : 1667218308,
  "status_last_updated_at" : 1667218329,
  "tasks" : [ {
    "task_name" : "aaa-c530d",
    "task_id" : "382cca3e-88e6-4a7c-bf23-b637a99761f9",
    "target_id" : "72eb5df1-295b-41f6-baed-d1a56728b0e0",
    "status" : "Successful",
    "created_at" : 1667218324,
    "reason" : "",
    "extension_info" : [ {
      "key" : "deployment_id",
      "value" : "9bdefd92-c724-41f4-b07a-4b1061e096d6"
    } ]
  }, {
    "task_name" : "aaa-ce854",
    "task_id" : "ac04605b-c286-4f23-97e0-fe08366c36f5",
    "target_id" : "b1c0e722-ee98-4ae3-9224-881224cb32c9",
```


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```
  "status" : "Successful",
  "created_at" : 1667218325,
  "reason" : "",
  "extension_info" : [ {
    "key" : "deployment_id",
    "value" : "4b4c7b0c-7ee8-4a7e-b79e-9291b7fd365d"
  } ]
 } ],
 "task_total_count" : 2,
 "task_failed_count" : 2,
 "task_success_count" : 0
}
```


Status Codes

Status Code	Description
200	Query succeeded.

Error Codes

For details, see **Error Codes**.

4.13.4 Deleting a Batch Job

Function

This API is used to delete a batch job.

URI

DELETE /v2/{project_id}/productmgr/jobs/{job_id}

Table 4-515 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
job_id	Yes	String	Batch job ID.

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Request

Table 4-516 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

None

Example Request

None

Example Response

None

Status Codes

Status Code	Description
204	Deletion succeeded.

Error Codes

For details, see **Error Codes**.

4.13.5 Stopping a Batch Job

Function

This API is used to stop a batch job. It takes effect only for batch jobs in process.

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URI

POST /v2/{project_id}/productmgr/jobs/{job_id}/pause

Table 4-517 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
job_id	Yes	String	Batch job ID.

Request

Table 4-518 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

None

Example Request

None

Example Response

None

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Status Codes

Status Code	Description
200	Stopped successfully.

Error Codes

For details, see **Error Codes**.

4.13.6 Resuming a Batch Job

Function

This API is used to resume a batch job. It takes effect only for stopped batch jobs.

URI

POST /v2/{project_id}/productmgr/jobs/{job_id}/restore

Table 4-519 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
job_id	Yes	String	Batch job ID.

Request

Table 4-520 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

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Response

None

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Resumed successfully.

Error Codes

For details, see **Error Codes**.

4.13.7 Retrying a Batch Job

Function

This API is used to retry a batch job. It takes effect only for failed batch jobs.

URI

POST /v2/{project_id}/productmgr/jobs/{job_id}/retry

Table 4-521 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
job_id	Yes	String	Batch job ID.

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Request

Table 4-522 Parameters in the request header

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.

Response

None

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Retried successfully.

Error Codes

For details, see **Error Codes**.

4.14 Quota Management

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4.14.1 Querying IEF Resource Quotas

Function

This API is used to query IEF resource quotas.

URI

GET /v2/{project_id}/edgemgr/quotas

Table 4-523 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-524 Query parameters

Parameter	Mandatory	Type	Description
types	No	String	Resource type, including: • **edge_node**: edge node • **node_cert**: edge node certificate • **edge_group**: edge node group • **group_cert**: certificate of the edge node group • **application**: application template • **deployment**: containerized application • **device_template**: end device template • **device**: end device • **app_version**: application template version • **tag**: tag • **configmap**: configuration item • **secret**: key • **ief_instance**: platinum edition • **service**: service mesh • **gateway**: service gateway

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Request

Table 4-525 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value is **application/json**.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.

Response

Status code: 200

Table 4-526 Parameters in the response body

Parameter	Type	Description
quotas	**QuotaResourceList** object	Resource quotas.

Table 4-527 QuotaResourceList

Parameter	Type	Description
resources	Array of **QuotaResource** objects	Resource list.

Table 4-528 QuotaResource

Parameter	Type	Description
used	Integer	Number of created resources.
min	Integer	Minimum number of resources that can be created.
max	Integer	Maximum number of resources that can be created.
quota	Integer	Resource quota limit.

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Parameter	Type	Description
project_id	String	Project ID.
type	String	Resource type, including: • **edge_node**: edge node • node_cert: edge node certificate • edge_group: edge node group • group_cert: edge node group certificate • application: application template • deployment: containerized application • device_template: end device template • device: end device • app_version: application template version • tag: tag • configmap: configuration item • secret: key • ief_instance: platinum edition • service: service mesh • gateway: service gateway

Example Request

None

Example Response

Status code: 200

Query succeeded.

```
{
  "quotas" : {
    "resources" : [ {
      "used" : 7,
      "min" : -1,
      "max" : 1000000,
      "quota" : 50,
      "project_id" : "xxx",
      "type" : "edge_node"
    } ]
  }
}
```

Status Codes

Status Code	Description
200	Query succeeded.

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Error Codes

For details, see **Error Codes**.

4.15 Service Management

4.15.1 Querying a List of Services

Function

This API is used to query details about all services.

NOTE

Only the platinum edition supports service-related functions.

URI

GET /v2/{project_id}/edgemgr/services?{name=xxx,limit=xxx,offset=xxx}

Table 4-529 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-530 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Long	Number of records on each page during pagination query. The maximum value is **100**, and the default value is **10**.
offset	No	Long	Query offset. The default value is **0**.
sorted	No	String	Whether the queried services are sorted based on the specified field.
name	No	String	Service name.
app	No	String	Application based on which services are queried.

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Request

Table 4-531 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-532 Parameters in the response body

Parameter	Type	Description
count	Long	Number of endpoints that meet the conditions.
services	Array of **ServiceRespDetail** objects	Service list.

Table 4-533 ServiceRespDetail

Parameter	Type	Description
created_at	String	Creation time.
id	String	Service ID.
meta_data	**SvcMetadata** object	Static properties of the service.
project_id	String	Tenant ID.
spec	**SvcSpec** object	Dynamic properties of the service.

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Parameter	Type	Description
updated_at	String	Update time.

Table 4-534 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. The name contains a maximum of 64 characters starting with a letter and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

Table 4-535 SvcSpec

Parameter	Type	Description
cluster_ip	String	Virtual service IP address.
external_ips	Array of strings	List of external IP addresses. This parameter is not supported currently.
external_name	String	External domain name. This parameter is not supported currently.
ports	Array of **SvcPort** objects	List of service ports to be exposed.
selector	Map<String,String>	Label selector, which is used to select the pods with the specified labels for management.
type	String	Service type.

Table 4-536 SvcPort

Parameter	Type	Description
name	String	The service port must be named in the {*protocol*}-{*suffix*} format, where {*protocol*} can be **tcp** or **http**. IEF provides routing capabilities based on protocols defined on ports. For example, **name:http-0** and **name:tcp-0** are valid port names, while **name:http2forecast** is invalid.

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Parameter	Type	Description
node_port	String	Port number mapped to the physical machine when **spec.type** is set to **NodePort**.
port	String	Port on which the service listens.
protocol	String	Protocol, for example, TCP.
target_port	String	Port number of the backend pod to which requests are forwarded.

When the status code is **500**, the response parameters are as follows:

Table 4-537 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

Example Response

None

Status Codes

Status Code	Description
200	Query succeeded.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.15.2 Creating a Service

Function

This API is used to create a service.

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NOTE

Only the platinum edition supports service-related functions.

URI

POST /v2/{project_id}/edgemgr/services

Table 4-538 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request

Table 4-539 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-540 Parameters in the request body

Parameter	Mandatory	Type	Description
service	No	**ServiceReqDetail** object	Service details.

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Table 4-541 ServiceReqDetail

Parameter	Mandatory	Type	Description
meta_data	Yes	**SvcMetadata** object	Static properties of the service.
spec	Yes	**SvcSpec** object	Dynamic properties of the service.

Table 4-542 SvcMetadata

Parameter	Mandatory	Type	Description
labels	No	Map<String,String>	List of customized labels.
name	Yes	String	Service name. The name contains a maximum of 64 characters starting with a letter and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

Table 4-543 SvcSpec

Parameter	Mandatory	Type	Description
cluster_ip	No	String	Virtual service IP address.
external_ips	No	Array of strings	List of external IP addresses. This parameter is not supported currently.
external_name	No	String	External domain name. This parameter is not supported currently.
ports	No	Array of **SvcPort** objects	List of service ports to be exposed.
selector	Yes	Map<String,String>	Label selector, which is used to select the pods with the specified labels for management.
type	No	String	Service type.

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Table 4-544 SvcPort

Parameter	Mandatory	Type	Description
name	No	String	The service port must be named in the {*protocol*}-{*suffix*} format, where {*protocol*} can be **tcp** or **http**. IEF provides routing capabilities based on protocols defined on ports. For example, **name:http-0** and **name:tcp-0** are valid port names, while **name:http2forecast** is invalid.
node_port	No	String	Port number mapped to the physical machine when **spec.type** is set to **NodePort**.
port	No	String	Port on which the service listens.
protocol	No	String	Protocol, for example, TCP.
target_port	No	String	Port number of the backend pod to which requests are forwarded.

Response

When the status code is **201**, the response parameters are as follows.

Table 4-545 Parameters in the response body

Parameter	Type	Description
service	**ServiceRespDetail** object	Service details.

Table 4-546 ServiceRespDetail

Parameter	Type	Description
created_at	String	Creation time.
id	String	Service ID.
meta_data	**SvcMetadata** object	Static properties of the service.
project_id	String	Tenant ID.
spec	**SvcSpec** object	Dynamic properties of the service.

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Parameter	Type	Description
updated_at	String	Update time.

Table 4-547 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. The name contains a maximum of 64 characters starting with a letter and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

Table 4-548 SvcSpec

Parameter	Type	Description
cluster_ip	String	Virtual service IP address.
external_ips	Array of strings	List of external IP addresses. This parameter is not supported currently.
external_name	String	External domain name. This parameter is not supported currently.
ports	Array of **SvcPort** objects	List of service ports to be exposed.
selector	Map<String,String>	Label selector, which is used to select the pods with the specified labels for management.
type	String	Service type.

Table 4-549 SvcPort

Parameter	Type	Description
name	String	The service port must be named in the {*protocol*}-{*suffix*} format, where {*protocol*} can be **tcp** or **http**. IEF provides routing capabilities based on protocols defined on ports. For example, **name:http-0** and **name:tcp-0** are valid port names, while **name:http2forecast** is invalid.

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Parameter	Type	Description
node_port	String	Port number mapped to the physical machine when **spec.type** is set to **NodePort**.
port	String	Port on which the service listens.
protocol	String	Protocol, for example, TCP.
target_port	String	Port number of the backend pod to which requests are forwarded.

When the status code is **400**, the response parameters are as follows:

Table 4-550 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-551 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

```
{
  "service" : {
    "meta_data" : {
      "name" : "service-example",
      "labels" : { }
    },
    "spec" : {
      "cluster_ip" : "None",
      "external_ips" : [ ],
      "external_name" : "",
      "ports" : [ {
        "name" : "http-0",
        "port" : "8888",
        "target_port" : "80",
        "protocol" : "TCP",
        "node_port" : ""
      } ],
      "selector" : {
```

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```
      "app" : "ief-nginx"
    },
    "type" : ""
  }
 }
}
```

Example Response

Example response with status code 201:

```
{
 "service" : {
  "id" : "81acf9ff-de6d-4736-8d1a-f43bb058e79d",
  "project_id" : "e78acc02d9d141eda5ca8e88fa35f6f8",
  "meta_data" : {
   "name" : "service-example"
  },
  "spec" : {
   "selector" : {
    "app" : "ief-nginx"
   },
   "ports" : [ {
    "name" : "http-0",
    "protocol" : "TCP",
    "port" : "8888",
    "target_port" : "80"
   } ],
   "cluster_ip" : "None"
  },
  "created_at" : "2020-07-08 01:23:25.845332209 +0000 UTC",
  "updated_at" : "2020-07-08 01:23:25.845332209 +0000 UTC"
 }
}
```

Status Codes

Status Code	Description
201	Creation succeeded.
400	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.15.3 Querying Service Details

Function

This API is used to query details about a service.

NOTE

Only the platinum edition supports service-related functions.

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URI

GET /v2/{project_id}/edgemgr/services/{service_id}

Table 4-552 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
service_id	Yes	String	Service ID.

Request

Table 4-553 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-554 Parameters in the response body

Parameter	Type	Description
service	**ServiceRespDetail** object	Service details.

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Table 4-555 ServiceRespDetail

Parameter	Type	Description
created_at	String	Creation time.
id	String	Service ID.
meta_data	**SvcMetadata** object	Static properties of the service.
project_id	String	Tenant ID.
spec	**SvcSpec** object	Dynamic properties of the service.
updated_at	String	Update time.

Table 4-556 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. The name contains a maximum of 64 characters starting with a letter and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

Table 4-557 SvcSpec

Parameter	Type	Description
cluster_ip	String	Virtual service IP address.
external_ips	Array of strings	List of external IP addresses. This parameter is not supported currently.
external_name	String	External domain name. This parameter is not supported currently.
ports	Array of **SvcPort** objects	List of service ports to be exposed.
selector	Map<String,String>	Label selector, which is used to select the pods with the specified labels for management.
type	String	Service type.

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Table 4-558 SvcPort

Parameter	Type	Description
name	String	The service port must be named in the {*protocol*}-{*suffix*} format, where {*protocol*} can be **tcp** or **http**. IEF provides routing capabilities based on protocols defined on ports. For example, **name:http-0** and **name:tcp-0** are valid port names, while **name:http2forecast** is invalid.
node_port	String	Port number mapped to the physical machine when **spec.type** is set to **NodePort**.
port	String	Port on which the service listens.
protocol	String	Protocol, for example, TCP.
target_port	String	Port number of the backend pod to which requests are forwarded.

When the status code is **404**, the response parameters are as follows.

Table 4-559 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-560 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

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Example Response

Example response with status code 200:

```
{
  "service" : {
    "id" : "81acf9ff-de6d-4736-8d1a-f43bb058e79d",
    "project_id" : "e78acc02d9d141eda5ca8e88fa35f6f8",
    "meta_data" : {
      "name" : "service-example"
    },
    "spec" : {
      "selector" : {
        "app" : "ief-nginx"
      },
      "ports" : [ {
        "name" : "http-0",
        "protocol" : "TCP",
        "port" : "8888",
        "target_port" : "80"
      } ],
      "cluster_ip" : "None"
    },
    "created_at" : "2020-07-08 01:23:25.845332209 +0000 UTC",
    "updated_at" : "2020-07-08 01:23:25.845332209 +0000 UTC"
  }
}
```

Status Codes

Status Code	Description
200	Query succeeded.
404	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.15.4 Updating a Service

Function

This API is used to update a service.

NOTE

Only the platinum edition supports service-related functions.

URI

PUT /v2/{project_id}/edgemgr/services/{service_id}

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Table 4-561 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
service_id	Yes	String	Service ID.

Request

Table 4-562 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Table 4-563 Parameters in the request body

Parameter	Mandatory	Type	Description
service	No	**ServiceReqDetail** object	Service details.

Table 4-564 ServiceReqDetail

Parameter	Mandatory	Type	Description
meta_data	Yes	**SvcMetadata** object	Static properties of the service.
spec	Yes	**SvcSpec** object	Dynamic properties of the service.

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Table 4-565 SvcMetadata

Parameter	Mandatory	Type	Description
labels	No	Map<String,String>	List of customized labels.
name	Yes	String	Service name. The name contains a maximum of 64 characters starting with a letter and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

Table 4-566 SvcSpec

Parameter	Mandatory	Type	Description
cluster_ip	No	String	Virtual service IP address.
external_ips	No	Array of strings	List of external IP addresses. This parameter is not supported currently.
external_name	No	String	External domain name. This parameter is not supported currently.
ports	No	Array of **SvcPort** objects	List of service ports to be exposed.
selector	Yes	Map<String,String>	Label selector, which is used to select the pods with the specified labels for management.
type	No	String	Service type.

Table 4-567 SvcPort

Parameter	Mandatory	Type	Description
name	No	String	The service port must be named in the {*protocol*}-{*suffix*} format, where {*protocol*} can be **tcp** or **http**. IEF provides routing capabilities based on protocols defined on ports. For example, **name:http-0** and **name:tcp-0** are valid port names, while **name:http2forecast** is invalid.

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Parameter	Mandatory	Type	Description
node_port	No	String	Port number mapped to the physical machine when **spec.type** is set to **NodePort**.
port	No	String	Port on which the service listens.
protocol	No	String	Protocol, for example, TCP.
target_port	No	String	Port number of the backend pod to which requests are forwarded.

Response

When the status code is **200**, the response parameters are as follows:

Table 4-568 Parameters in the response body

Parameter	Type	Description
service	**ServiceRespDetail** object	Service details.

Table 4-569 ServiceRespDetail

Parameter	Type	Description
created_at	String	Creation time.
id	String	Service ID.
meta_data	**SvcMetadata** object	Static properties of the service.
project_id	String	Tenant ID.
spec	**SvcSpec** object	Dynamic properties of the service.
updated_at	String	Update time.

Table 4-570 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.

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Parameter	Type	Description
name	String	Service name. The name contains a maximum of 64 characters starting with a letter and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

Table 4-571 SvcSpec

Parameter	Type	Description
cluster_ip	String	Virtual service IP address.
external_ips	Array of strings	List of external IP addresses. This parameter is not supported currently.
external_name	String	External domain name. This parameter is not supported currently.
ports	Array of **SvcPort** objects	List of service ports to be exposed.
selector	Map<String,String>	Label selector, which is used to select the pods with the specified labels for management.
type	String	Service type.

Table 4-572 SvcPort

Parameter	Type	Description
name	String	The service port must be named in the {*protocol*}-{*suffix*} format, where {*protocol*} can be **tcp** or **http**. IEF provides routing capabilities based on protocols defined on ports. For example, **name:http-0** and **name:tcp-0** are valid port names, while **name:http2forecast** is invalid.
node_port	String	Port number mapped to the physical machine when **spec.type** is set to **NodePort**.
port	String	Port on which the service listens.
protocol	String	Protocol, for example, TCP.
target_port	String	Port number of the backend pod to which requests are forwarded.

When the status code is **400**, the response parameters are as follows:

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Table 4-573 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-574 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

```
{
  "service" : {
    "meta_data" : {
      "name" : "service-example",
      "labels" : { }
    },
    "spec" : {
      "cluster_ip" : "None",
      "external_ips" : [ ],
      "external_name" : "",
      "ports" : [ {
        "name" : "http-0",
        "port" : "8888",
        "target_port" : "80",
        "protocol" : "TCP",
        "node_port" : ""
      } ],
      "selector" : {
        "app" : "ief-nginx"
      },
      "type" : ""
    }
  }
}
```

Example Response

Example response with status code 200:

```
{
  "service" : {
    "id" : "81acf9ff-de6d-4736-8d1a-f43bb058e79d",
    "project_id" : "e78acc02d9d141eda5ca8e88fa35f6f8",
    "meta_data" : {
      "name" : "service-example"
    },
    "spec" : {
```

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```
    "selector" : {
      "app" : "ief-nginx"
    },
    "ports" : [ {
      "name" : "http-0",
      "protocol" : "TCP",
      "port" : "8888",
      "target_port" : "80"
    } ],
    "cluster_ip" : "None"
  },
  "created_at" : "2020-07-08 01:23:25.845332209 +0000 UTC",
  "updated_at" : "2020-07-08 01:23:25.845332209 +0000 UTC"
 }
}
```


Status Code

Status Code	Description
200	Update succeeded.
400	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

4.15.5 Deleting a Service

Function

This API is used to delete a service.

NOTE

Only the platinum edition supports service-related functions.

URI

DELETE /v2/{project_id}/edgemgr/services/{service_id}

Table 4-575 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
service_id	Yes	String	Service ID.

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Request

Table 4-576 Parameters in the request header

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format). The default value **application/json** is recommended.
X-Auth-Token	Yes	String	User token. The token can be obtained by calling the IAM API used to obtain a user token. The value of **X-Subject-Token** in the response header is the user token.
ief-instance-id	No	String	Platinum edition instance ID. This parameter is left blank for a professional edition instance.

Response

When the status code is **404**, the response parameters are as follows.

Table 4-577 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

When the status code is **500**, the response parameters are as follows:

Table 4-578 Parameters in the response body

Parameter	Type	Description
error_code	String	Error code.
error_message	String	Error message.

Example Request

None

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Example Response

None

Status Codes

Status Code	Description
204	Deletion succeeded.
404	Error response.
500	Error response.

Error Codes

For details, see **Error Codes**.

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5 Data Structure

Table 5-1 node

Parameter	Type	Description
id	String	Edge node ID.
name	String	Edge node name.
description	String	Edge node description.
created_at	String	Creation time.
updated_at	String	Update time.
project_id	String	Project ID.
private_key	String	Private key.
certificate	String	Certificate.
ca	String	Root certificate.
state	String	Edge node status. • **UNCONNECTED**: The edge node is not registered. • **RUNNING**: The instance is running. • **FAIL**: The edge node is faulty. • **STOPPED**: The edge node is stopped. • **UPGRADING**: The edge node is being upgraded. • **FREEZE**: The edge node is frozen.

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Parameter	Type	Description
package	String	Base64-encoded character string. This value is obtained after Base64 encoding is performed on the .tar.gz package of the certificate, root certificate, and private key. Before use, decode it into a .tar.gz package using Base64.
master_addr	String	Cloud service URL.
cpu	Integer	Number of CPU cores on the edge node.
memory	Integer	Memory size of the edge node. Unit: MB.
os_name	String	Operating system name of the edge node.
os_version	String	Operating system version of the edge node.
pause_docker_image	String	URL of a pause container image.
arch	String	Edge node architecture.
os_type	String	Operating system type of the edge node.
deployment_num	Integer	Number of application instances deployed on the edge node.
enable_gpu	Boolean	Whether to enable GPU on the edge node. The default value is **false**.
log_configs	Array of **Table 5-2** objects	Log configuration of the edge node.
device_infos	**Table 5-3** object	Information about associated devices.
edged_version	String	Edged version.
gpu_num	Integer	Number of GPUs.
host_ips	Array of strings	Host IP address. By default, the IP address of the eth0 network adapter is returned.
relation	String	Name of the binding relationship with the device. A value is returned when you query a node with a device ID.
comment	String	Description of the binding relationship with the device. A value is returned when you query a node with a device ID.
gpu_info	**Table 5-4** object	GPU model and GPU memory size.

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Parameter	Type	Description
device_num	Integer	Number of associated devices.
enable_npu	Boolean	Whether the NPU is enabled for devices.
npu_type	String	NPU type. NUP type supports D310. • D310 • If this parameter is left blank, D310 is used.
nics	Array of **Table 5-28** objects	NIC and IP address of the edge node.
host_name	String	Host name of the edge node.
ief_node_version	String	Version of the edge node.
product_id	String	Product ID (managed by using a product certificate).
group_ids	Array of strings	ID of a node group. A node can belong to multiple node groups.
upgrade_history	Array of **Table 5-29** objects	Node installation or upgrade records.
attributes	Array of **Table 5-26** objects	Properties of the edge node.
docker_enable	Boolean	Whether Docker is enabled for the node.
mqtt_mode	String	MQTT integration mode. • **internal**: built-in MQTT on EdgeCore • **external**: external open-source MQTT
mqtt_external	String	Address of the external open-source MQTT.
mqtt_internal	String	Address of the built-in MQTT on EdgeCore.
node_type	String	Node type. This parameter is left blank by default. If this parameter is not left blank, it is an Atlas 500 AI edge station.
ntp_configs	**Table 5-30** object	NTP configuration.
error_reason	String	Node fault cause.
tags	Array of **Table 5-27** objects	Edge node tags.
npu_num	Integer	Number of NPUs.
npu_info	**npu_info** object	NPU model and memory size.

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Parameter	Type	Description
container_runtime_version	String	Container runtime version.

Table 5-2 log_configs

Parameter	Mandatory	Type	Description
id	No	String	Primary key stored in the database. You do not need to pay attention to this field.
size	No	Integer	Maximum size of an application log file. Unit: MB. Default value: **50**. The value range is 10–1000.
level	No	String	• If **type** is set to **LTS**, this parameter can be set to **On** or **Off** for application logs and to **Off**, **Error**, **Warning**, **Info**, or **Debug** for system logs. • If **type** is set to **local**, this parameter does not need to be specified.
rotate_num	No	Integer	Number of application logs that are rotated. Default value: **5**. The value range is 1–10.

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Parameter	Mandatory	Type	Description
rotate_period	No	String	Period at which application logs are rotated. The following options are available: • daily • monthly • weekly • yearly
type	Yes	String	• **LTS**: Logs are sent to AOM. • **local**: Logs are locally stored.
component	Yes	String	• **app**: logs of applications deployed on the edge node • **system**: system logs on the edge node

Table 5-3 device_infos

Parameter	Mandatory	Type	Description
relation	Yes	String	Relationship between the device and node. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

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Parameter	Mandatory	Type	Description
comment	No	String	Description of the relationship between the device and node. The description contains a maximum of 64 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
device_ids	Yes	Array of strings	A list of device IDs.

Table 5-4 gpu_info

Parameter	Type	Description
name	String	GPU name.
type	String	GPU type.
capacity	Integer	GPU memory size. Unit: MB.

Table 5-5 device

Parameter	Type	Description
id	String	End device ID.
name	String	End device name.
description	String	End device description.
state	String	Status of the end device. The default value is **unknown**.
last_online	String	Last active time of the end device.
project_id	String	Project ID.
attributes	**Table 5-6** object	Static attribute information.
created_at	String	Creation time.

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Parameter	Type	Description
updated_at	String	Update time.

Table 5-6 value in attributes

Parameter	Mandatory	Type	Description
value	Yes	String	The value contains a maximum of 512 characters. Only letters, digits, and special characters (_-.,:@#+\/?^=%&~) are allowed.
optional	No	Boolean	Whether the property is optional. The default value is **true**.
metadata	No	**Table 5-9** object	Metadata of a static property. The default format is {"type":"string"}.

Table 5-7 value in twin

Parameter	Mandatory	Type	Description
excepted	Yes	**Table 5-8** object	Expected information about dynamic properties.
optional	No	Boolean	Whether the property is optional. The default value is **true**. The value for properties inherited from a template is **false** by default.
metadata	No	**Table 5-9** object	Metadata of a static property. The default format is {"type":"string"}.

Table 5-8 excepted

Parameter	Mandatory	Type	Description
value	Yes	String	Initial value of a dynamic property. The value contains a maximum of 512 characters. Only letters, digits, and special characters (_-.,:/@#) are allowed.

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Parameter	Mandatory	Type	Description
metadata	No	Table 5-23 object	Time when the expected value is set.

Table 5-9 metadata

Parameter	Mandatory	Type	Description
type	Yes	String	Attribute type ID. Value: **string**, **int**, **float**, or **boolean**. The type of boolean is **true** or **false**. Default value: **string**.

Table 5-10 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The key must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, letters, and underscores (_) are allowed.
value	No	String	Value of an environment variable. The value contains a maximum of 20,480 characters. Specify only one of the **value**, **value_from**, and **field_path** parameters.
value_from	No	Table 5-35 object	Environment variables can be imported from ConfigMaps or secrets.
field_path	No	String	Currently, this parameter can be set only to **status.hostIP**, that is, the IP address of an edge node is used as the environment variable.

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Table 5-11 volumes

Parameter	Mandatory	Type	Description
name	Yes	String	Volume name. The name contains a maximum of 63 characters. Only lowercase letters and digits are allowed.
type	Yes	String	Volume type. The value can be **configMap**, **secret**, **emptyDir**, or **hostPath**.
source	Yes	String	Volume source. When **type** is set to **hostPath**, enter a path. The path must start with a slash (/) and can contain hyphens (-), slashes (/), underscores (_), periods (.), letters, and digits. When **type** is set to **secret**, enter a secret name. When **type** is set to **configMap**, enter a ConfigMap name. When **type** is set to **emptyDir**, enter a disk or memory.
destination	Yes	String	Volume mount path. It must be a valid path.
read_only	Yes	Boolean	Read and write permissions. Volumes of the **configMap** or **secret** type support only the read permission.

Table 5-12 resources

Parameter	Mandatory	Type	Description
limits	No	**Table 5-13** object	Maximum amount of resources available for a container.
requests	No	**Table 5-13** object	Minimum amount of resources required for a container.

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Table 5-13 limits/requests

Parameter	Mandatory	Type	Description
cpu	No	String	Number of CPU cores. The value range is 0.01–1000. The value of this parameter does not need to contain a unit in the request.
memory	No	String	Memory size, in MBs. The value range is 0.01–1,024,000. Note: The minimum value of **limits** for the memory is **4**. The value of this parameter does not need to contain a unit in the request.
gpu	No	String	GPU memory size, in MBs. The value range is 0.01–1,024,000. The value of this parameter does not need to contain a unit in the request.
npu	No	String	Number of NPUs. The value range is 1–1000.

Table 5-14 configs

Parameter	Mandatory	Type	Description
privileged	No	Boolean	Whether the privileged container is enabled. The default value is **false**.
host_network	No	Boolean	Whether the host network is used. The default value is **true**. If this parameter is set to **false**, the port mapping is used.
restart_policy	No	String	The value can be **Always** (default), **OnFailure**, and **Never**. **Always** indicates that the container is restarted regardless of whether the container exits normally or abnormally. **OnFailure** indicates that the container is restarted only when the container exits abnormally. **Never** indicates that the container is never restarted.
ports	No	Array of **Table 5-34** objects	Mapping container port. This parameter is mandatory when the port mapping is used.

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Table 5-15 probe

Parameter	Mandatory	Type	Description
exec_command	Yes	String	(Either **exec_command** or **http_get** is used.) Command for probing a container. The command can contain 1 to 10,240 characters.
http_get	Yes	Table 5-16 object	(Either **exec_command** or **http_get** is used.) HTTP configuration for probing a container.
initial_delay_seconds	No	Integer	Period between the workload start time and the probe start time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **10**.
timeout_seconds	No	Integer	Probing timeout time. The value is an integer greater than 0 and less than or equal to 3600. The default value is **1**.

Table 5-16 http_get

Parameter	Mandatory	Type	Description
path	Yes	String	The value must start with a slash (/). The structure is as follows: *Protocol type*://*Host address*:*Port path*
port	Yes	Integer	HTTP port number for detection. The value is an integer ranging from 1 to 65535.
host	No	String	Requested host address. The default value is the IP address of the container.
scheme	No	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

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Table 5-17 app_versions

Parameter	Type	Description
id	String	Application version ID.
version	String	Application version.
created_at	String	Creation time.
updated_at	String	Update time. This field is available only after the update.
project_id	String	Project ID.
image_url	String	Image URL.
envs	Array of **Table 5-10** objects	Environment variables.
volumes	Array of **Table 5-11** objects	Volume configuration.
configs	**Table 5-32** object	Special parameters of a container.
resources	**Table 5-12** object	Resource quota.
arch	String	Architecture.
command	Array of strings	Startup commands.
args	Array of strings	Arguments.
liveness_probe	**Table 5-15** object	Workload liveness probe.
readiness_probe	**Table 5-15** object	Workload readiness probe.

Table 5-18 deployment

Parameter	Type	Description
id	String	Deployment ID.
project_id	String	Project ID.
name	String	Deployment name.
description	String	Deployment description.
created_at	String	Creation time.
updated_at	String	Update time.
instances	**Table 5-19** object	Application instance.

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Parameter	Type	Description
visibility	String	Visibility (reserved).
group_id	String	ID of the node group to which the application is deployed. This parameter is returned only for the application deployed to a node group.
group_name	String	Name of the node group to which the application is deployed. This parameter is returned only for the application deployed to a node group.
ready_replicas	Integer	Number of instances in the ready state.
replicas	Integer	Total number of instances.

Table 5-19 instances

Parameter	Type	Description
name	String	Instance name (an embedded field).
version	String	Application version.
image_url	String	Image URL.
envs	String	Environment variables.
volumes	String	Volume configuration.
resources	Array of **Table 5-12** objects	Resource quota used by the container.

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Parameter	Type	Description
state	String	• **PENDING**: creating • **PENDING_DELETE**: deleting • **DELETE_FAILED**: deletion failed • **RUNNING**: in progress • **FAILED**: instance exception • **UNKNOWN**: unknown • **FREEZE**: frozen
message	String	Error message.
node_id	String	Edge node ID.
is_ready	String	Service status detected by the workload readiness probe. • **UNCONFIGURE**: The readiness probe is not configured. • **UNKNOWN**: unknown. • **NORMAL**: normal. • **ABNORMAL**: abnormal.
restarts	Integer	Number of workload container restarts.
reason	String	A short camelCase format word describing the cause of a workload status exception.
liveness_probe	**Table 5-15** object	Workload liveness probe configuration.
readiness_probe	**Table 5-15** object	Workload readiness probe configuration.
id	String	Instance ID.
command	Array of strings	Startup commands.
args	Array of strings	Startup command arguments.

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Parameter	Type	Description
configs	Table 5-32 object	Network parameter configuration.

Table 5-20 twin response

Parameter	Type	Description
key	String	This parameter is unique. The key contains a maximum of 128 characters. Only letters, digits, and special characters (_-.,:/@#) are allowed.
value	Table 5-21 object	Static properties of the end device.

Table 5-21 value in twin response

Parameter	Type	Description
excepted	Table 5-22 object	Expected information about dynamic properties.
actual	Table 5-22 object	Actual information about dynamic properties.
metadata	Table 5-23 object	Time information.
optional	Boolean	Whether the property is optional. The default value is **true**. The value for properties inherited from a template is **false** by default.

Table 5-22 excepted/actual

Parameter	Type	Description
value	String	Initial value of a dynamic property. The value contains a maximum of 512 characters. Only letters, digits, and special characters (_-.,:/@#) are allowed.

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Table 5-23 metadata

Parameter	Type	Description
timestamp	String	Modification time, which is in Unix timestamp format.

Table 5-24 access_config

Parameter	Mandatory	Type	Description
protocol_type	Yes	**value in attributes** object	Protocol used by the device to access IEF. The options are as follows: • **userdefine**: custom protocol • **TCP**: Modbus TCP • **RTU**: Modbus RTU • **opc-ua**: OPC UA
protocol_name	No	**value in attributes** object	Name of a device access data record.
slave_id	No	**value in attributes** object	Modbus device access ID, which ranges from 0 to 255.
ip	No	**value in attributes** object	Access IP address in TCP transmission mode. It is a standard IPv4 address.
port	No	**value in attributes** object	Access port in TCP transmission mode. It ranges from 0 to 65535.
serial_port	No	**value in attributes** object	Serial port in RTU transmission mode.
baud_rate	No	**value in attributes** object	Baud rate in RTU transmission mode. The value can be 50, 75, 110, 150, 200, 300, 1200, 1800, 2400, 9600, 19200, 38400, 57600, or 115200.
data_bits	No	**value in attributes** object	Data bit in RTU transmission mode. The value can be 5, 6, 7, or 8.
stop_bits	No	**value in attributes** object	Stop bit in RTU transmission mode. The value can be 1 or 2.

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Parameter	Mandatory	Type	Description
parity_bits	No	**value in attributes** object	Parity bit in RTU transmission mode. The value can be **none**, **odd**, or **even**.
url	No	**value in attributes** object	Access URL when the OPC UA protocol is used.
sec_mode	No	**value in attributes** object	Security mode when the OPC UA protocol is used.
sec_policy	No	**value in attributes** object	Security policy when the OPC UA protocol is used.
auth_type	No	**value in attributes** object	Authentication type when the OPC UA protocol is used. The value can be 0, 1, 2, or 3.
username	No	**value in attributes** object	Username when the OPC UA protocol and the password authentication are used.
password	No	**value in attributes** object	Password when the OPC UA protocol and the password authentication are used.
private_key	No	**value in attributes** object	Private key when the OPC UA protocol and the certificate authentication are used. The value is in the Base64 format.
certificate	No	**value in attributes** object	Certificate when the OPC UA protocol and the certificate authentication are used. The value is in the Base64 format.
timeout	No	**value in attributes** object	Access timeout interval when the OPC UA protocol is used. The default value is 5s.

Table 5-25 value in property_visitors

Parameter	Mandatory	Type	Description
register_type	No	**value in attributes** object	Register type. The value can be **CoilsRegisters**, **HoldingRegisters**, **DiscreteInputsRegisters**, or **InputRegisters**.

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Parameter	Mandatory	Type	Description
access_mode	No	**value in attributes** object	Access mode. The value can be **r** or **r/w**.
register_index	No	**value in attributes** object	Register offset address, which ranges from 0 to 65535.
register_num	No	**value in attributes** object	Number of registers.
scale_index	No	**value in attributes** object	Scale factor.
original_datatype	No	**value in attributes** object	Raw data type.
expected_datatype	No	**value in attributes** object	Expected data type
is_registerswap	No	**value in attributes** object	Whether to transpose the high and low bits among registers.
is_swap	No	**value in attributes** object	Whether to transpose the high and low bits of a register.
sample_interval	No	**value in attributes** object	Data collection interval, which ranges from 1 to 3600.
data_min	No	**value in attributes** object	Minimum value of the raw data value range. The value varies depending on the raw data type.
data_max	No	**value in attributes** object	Maximum value of the raw data value range. The value varies depending on the raw data type.
node_id	No	**value in attributes** object	Node ID.
browse_name	No	**value in attributes** object	Node name.

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Table 5-26 attributes

Parameter	Type	Description
key	String	Key of a node property. The key must contain 1 to 128 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a node property. The value must contain 1 to 256 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Table 5-27 tags

Parameter	Type	Description
key	String	Key of a tag. The key must contain 1 to 36 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a tag. The value must contain 1 to 43 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.

Table 5-28 nics

Parameter	Type	Description
interface	String	NIC name of the edge node.
ip	String	IPv4 address corresponding to the NIC.

Table 5-29 upgrade_history

Parameter	Type	Description
id	Integer	ID of the node upgrade or installation record.
from_version	String	EdgeCore version on the node before the upgrade. The version is in the format of x.x.x. Each part is an integer, for example, 2.1.0.

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Parameter	Type	Description
to_version	String	EdgeCore version on the node after the upgrade or installation. The version is in the format of x.x.x. Each part is an integer, for example, 2.1.0.
upgrade_time	Integer	10-digit timestamp for node upgrade or installation.
result	String	Node upgrade or installation status, including: • **install_success**: The edge node is successfully installed. • **upgrade_success**: The edge node is upgraded successfully. • **install_failed**: The edge node fails to be installed. • **upgrade_failed**: The edge node fails to be upgraded. • **upgrade_failed_rollback_success**: The edge node is successfully rolled back after the upgrade fails. • **upgrade_failed_rollback_failed**: The edge node fails to be upgraded or rolled back.
dur_time	Integer	Time required for upgrading a node.

Table 5-30 ntp_configs

Parameter	Type	Description
ntp_enabled	Boolean	Whether the NTP service is enabled.
ntpservers	Array of strings	NTP server IP address.

Table 5-31 sorted

Parameter	Type	Description
key	String	Requests are sorted by key.
reverse	Boolean	Whether reverse sorting is used.

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Table 5-32 configs

Parameter	Type	Description
privileged	Boolean	Whether the privileged mode is enabled. The default value is **false**.
host_network	Boolean	The default value is **true**. The value **true** indicates the host network and **false** indicates port mapping.
restart_policy	String	Application instance restart mode. The options are as follows: • **Always**: The system restarts the container regardless of whether it had quit normally or abnormally. • **Onfailure**: The system only restarts the container if it had previously quit abnormally (that is, the exit code is not 0). • **Never**: The system does not restart the container regardless of whether it had quit normally or abnormally.
ports	Array of **Table 5-33** objects	Container port mapping configuration.

Table 5-33 ports

Parameter	Type	Description
container_port	Integer	Container port in a port mapping.
host_port	Integer	NIC port of the physical machine that maps to the container port.
host_ip	String	NIC address.

Table 5-34 app_ports

Parameter	Type	Description
container_port	Integer	Container port in a port mapping.
host_port	Integer	NIC port of the physical machine that maps to the container port.

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Table 5-35 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 5-36 object	Secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 5-37 object	ConfigMap to be referenced by an environment variable.

Table 5-36 secret

Parameter	Mandatory	Type	Description
name	Yes	String	Secret name.
key	Yes	String	Secret key.

Table 5-37 configmap

Parameter	Mandatory	Type	Description
name	Yes	String	ConfigMap name.
key	Yes	String	ConfigMap key.

Table 5-38 mqtt_config

Parameter	Mandatory	Type	Description
enable_mqtt	Yes	Boolean	Whether to enable MQTT.
mqtts	Yes	Array of Table 5-39 objects	MQTT configuration. When **enable_mqtt** is set to **false**, **mqtts** must be an empty array.

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Table 5-39 mqtts

Parameter	Mandatory	Type	Description
bind_addr	Yes	String	MQTT listening address, which is determined by the value of **type**.
port	Yes	Integer	Port number.
type	Yes	String	Type. The options are as follows: • **nic**: NIC name • **ip**: IP address

Table 5-40 npu_info

Parameter	Type	Description
name	String	NPU name.
type	String	NPU type.
capacity	String	NPU memory size.
driver_version	String	NPU driver version.

Table 5-41 affinity

Parameter	Mandatory	Type	Description
nodeAffinity	No	**nodeAffinity** object	Node affinity rules.
podAffinity	No	**podAffinity** object	Pod affinity rules.
podAntiAffinity	No	**podAffinity** object	Pod anti-affinity rules.

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Table 5-42 nodeAffinity

Parameter	Mandatory	Type	Description
preferredDuringSchedulingIgnoredDuringExecution	No	Array of **preferredSchedulingTerm** object	The scheduler will prefer to schedule pods to nodes that satisfy the affinity expressions specified by this field, but it may choose a node that violates one or more of the expressions. The node that is most preferred is the one with the greatest sum of weights, that is, for each node that meets all of the scheduling requirements, compute a sum by iterating through the elements of this field and adding "weight" to the sum if the node has pod which matches the corresponding podAffinityTerm; the node(s) with the highest sum are the most preferred.
requiredDuringSchedulingIgnoredDuringExecution	No	**requiredDuringSchedulingIgnoredDuringExecution** object	If the affinity requirements specified by this field are not met at scheduling time, the pod will not be scheduled onto the node. If the affinity requirements specified by this field cease to be met at some point during pod execution (for example, due to a pod label update), the system may or may not try to eventually evict the pod from its node. When there are multiple elements, the lists of nodes corresponding to each podAffinityTerm are intersected, that is, all terms must be satisfied.

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Table 5-43 podAffinity

Parameter	Mandatory	Type	Description
preferredDuringSchedulingIgnoredDuringExecution	No	Array of **weightPodAffinityTerms** object	The scheduler will prefer to schedule pods to nodes that satisfy the affinity expressions specified by this field, but it may choose a node that violates one or more of the expressions. The node that is most preferred is the one with the greatest sum of weights, that is, for each node that meets all of the scheduling requirements, compute a sum by iterating through the elements of this field and adding "weight" to the sum if the node has pod which matches the corresponding podAffinityTerm; the node(s) with the highest sum are the most preferred.
requiredDuringSchedulingIgnoredDuringExecution	No	Array of **podAffinityTerm** object	If the affinity requirements specified by this field are not met at scheduling time, the pod will not be scheduled onto the node. If the affinity requirements specified by this field cease to be met at some point during pod execution (for example, due to a pod label update), the system may or may not try to eventually evict the pod from its node. When there are multiple elements, the lists of nodes corresponding to each podAffinityTerm are intersected, that is, all terms must be satisfied.

Table 5-44 preferredSchedulingTerm

Parameter	Mandatory	Type	Description
preference	No	**matchExpressions** object	A node selector term, associated with the corresponding weight.

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Parameter	Mandatory	Type	Description
weight	No	Integer	Weight. The value ranges from 1 to 100.

Table 5-45 requiredDuringSchedulingIgnoredDuringExecution

Parameter	Mandatory	Type	Description
nodeSelectorTerms	No	Array of **matchExpressions** object	Node selection rules.

Table 5-46 matchExpressions

Parameter	Mandatory	Type	Description
matchExpressions	No	Array of **matchExpression** object	A list of label selector requirements.

Table 5-47 preference

Parameter	Mandatory	Type	Description
matchExpressions	No	Array of **matchExpressions** object	A list of label selector requirements.

Table 5-48 matchExpression

Parameter	Mandatory	Type	Description
key	No	String	Rule label.

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Parameter	Mandatory	Type	Description
operator	No	String	Operator. The options are as follows: • **In**: The label value must be in the **values** list. • **NotIn**: The label value is not in a list. • **Exists**: A specific label exists. • **DoesNotExist**: A specific label does not exist. • **Gt**: The label value is greater than a specified value (string comparison). • **Lt**: The label value is less than a specified value (string comparison).
values	No	Array of String	A group of label values. • If **operator** is set to **In** or **NotIn**, the **values** field must be non-empty. • If **operator** is set to **Exists** or **DoesNotExist**, the **values** field must be empty. • If **operator** is set to **Gt** or **Lt**, the **values** field must have a single element, which will be interpreted as an integer.

Table 5-49 weightPodAffinityTerms

Parameter	Mandatory	Type	Description
podAffinityTerm	No	**podAffinityTerm** object	Pod affinity rules.
weight	No	Integer	Weight. The value ranges from 1 to 100.

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Table 5-50 podAffinityTerm

Parameter	Mandatory	Type	Description
labelSelector	No	**labelSelector** object	Label selector.
namespaces	No	Array of strings	Namespace.
topologyKey	No	String	Topology label. This pod should be co-located (affinity) or not co-located (anti-affinity) with the pods matching the labelSelector in the specified namespaces, where co-located is defined as running on a node whose value of the label with key topologyKey matches that of any node on which any of the selected pods is running.

Table 5-51 labelSelector

Parameter	Mandatory	Type	Description
matchExpressions	No	Array of **matchExpression** object	A list of label selector requirements.
matchLabels	No	Map<String, String>	A map of {key,value} pairs. A single {key,value} in the matchLabels map is equivalent to an element of **matchExpressions**, whose key field is **key**, the operator is **In**, and the values array contains only **value**.

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6 Permissions Policies and Supported Actions

This chapter describes fine-grained permissions management for your IEF. If your cloud account does not need individual Identity and Access Management (IAM) users, then you may skip over this chapter.

By default, new users do not have permissions assigned. You need to add a user to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

You can grant users permissions by using **roles** and **policies**. Roles are a type of service-based, coarse-grained authorization mechanism that defines permissions related to user responsibilities. Policies define API-based permissions for operations on specific resources under certain conditions, allowing for more fine-grained, secure access control of cloud resources.

NOTE

If you want to allow or deny the access to an API, fine-grained authorization is a good choice.

An account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. The permissions required for calling an API are determined by the actions supported by the API. Only users who have been granted permissions allowing the actions can call the API successfully. For example, if a user queries ECSs using an API, the user must have been granted permissions that allow the **ecs:servers:list** action.

Supported Actions

IEF provides system-defined policies that can be directly used in IAM. You can also create custom policies and use them to supplement system-defined policies, implementing more refined access control. Operations supported by policies are specific to APIs. The following lists common concepts related to policies:

- Permissions: Statements in a policy that allow or deny certain operations.
- APIs: REST APIs that can be called by a user who has been granted specific permissions.

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- Actions: Specific operations that are allowed or denied.
- Related actions: Actions on which a specific action depends to take effect. When assigning permissions for the action to a user, you also need to assign permissions for the related actions.
- IAM or enterprise projects: A custom policy can be applied to IAM projects or enterprise projects or both. Policies that contain actions supporting both IAM and enterprise projects can be assigned to user groups and take effect in both IAM and Enterprise Management. Policies that only contain actions supporting IAM projects can be assigned to user groups and only take effect for IAM. Such policies will not take effect if they are assigned to user groups in Enterprise Project. For details about the differences between IAM and enterprise projects, see **What Are the Differences Between IAM and Enterprise Management**.

  NOTE

  The check mark (√) and cross symbol (x) indicate that an action takes effect or does not take effect for the corresponding type of projects.

Table 6-1 IEF actions

Permission	API	Action	Related Action	IAM Project	Enterprise Project
Creating an Application Template Version	POST /v2/{project_id}/edgemgr/apps/{app_id}/versions	ief:appVersion:create	-	√	×
Deleting an Application Template Version	DELETE /v2/{project_id}/edgemgr/apps/{app_id}/versions/{version_id}	ief:appVersion:delete	-	√	×
Querying Application Template Version Information	GET /v2/{project_id}/edgemgr/apps/{app_id}/versions/{version_id}	ief:appVersion:get	-	√	×
Querying a List of Application Template Versions	GET /v2/{project_id}/edgemgr/apps/{app_id}/versions	ief:appVersion:list	-	√	×

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Permission	API	Action	Related Action	IAM Project	Enterprise Project
Updating an Application Template Version	PUT /v2/{project_id}/edgemgr/apps/{app_id}/versions/{version_id}	ief:appVersion:update	-	√	×
Creating an Application Template	POST /v2/{project_id}/edgemgr/apps	ief:application:create	-	√	×
Deleting an Application Template	DELETE /v2/{project_id}/edgemgr/apps/{app_id}	ief:application:delete	-	√	×
Querying Application Template Information	GET /v2/{project_id}/edgemgr/apps/{app_id}	ief:application:get	-	√	×
Querying a List of Application Templates	GET /v2/{project_id}/edgemgr/apps	ief:application:list	-	√	×
Updating an Application Template	PUT /v2/{project_id}/edgemgr/apps/{app_id}	ief:application:update	-	√	×
Creating a Deployment	POST /v3/{project_id}/edgemgr/deployments	ief:deployment:create	-	√	×
Deleting a Deployment	DELETE /v3/{project_id}/edgemgr/deployments/{deployment_id}	ief:deployment:delete	-	√	×

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Permission	API	Action	Related Action	IAM Project	Enterprise Project
Querying Deployment Information	GET /v3/{project_id}/edgemgr/deployments/{deployment_id}	ief:deployment:get	-	√	×
Querying a List of Deployments	GET /v3/{project_id}/edgemgr/deployments	ief:deployment:list	-	√	×
Updating a Deployment	PUT /v3/{project_id}/edgemgr/deployments/{deployment_id}	ief:deployment:update	-	√	×
Starting or Stopping an Edge Node	POST /v2/{project_id}/edgemgr/nodes/{node_id}/action	ief:node:action	-	√	×
Creating an Edge Node	POST /v2/{project_id}/edgemgr/nodes	ief:node:create	-	√	×
Creating an Edge Node Certificate	POST /v2/{project_id}/edgemgr/nodes/{node_id}/certs	ief:node:createNodeCert	-	√	×
Deleting an Edge Node	DELETE /v2/{project_id}/edgemgr/nodes/{node_id}	ief:node:delete	-	√	×
Deleting an Edge Node Certificate	DELETE /v2/{project_id}/edgemgr/nodes/{node_id}/certs/{cert_id}	ief:node:deleteNodeCert	-	√	×
Querying Edge Node Information	GET /v2/{project_id}/edgemgr/nodes/{node_id}	ief:node:get	-	√	×

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Permission	API	Action	Related Action	IAM Project	Enterprise Project
Querying a List of Edge Nodes	GET /v2/{project_id}/edgemgr/nodes	ief:node:list	-	√	×
Querying Edge Node Certificates	GET /v2/{project_id}/edgemgr/nodes/{node_id}/certs	ief:node:listNodeCert	-	√	×
Updating an Edge Node	PUT /v2/{project_id}/edgemgr/groups/{group_id}/nodes	ief:node:update	-	√	×
Upgrading an Edge Node	POST /v2/{project_id}/edgemgr/nodes/{node_id}/upgrade	ief:node:upgrade	-	√	×

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7 Appendix

7.1 Status Codes

- Normal

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

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 cannot 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 cannot be accepted by the client.

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Returned Value	Description
407 Proxy Authentication Required	You must use the proxy server for authentication so that the request can be processed.
408 Request Timeout	The request timed out.
409 Conflict	The request could not be processed due to a conflict.
500 Internal Server Error	Failed to complete the request because of a service error.
501 Not Implemented	Failed to complete the request because the server does not support the requested function.
502 Bad Gateway	Failed to complete the request because the request is invalid.
503 Service Unavailable	Failed to complete the request. The service is unavailable.
504 Gateway Timeout	A gateway timeout error occurred.

7.2 Error Codes

If an error code starting with APIGW is returned after you call an API, rectify the fault by referring to the instructions provided in **API Gateway Error Codes**.

Status Code	Error Codes	Error Message	Description	Solution
400	IEF.011002	The API is not registered.	The API is not registered.	Check whether the requested URL is correct. If it is correct but the error persists, contact technical support for assistance.
400	IEF.011005	Authentication failed.	Authentication failed.	Use the project ID of the tenant to obtain the token and try again. If the token is correct but the error persists, contact technical support for assistance.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100004	The request offset does not comply with specifications.	The request offset does not comply with specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100005	The request limit does not comply with specifications.	The request limit does not comply with specifications.	Locate the error cause based on the returned error information, modify the parameter value, and try again.
400	IEF.100009	The attached volume does not meet specifications.	The attached volume does not meet specifications.	Enter a correct volume type.
400	IEF.100010	The application version does not meet specifications.	The application version does not meet specifications.	Enter a correct application version.
400	IEF.100011	The application template name does not comply with the specifications.	The application template name does not comply with the specifications.	Enter a correct application template name and try again.
400	IEF.100012	The resource name does not comply with the specifications.	The resource name does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100013	The environment variable of the application version does not comply with the specifications.	The environment variable of the application version does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100020	The application icon storage URL does not meet specifications.	The application icon storage URL does not meet specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100021	The description or remarks of the device binding node do not comply with the specifications.	The description or remarks of the device binding node do not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100040	Invalid image path	Invalid image path	Enter a correct image path and try again.
400	IEF.100047	The application template visualization parameter type is not supported.	The application template visualization parameter type is not supported.	Correctly set the parameter. The template visualization property value can only be public, private, shared, or left empty.
400	IEF.100057	Device should not exist at the same time.	The device is in both addition and deletion lists.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100058	The device has been bound to a node.	The device has been bound to a node.	Unbind the device from the node and then delete the device.
400	IEF.100065	The system subscription ID does not meet requirements.	The system subscription ID does not meet requirements.	Correctly set the message subject according to the API Reference and try again.
400	IEF.100067	The node cannot be deleted because it has bound devices.	The node cannot be deleted because it has bound devices.	Log in to the IEF console, go to the Edge Nodes page, click the target node to open its node details page, and check whether the node has any bound devices. If yes, unbind the devices from the node and try again.
400	IEF.100100	The request parameter is incorrect.	The request parameter is incorrect.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100103	Node group cert quota exceed.	Node group certificates exceed quota.	Change the parameter value based on the error cause described in the response body, ensure that the quota is sufficient, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100112	The configmap/ secret of the mounted volume is incorrect.	The configmap/ secret of the mounted volume is incorrect.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100113	The resource configuration of the application version does not comply with the specifications.	The resource configuration of the application version does not comply with the specifications.	Enter correct resource configuration for the application version.
400	IEF.100119	The name of the application configuration item does not comply with the specifications.	The name of the application configuration item does not comply with the specifications.	Enter a correct ConfigMap name.
400	IEF.100120	The key of the application configuration item does not comply with the specifications.	The key of the application configuration item does not comply with the specifications.	Enter a correct key for the ConfigMap.
400	IEF.100121	The value of the application configuration item does not meet the specifications.	The value of the application configuration item does not meet the specifications.	Enter a correct value for the ConfigMap.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100122	The configuration data of the application configuration item does not comply with the specifications.	The configuration data of the application configuration item does not comply with the specifications.	Enter correct ConfigMap data.
400	IEF.100126	Deployment quota exceeded limit.	Insufficient resource quota	Change the parameter value based on the error cause described in the response body to ensure that the quota is sufficient and try again.
400	IEF.100129	Missing ID list.	Node must be in the node list.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100130	Add device missing relation description.	Parameters for adding node are missing.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100133	The probe configuration of the application version does not meet specifications.	The probe configuration of the application version does not meet specifications.	Correctly set the probe properties. Only exec, http_get, and tcp_socket_port are supported.
400	IEF.100136	The node which the device binding is not running.	Node not running. It cannot be changed.	Ensure that the node is running properly and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100139	The number of twin of device must be lower 64.	A single device can have up to 64 twin properties.	Change the parameter value based on the error cause described in the response body, ensure that the quota is sufficient, and try again.
400	IEF.100144	Device is not allowed to bind node	Devices of this type cannot be associated.	Ensure that the device type is correct and try again.
400	IEF.100148	The name of the application key does not comply with the specifications.	The name of the application key does not comply with the specifications.	Enter a correct secret name.
400	IEF.100149	The application key data is invalid.	The application key data is invalid.	Enter correct secret data.
400	IEF.100150	The application key data type does not meet specifications.	The application key data type does not meet specifications.	Enter a correct secret type.
400	IEF.100151	The application key does not comply with the specifications.	The application key does not comply with the specifications.	Enter a correct secret key.
400	IEF.100152	The application key value does not meet specifications.	The application key value does not meet specifications.	Enter a correct secret value.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100155	The key is in use and cannot be deleted.	The key is in use and cannot be deleted.	Stop using the secret and then delete it.
400	IEF.100159	The application configuration item is in use and cannot be deleted.	The application configuration item is in use and cannot be deleted.	Stop using the ConfigMap and then delete it.
400	IEF.100161	The node is being updated. The application cannot be deleted.	The node is being updated. The application cannot be deleted.	Stop updating the node and then delete the application.
400	IEF.100162	The advanced configuration parameters of the application version do not comply with the specifications.	The advanced configuration parameters of the application version do not comply with the specifications.	Enter correct advanced configuration parameters for the application version.
400	IEF.100163	The node operation type is not supported.	The node operation type is not supported.	Specify a correct node operation type.
400	IEF.100165	The application key data includes at least one key-value pair.	The application key data includes at least one key-value pair.	Check whether at least one secret data record exists.
400	IEF.100166	The node version is too early. The node cannot be updated.	The node version is earlier than 2.1.5. The node cannot be updated.	Upgrade the node to the latest version. You can view the node version and upgrade records on the node details page.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100167	The node version is too early.	Invalid application version schema	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100220	Device twin and its property visitor is inconsistency	Static property of the device does not match twin property settings.	Check the static property of the device, modify the parameter value, and try again.
400	IEF.100238	The twin is not allowed to change.	Invalid static property of device. It cannot be modified or deleted.	Check the static property of the device, modify the parameter value, and try again.
400	IEF.100241	Node is offline, could not upgrade.	Node offline. It cannot be updated.	Ensure that the node is running properly and try again.
400	IEF.100242	Plugin version is not supported in such instance.	Instance does not support add-on version.	Ensure that the add-on version matches the instance version. Use the matching add-on version.
400	IEF.100404	The resource does not exist.	The resource does not exist.	Ensure that the parameters of the requested resource are correct. If they are correct but the error persists, contact technical support for assistance.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.100406	This API is not support in this IEF service instance.	Professional edition does not support this API.	The professional edition does not support this API. Perform this operation in the enterprise edition.
400	IEF.100410	Unmarshal failed.	There was an error during parameter parsing.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.100412	Failed to query K8S cluster resources.	Failed to query K8S cluster resources.	An internal error occurred. Contact technical support for assistance.
400	IEF.100424	Operation not authorized.	Unauthorized operation.	Ensure that the token in the request header is correct and try again. If the token is correct but the error persists, contact technical support for assistance.
400	IEF.100425	Invalid status.	Container abnormal.	An internal error occurred. Contact technical support for assistance.
400	IEF.100506	Create tag fail.	Failed to create tag.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.101001	[Service Grid] Failed to convert the structure.	[Service Grid] Failed to convert the structure.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.101002	[Service Grid] The service already exists.	[Service Grid] The service already exists.	Modify service parameters or delete unnecessary services and try again.
400	IEF.101003	[Service Grid] The associated application does not exist.	[Service Grid] The associated application does not exist.	Check whether the associated application exists. Enter the correct associated application and try again.
400	IEF.101004	[Service Grid] Failed to Create K8S Cluster Resources	[Service Grid] Failed to Create K8S Cluster Resources	An internal error occurred. Contact technical support for assistance.
400	IEF.101005	[Service Grid] Failed to Delete K8S Cluster Resources	[Service Grid] Failed to Delete K8S Cluster Resources	An internal error occurred. Contact technical support for assistance.
400	IEF.101006	[Service Grid] Failed to Query K8S Cluster Resources	[Service Grid] Failed to Query K8S Cluster Resources	An internal error occurred. Contact technical support for assistance.
400	IEF.101007	[Service Grid] Failed to Update K8S Cluster Resources	[Service Grid] Failed to Update K8S Cluster Resources	An internal error occurred. Contact technical support for assistance.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.104003	Bad Parameter.	There was an error during parameter verification.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.104004	The resource to be created already exists.	The resource to be created already exists.	Modify resource parameters or delete unnecessary resources and try again.
400	IEF.110074	The specified application template cannot be found.	The specified application template cannot be found.	Check whether the specified application template exists. Enter the correct application template and try again.
400	IEF.110076	The specified app version cannot be found.	The specified app version cannot be found.	Check whether the specified application version exists. Enter the correct application version and try again.
400	IEF.110080	Specified device not found	Specified device not found	Check whether the specified device exists. Enter the correct device and try again.
400	IEF.110081	The specified device template is not found.	The specified device template is not found.	Check whether the specified device template exists. Enter the correct device template and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.120001	Internal error	Internal error	An internal error occurred. Contact technical support for assistance.
400	IEF.300000	Failed to obtain request parameters.	Failed to obtain request parameters.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300001	The request parameter message endpoint does not meet the requirements.	The request parameter message endpoint does not meet the requirements.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300002	The name of the request parameter message endpoint does not comply with the specifications.	The name of the request parameter message endpoint does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300003	The description of the request parameter message endpoint does not comply with the specifications.	The description of the request parameter message endpoint does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300004	The request parameter message endpoint type is not supported.	The request parameter message endpoint type is not supported.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300005	The endpoint attribute of the request parameter does not comply with the specifications.	The endpoint attribute of the request parameter does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300006	The request parameter message endpoint already exists.	The request parameter message endpoint already exists.	Change a message endpoint name, or delete the existing message endpoint without affecting services, then try again.
400	IEF.300007	The specified message endpoint does not exist.	The specified message endpoint does not exist.	Check whether the specified message endpoint is deleted. Enter the correct message endpoint and try again.
400	IEF.300008	The message endpoint is in use and cannot be deleted.	The message endpoint is in use and cannot be deleted.	Stop using the message endpoint or wait until the message endpoint is no longer used, and then delete the message endpoint.
400	IEF.300009	Message Endpoint Quota Insufficient	Message Endpoint Quota Insufficient	Reduce the resource usage or contact technical support to increase the quota.
400	IEF.300101	The request parameter message route does not comply with the specifications.	The request parameter message route does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300102	The routing name of the request parameter does not comply with the specifications.	The routing name of the request parameter does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300103	The message route description of the request parameter does not comply with the specifications.	The message route description of the request parameter does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300104	The source endpoint ID of the message route does not comply with the specifications.	The source endpoint ID of the message route does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300105	The source endpoint resource of the message route does not meet the specifications.	The source endpoint resource of the message route does not meet the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300106	The destination endpoint ID of the message route does not comply with the specifications.	The destination endpoint ID of the message route does not comply with the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300107	The destination endpoint resource of the message route does not meet the specifications.	The destination endpoint resource of the message route does not meet the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300108	The specified message route already exists.	The specified message route already exists.	Change a message route name, or delete the existing message route without affecting services, then try again.
400	IEF.300109	The specified message route does not exist.	The specified message route does not exist.	Check whether the specified message route is deleted. Enter the correct message route and try again.
400	IEF.300110	Failed to obtain the message routing request action.	Failed to obtain the message routing request action.	Set the message routing action correctly and try again.
400	IEF.300111	The message routing request action is not supported.	The message routing request action is not supported.	Set the message routing action correctly and try again.
400	IEF.300112	The message route is being enabled and cannot be enabled. The message route is being disabled and cannot be disabled.	The message route is being enabled and cannot be enabled. The message route is being disabled and cannot be disabled.	Log in to the IEF console, locate the specified route on the Routes page, and check its status. If the route has been enabled, do not enable it again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300113	Message routing quota is insufficient.	Message routing quota is insufficient.	Reduce the resource usage or contact technical support to increase the quota.
400	IEF.300114	The specified DIS channel does not exist.	The specified DIS channel does not exist.	Check whether the specified DIS stream is deleted. Enter the correct DIS stream and try again.
400	IEF.300115	Invalid DIS channel requested	Invalid DIS channel requested	Check whether the specified DIS stream is deleted. Enter the correct DIS stream and try again.
400	IEF.300116	The requested servicebus path does not meet specifications.	The requested servicebus path does not meet specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300117	The requested eventbus topic does not meet specifications.	The requested eventbus topic does not meet specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300118	The requested eventbus topic already exists.	The requested eventbus topic already exists.	Change an EventBus topic, or delete the existing EventBus topic without affecting services, then try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300119	The requested APIGW resource does not meet specifications.	The requested APIGW resource does not meet specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300120	The requested MQTT topic does not meet specifications.	The requested MQTT topic does not meet specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300121	Duplicate MQTT topic data.	Duplicate MQTT topic data.	Change an MQTT topic, or delete the existing MQTT topic without affecting services, then try again.
400	IEF.300122	The REST path of the request parameter does not meet the specifications.	The REST path of the request parameter does not meet the specifications.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
400	IEF.300123	Duplicate REST path data in the request parameter.	Duplicate REST path data in the request parameter.	Change a REST path, or delete the existing REST path without affecting services, then try again.
400	IEF.300124	The request parameter device is faulty.	The request parameter device is faulty.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300125	The requested device does not exist.	The requested device does not exist.	Check whether the requested device is deleted. Enter the correct device and try again.
400	IEF.300126	The requested edge node does not exist.	The requested edge node does not exist.	Check whether the requested edge node is deleted. Enter the correct edge node and try again.
400	IEF.300127	The requested edge node conflicts.	The requested edge node conflicts.	Change an edge node, or delete the existing edge node without affecting services, then try again.
400	IEF.300128	When the request destination port type is tsdb, the projectID is empty.	When the request destination port type is tsdb, the projectID is empty.	Enter a correct project ID and try again.
400	IEF.300129	When the request destination port type is tsdb, projectID is invalid.	When the request destination port type is tsdb, projectID is invalid.	Enter a correct project ID and try again.
400	IEF.300130	When the request destination port type is tsdb, domain_id is invalid.	When the request destination port type is tsdb, domain_id is invalid.	Enter a correct domain ID and try again.
400	IEF.300131	The URL is invalid when the request destination port type is tsdb.	The URL is invalid when the request destination port type is tsdb.	Enter a correct URL and try again.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.300132	When the request destination port type is tsdb, the label is invalid.	When the request destination port type is tsdb, the label is invalid.	Enter a correct tag and try again.
400	IEF.300133	The requested edge node does not exist.	The requested edge node does not exist.	Check whether the requested edge node is deleted. Enter the correct edge node and try again.
400	IEF.300134	When the request destination port type is tsdb, the resource does not meet the specifications.	When the request destination port type is tsdb, the resource does not meet the specifications.	Enter a correct resource and try again.
400	IEF.300135	The nodeId is empty or does not comply with the specifications.	The nodeId is empty or does not comply with the specifications.	Enter a correct node ID and try again.
400	IEF.300201	The quota type is incorrect.	The quota type is incorrect.	Change the quota type based on the returned error information or the API Reference and try again.
400	IEF.310000	The request does not contain a token.	The request does not contain a token.	Ensure that the request header contains the correct token.

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Status Code	Error Codes	Error Message	Description	Solution
400	IEF.310001	Failed to obtain the token in the request.	Failed to obtain the token in the request.	Ensure that the entered token is correct or obtain a new token. If the token is correct but the error persists, contact technical support for assistance.
400	IEF.310002	The token has expired.	The token has expired.	Obtain a new token.
400	IEF.310003	Failed to connect to the database.	Failed to connect to the database.	An internal error occurred. Contact technical support for assistance.
400	IEF.330000	Failed to connect to the DIS service.	Failed to connect to the DIS service.	An internal error occurred. Contact technical support for assistance.
400	IEF.330001	Failed to connect to the edgebroker.	Failed to connect to the edgebroker.	An internal error occurred. Contact technical support for assistance.
400	IEF.340000	Failed to convert the token.	Failed to convert the token.	Ensure that the token is correct or contact technical support for assistance.
400	IEF.340001	Internal error	Internal error	An internal error occurred. Contact technical support for assistance.
401	IEF.100049	ProjectID is not match this token.	Project ID does not match token.	Obtain the token using the project ID of the tenant and try again. If the token is correct but the error persists, contact technical support for assistance.

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Status Code	Error Codes	Error Message	Description	Solution
401	IEF.100050	Invalid certificate.	Token authentication failed.	Ensure that the token in the request header is correct and try again. If the token is correct but the error persists, contact technical support for assistance.
401	IEF.110001	The auth token is not found.	Token not found.	Ensure that the token in the request header is correct and try again. If the token is correct but the error persists, contact technical support for assistance.
401	IEF.110002	Bad token.	Invalid token.	Ensure that the token in the request header is correct and try again. If the token is correct but the error persists, contact technical support for assistance.
403	IEF.100401	No running node in group.	No node running in node group.	No node is running in the node group. Start the node and try again.
403	IEF.130087	Deployment is pending create.	The Deployment is being created.	The Deployment is being created and cannot be deleted.
404	IEF.100109	Resource not found.	Specified resource not found.	The specified resource does not exist. Ensure that the resource status is normal and try again.

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Status Code	Error Codes	Error Message	Description	Solution
404	IEF.100173	Edge node not found.	Empty node list.	Manage the node and try again.
404	IEF.110085	DeviceAccessConfig of devcice not found.	Device configuration not found.	The device configuration is missing. Reconfigure the device.
409	IEF.100117	Deployment is being deleted.	The Deployment is being deleted.	The Deployment is being deleted. Do not delete it again.
409	IEF.100172	Node is not running.	Node not running.	Ensure that the node is running properly and try again.
409	IEF.130085	Duplicated key in tags.	Duplicate tag keys.	Locate the error cause based on the returned error information or the API Reference, modify the parameter value, and try again.
409	IEF.130086	Resource existed.	Resource already exists.	Check whether the resource is added repeatedly and try again.
409	IEF.130091	Instance is existed do not allow to delete.	Node associated with an instance or Deployment. It cannot be deleted.	Delete the instance or Deployment associated with the node and try again.
500	IEF.100411	k8s client failed.	Failed to request Kubernetes cluster.	An internal error occurred. Contact technical support for assistance.
500	IEF.100413	Update k8s failed.	Failed to update Kubernetes cluster resource.	An internal error occurred. Contact technical support for assistance.

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Status Code	Error Codes	Error Message	Description	Solution
500	IEF.100414	Delete k8s failed.	Failed to delete Kubernetes cluster resource.	An internal error occurred. Contact technical support for assistance.
500	IEF.100415	Create k8s failed.	Failed to create Kubernetes cluster resource.	An internal error occurred. Contact technical support for assistance.
500	IEF.100417	Failed to create ief instance.	Failed to create cluster.	An internal error occurred. Contact technical support for assistance.
500	IEF.100418	Failed to refresh token.	Failed to update authenticatio n information.	An internal error occurred. Contact technical support for assistance.
500	IEF.100419	Failed to delete ief instance.	Failed to delete cluster.	An internal error occurred. Contact technical support for assistance.
500	IEF.100426	Data struct error.	Data abnormal.	An internal error occurred. Contact technical support for assistance.
500	IEF.100427	Internal error.	Internal error.	An internal error occurred. Contact technical support for assistance.
500	IEF.100428	Operation error.	Operation error.	An internal error occurred. Contact technical support for assistance.
500	IEF.100429	Operation error.	Operation error.	An internal error occurred. Contact technical support for assistance.

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7.3 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:

- **Obtain the Project ID by Calling an API**
- **Obtain the Project ID from 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": "65ewtrgaggshhk1223245sghjlse684b",
            "is_domain": false,
            "parent_id": "65ewtrgaggshhk1223245sghjlse684b",
            "name": "project_name",
            "description": "",
            "links": {
                "next": null,
                "previous": null,
                "self": "https://www.example.com/v3/projects/a4adasfjljaaaakla12334jklga9sasfg"
            },
            "id": "a4adasfjljaaaakla12334jklga9sasfg",
            "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.

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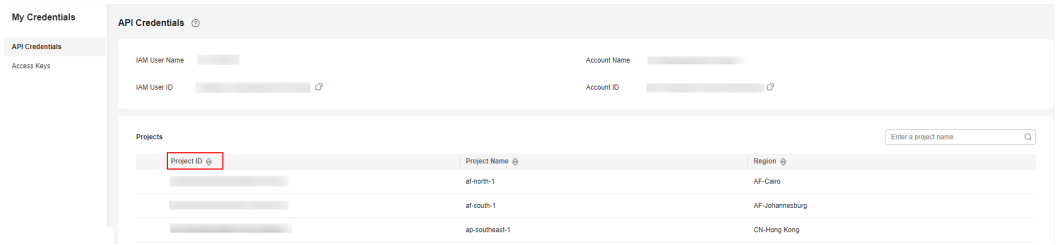
Figure 7-1 Viewing the project ID



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