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 Endpoints 1
1.4 Constraints 1
1.5 Concepts 2
2 API Overview 4
3 Calling APIs 6
3.1 Making an API Request 6
3.2 Authentication 10
3.3 Response 12
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 20
4.1.4 Querying a List of Edge Nodes 23
4.1.5 Deleting an Edge Node 27
4.1.6 Starting or Stopping an Edge Node 27
4.1.7 Updating Devices for an Edge Node 29
4.1.8 Querying Node Certificates 31
4.1.9 Creating a Node Certificate 33
4.1.10 Deleting a Node Certificate 35
4.2 Edge Device Management 36
4.2.1 Registering an Edge Device 36
4.2.2 Updating an Edge Device 41
4.2.3 Querying Details About an Edge Device 43
4.2.4 Querying a List of Edge Devices 44
4.2.5 Deleting an Edge Device 46
4.2.6 Updating Edge Nodes for an Edge Device 46
4.2.7 Querying an Edge Device Twin 49
4.2.8 Updating an Edge Device Twin 51

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4.3 Edge Device Template Management 53
4.3.1 Creating an Edge Device Template 53
4.3.2 Updating an Edge Device Template 58
4.3.3 Querying an Edge Device Template 62
4.3.4 Querying a List of Edge Device Templates 63
4.3.5 Deleting an Edge Device Template 65
4.4 Application Template Management 65
4.4.1 Creating an Application Template 66
4.4.2 Updating an Application Template 69
4.4.3 Querying Details About an Application Template 71
4.4.4 Querying a List of Application Templates 74
4.4.5 Deleting an Application Template 76
4.4.6 Creating an Application Version 77
4.4.7 Updating an Application Version 80
4.4.8 Querying Details About an Application Version 82
4.4.9 Querying a List of Application Versions 84
4.4.10 Deleting an Application Version 86
4.5 Deployment Management v3 (Recommended) 86
4.5.1 Creating a Deployment 86
4.5.2 Querying a List of Deployments 104
4.5.3 Updating a Deployment 115
4.5.4 Deleting a Deployment 133
4.5.5 Querying Details About a Deployment 135
4.5.6 Querying a List of Application Instances 145
4.6 Tag Management 153
4.6.1 Querying Resource Instances 153
4.6.2 Adding or Deleting Resource Tags in Batches 159
4.6.3 Adding a Resource Tag 162
4.6.4 Deleting a Resource Tag 163
4.6.5 Querying Resource Tags 164
4.6.6 Querying Project Tags 166
4.7 ConfigMap Management 167
4.7.1 Creating a ConfigMap 167
4.7.2 Updating a ConfigMap 170
4.7.3 Querying Details About a ConfigMap 173
4.7.4 Querying a List of ConfigMaps 174
4.7.5 Deleting a ConfigMap 176
4.8 Secret Management 177
4.8.1 Creating a Secret 177
4.8.2 Updating a Secret 179
4.8.3 Querying Secret Details 182
4.8.4 Querying a List of Secrets 183

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4.8.5 Deleting a Secret ... 185
4.9 Endpoint Management ... 186
4.9.1 Querying a List of Endpoints ... 186
4.9.2 Creating an Endpoint ... 190
4.9.3 Querying Details About an Endpoint ... 194
4.9.4 Deleting an Endpoint ... 198
4.10 Rule Management ... 200
4.10.1 Querying a List of Rules ... 200
4.10.2 Creating a Rule ... 205
4.10.3 Querying Details About a Rule ... 211
4.10.4 Deleting a Rule ... 216
4.10.5 Querying All Errors of a Rule ... 218
4.10.6 Enabling a Rule ... 221
4.10.7 Disabling a Rule ... 223
4.11 Service Management ... 225
4.11.1 Querying a List of Services ... 225
4.11.2 Creating a Service ... 228
4.11.3 Querying Service Details ... 233
4.11.4 Updating a Service ... 236
4.11.5 Deleting a Service ... 241
5 Data Structure ... 243
6 Permissions Policies and Supported Actions ... 266
7 Appendix ... 271
7.1 Status Codes ... 271
7.2 Error Codes ... 272
7.3 Obtaining a Project ID ... 281
8 Out-of-Date APIs ... 283
8.1 Deployment Management v2 ... 283
8.1.1 Creating a Deployment ... 283
8.1.2 Updating a Deployment ... 288
8.1.3 Querying Details About a Deployment ... 292
8.1.4 Querying a List of Deployments ... 294
8.1.5 Deleting a Deployment ... 296
A Change History ... 298

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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 device/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 **3 Calling APIs**.

1.3 Endpoints

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

1.4 Constraints

For more constraints, see API description.

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1.5 Concepts

- Account

  An account is created upon successful registration with HUAWEI CLOUD. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity and should not be used directly to perform routine management. For security purposes, create IAM users and grant them permissions for routine management.

- IAM user

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

  An IAM user can view the account ID and user ID on the **My Credentials** page of the console. The account name, username, and password will be required for API authentication.

- Region

  Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified 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**.

- Availability Zone (AZ)

  An AZ contains one or more physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to support cross-AZ high-availability systems.

- Project

  Projects group and isolate resources (including compute, storage, and network resources) across physical regions. A default project is provided for each region, and subprojects can be created under each default project. Users can be granted permissions to access all resources in a specific project. For more refined access control, create subprojects under a project and create resources in the subprojects. Users can then be assigned permissions to access only specific resources in the subprojects.

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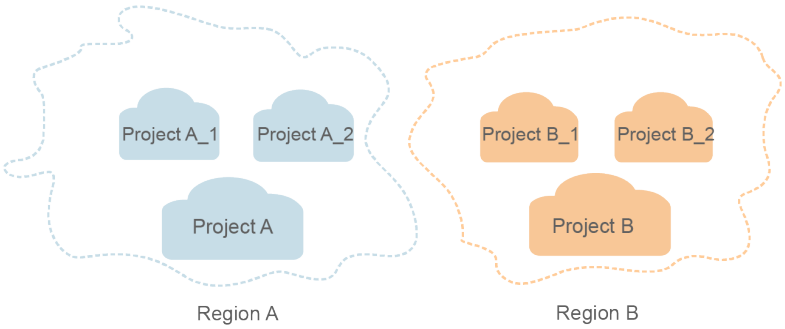
Figure 1-1 Project isolating model



- Enterprise Project

  Enterprise projects group and manage resources across regions. Resources in enterprise projects are logically isolated from each other. An enterprise project can contain resources in multiple regions, and resources can be directly transferred between enterprise projects.

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

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2 API Overview

Type	Description
4.1 Edge Node Management	Edge node management APIs, including APIs that create, query, modify, and delete edge nodes.
4.2 Edge Device Management	Edge device management APIs, including APIs that create, query, modify, and delete edge devices.
4.3 Edge Device Template Management	Edge device template management APIs, including APIs that create, query, modify, and delete edge device templates.
4.4 Application Template Management	Edge application management APIs, including APIs that create, query, modify, and delete edge applications.
4.5 Deployment Management v3 (Recommended)	Edge application Deployment management APIs (v3), including APIs that create, query, modify, and delete edge application Deployments.
8.1 Deployment Management v2	Edge application Deployment management APIs (v2), including APIs that create, query, modify, and delete edge application Deployments.
4.6 Tag Management	Tag management APIs, including APIs that create, query, and delete tags.
4.7 ConfigMap Management	ConfigMap management APIs, including APIs that create, update, query, and delete ConfigMaps.
4.8 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.

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Type	Description
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. 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-Beijing1** region is **iam.cn-north-1.myhuaweicloud.com**.
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the **resource-path** of the API used to obtain a user token is **/v3/auth/tokens**.

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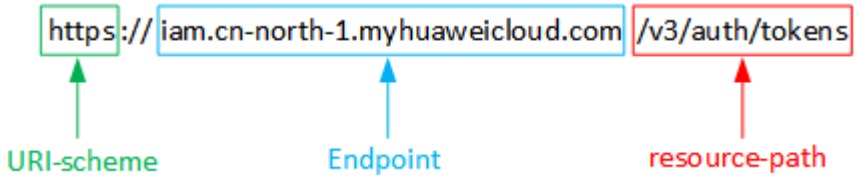
Parameter	Description
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of "*Parameter name=Parameter value*". For example, **?limit=10** indicates that a maximum of 10 data records will be displayed.

For example, to obtain an IAM token in the **CN North-Beijing1** region, obtain the endpoint of IAM (**iam.cn-north-1.myhuaweicloud.com**) for this region and the **resource-path** (**/v3/auth/tokens**) in the URI of the API used to **obtain a user token**. Then, construct the URI as follows:

```
https://iam.cn-north-1.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-1.myhuaweicloud.com/v3/auth/tokens
```

Request Header

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

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
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

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Parameter	Description	Mandatory	Example Value
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in **7.3 Obtaining a Project ID**.	No This field is mandatory for requests that use AK/SK authentication in the Dedicated Cloud (DeC) scenario or multi-project scenario.	e9993fc787d94b6c886cbaa340f9c0f4
X-Auth-Token	Specifies the user token. It is a response to the API for **obtaining a user token** (This is the only API that does not require authentication). After the request is processed, the value of **X-Subject-Token** in the response header is the token value.	No This field is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZIhvcNAQcCo...ggg1BBIINPXsidG9rZ

NOTE

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

For more details, see "Authentication Using AK/SK" in **3.2 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-1.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json
```

(Optional) Request Body

This part is optional. The body of a request is often sent in a structured format 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*,

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domainname, ******** (login password), and *xxxxxxxxxxxxxxxxx* (project name) with the actual values. 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-1.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json

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

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

3.2 Authentication

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

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

Token-based Authentication

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.

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You can obtain a token by calling the **Obtaining User Token** API. When you call the API, set **auth.scope** in the request body to **project**.

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

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

```
POST https://iam.cn-north-1.myhuaweicloud.com/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

AK/SK-based Authentication

NOTE

AK/SK-based authentication supports API requests with a body not larger than 12 MB. For API requests with a larger body, token-based authentication is recommended.

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

- AK: access key ID, which is a unique identifier used in conjunction with a secret access key to sign requests cryptographically.
- SK: secret access key used in conjunction with an AK to sign requests cryptographically. It identifies a request sender and prevents the request from being modified.

In AK/SK-based authentication, you can use an AK/SK to sign requests based on the signature algorithm or 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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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 **7.1 Status Codes**.

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

Response Header

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

Figure 3-2 Header fields of the response to the request for obtaining a user token



(Optional) Response Body

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

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

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

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```
        "expires_at": "2019-02-13T06:52:13.855000Z",
        "methods": [
            "password"
        ],
        "catalog": [
            {
                "endpoints": [
                    {
                        "region_id": "az-01",
.....
```

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

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

In the 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 the edge core software and install it on the edge node to enable IEF to manage the node.

URI

POST /v2/{project_id}/edgemgr/nodes

Table 4-1 Parameter description

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 Parameter description

Parameter	Mandatory	Type	Description
node	Yes	**Table 4-3** object	Parameters about the edge node.

Table 4-3 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 value 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.
log_configs	No	Array of **Table 5-2** objects	Edge device log configuration.
device_infos	No	Array of **Table 5-3** objects	Device information.
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**.
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.

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Parameter	Mandatory	Type	Description
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.

Request example:

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

Response

Response parameters

Table 4-4 Parameter description

Parameter	Type	Description
node	**Table 5-1** object	Edge node details.

Response example:

```
{
   "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,
```


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```
    "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
        },
        {
            "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,
```


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```
        "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 the properties of an edge node.

URI

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

Table 4-5 Parameter description

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

Request parameters

Table 4-6 Parameter description

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.

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Parameter	Mandatory	Type	Description
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.

Request example:

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

Response

Response parameters

Table 4-7 Parameter description

Parameter	Type	Description
node	**Table 5-1** object	Edge node details.

Response example:

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

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```
        "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",
                "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 4-8 Parameter description

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

None

Response

Response parameters

Table 4-9 Parameter description

Parameter	Type	Description
node	Table 5-1 object	Edge node details.

Response example:


```
{
   "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,
            "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",
```


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```
            "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": [
            "127.127.1.0",
            "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": "",
    "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",
```


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```
    "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.

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 4-10 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 4-11 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 device ID.
device_name	No	String	Search by the name of the bound device.
app_name	No	String	Search by application name.
tags	No	String	Tag, which is a key-value pair. Connect each key and value by a period (.). If there are multiple tags, separate them by commas (,). Example: tags=key1.value1,key2.value2

NOTE

- If no query parameter is specified, all edge nodes about an account are returned.
- **app_name** and **tags** cannot be used 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

None

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Response

Response parameters

Table 4-12 Parameter description

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

Response example:


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


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```
            "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": [
            "127.127.1.0",
            "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": "",
    "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}

Table 4-13 Parameter description

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

None

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 4-14 Parameter description

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 4-15 Parameters in the request body

Parameter	Mandatory	Type	Description
node	Yes	Table 4-16 object	Node information.

Table 4-16 action

Parameter	Mandatory	Type	Description
action	Yes	String	Starting or stopping an edge node. Value: start or stop.

Request example:

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

Response

Response parameters

Table 4-17 Parameters in the request body

Parameter	Type	Description
node	Table 4-18 object	Node information.

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Table 4-18 action

Parameter	Type	Description
action	String	Starting or stopping an edge node. Value: start or stop.

Response example:

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

Error Codes

For details, see **Error Codes**.

4.1.7 Updating Devices for an Edge Node

Function

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

URI

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

Table 4-19 Parameter description

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 Parameter description

Parameter	Mandatory	Type	Description
devices	Yes	**devices** object	Device information.

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Table 4-21 devices

Parameter	Mandatory	Type	Description
added	No	**added** object	Details about the edge device to be bound.
removed	No	Array of strings	ID of the edge node to be unbound.

Table 4-22 added

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.
comment	No	String	Description of the relationship between the device and node. The value contains a maximum of 64 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
device_ids	Yes	Array of strings	A list of 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

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Table 4-23 Parameter description

Parameter	Mandatory	Type	Description
delete_connector	No	Boolean	Reserved field for industrial devices.
deploy_connector	No	Array of strings	Reserved field for industrial devices.
deployment_id	No	String	Reserved field for industrial devices.
update_devices	Yes	Table 4-21 Object	Device operation details.

Response example:

```
{
   "delete_connector": false,
   "deploy_connector": false,
   "deployment_id": null,
   "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.

URI

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

Table 4-24 Parameter description

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.

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Request

None

Response

Table 4-25 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 4-26** objects	Certificate list on the node.

Table 4-26 node_cert

Parameter	Type	Description
id	String	Certificate ID.
name	String	Certificate name.
description	String	Certificate description.
created_at	Timestamp	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 Request

None

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",
```


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```
            "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",
            "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 4-27 Parameter description

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

Table 4-28 Parameters in the request body

Parameter	Mandatory	Type	Description
name	Yes	String	Certificate name.

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Parameter	Mandatory	Type	Description
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.

Response

Table 4-29 Parameters in the response body

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.
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.

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Example Request

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

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.)

URI

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

Table 4-30 Parameter description

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

None

Response

None

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Error Codes

For details, see **Error Codes**.

4.2 Edge Device Management

4.2.1 Registering an Edge Device

Function

This API is used to register an edge device.

URI

POST /v2/{project_id}/edgemgr/devices

Table 4-31 URI 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 4-32 Parameters in the request body

Parameter	Mandatory	Type	Description
device	Yes	**Table 4-33** object	Device information.

Table 4-33 device

Parameter	Mandatory	Type	Description
id	No	String	Edge device ID. Enter 24 to 64 characters starting with a letter or digit. Only letters, digits, underscores (_), and hyphens (-) are allowed.

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Parameter	Mandatory	Type	Description
name	Yes	String	Edge device name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
description	No	String	Edge device description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
attributes	No	Object	Static properties of an edge 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" } } }`
connection_type	No	String	Connection type. The default value is **edge**.
access_protocol	Yes	String	Access protocol. The options are as follows: • **userdefine**: custom protocol • **modbus**: Modbus protocol • **opc-ua**: OPC UA protocol

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Parameter	Mandatory	Type	Description
twin	No	Object	Dynamic properties of an edge 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" } } }`
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**.

Request example:

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

Response

Response parameters:

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Table 4-34 Parameter description

Parameter	Type	Description
device	Table 4-35	Edge device details.

Table 4-35 device

Parameter	Type	Description
id	String	Edge device ID.
name	String	Edge device name.
access_protocol	String	Access protocol.
description	String	Edge device description.
project_id	String	Project ID.
created_at	String	Time when the edge device is created.
updated_at	String	Time when the edge device is updated.

attributes	Object	Static properties of the edge 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	Type	Description
twin	Object	Dynamic properties of an edge 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" } }
access_config	**Table 5-24** object	Access configuration, which varies depending on **access_protocol**.
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**.

Response example:

```
{
   "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"
   }
}
```

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Error Codes

For details, see **Error Codes**.

4.2.2 Updating an Edge Device

Function

This API is used to update an edge device.

URI

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

Table 4-36 Parameter description

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 4-37 Parameters in the request body

Parameter	Mandatory	Type	Description
device	Yes	**Table 4-38** object	Device information.

Table 4-38 device

Parameter	Mandatory	Type	Description
description	No	String	Edge device description. The value 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 edge 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"
			}
			}
			}

Request example:

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

Response

Table 4-39 Parameter description

Parameter	Type	Description
device	**Table 4-35** object	Edge device details.

Response example:

```
{
   "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",
```

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```
    "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 Edge Device

Function

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

URI

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

Table 4-40 URI 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	Edge device ID.

Request

None

Response

Response parameters

Table 4-41 Parameter description

Parameter	Type	Description
device	**Table 4-35** object	Edge device details.

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 Edge Devices

Function

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

URI

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

Table 4-42 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 4-43 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Edge device name, which supports fuzzy match.
node_id	No	String	Node ID, which exactly matches a node.
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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Parameter	Mandatory	Type	Description
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	Tag, which is a key-value pair. Connect each key and value by a period (.). If there are multiple tags, separate them by commas (,). Example: tags=key1.value1,key2.value2

NOTE

- If no query parameter is specified, all edge devices about an account are returned.
- **tags** and **node_id** can be used 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 used with other parameters for a compound query.

Request

None

Response

Response parameters

Table 4-44 Parameter description

Parameter	Type	Description
devices	Array of **Table 4-35** objects	Edge device list.
count	Integer	Number of edge devices that meet the conditions.

Example response

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

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```
            "name": "device",
            "access_protocol": "",
            "project_id": "05e1aef9040010e22fccc009adecb056",
            "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 Edge Device

Function

This API is used to delete an edge device.

URI

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

Table 4-45 Parameter description

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	Edge device ID.

Request

None

Response

None

Error Codes

For details, see **Error Codes**.

4.2.6 Updating Edge Nodes for an Edge Device

Function

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

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The functions are the same as those of the API described in **4.1.7 Updating Devices for an Edge Node**. The API described in **4.1.7 Updating Devices for an Edge Node** is recommended.

URI

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

Table 4-46 Parameter description

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 4-47 Parameters in the request body

Parameter	Mandatory	Type	Description
nodes	Yes	**Table 4-48** object	Node information.

Table 4-48 node

Parameter	Mandatory	Type	Description
added	No	**Table 4-49** object	Details about the node to be bound.
removed	No	Array of strings	ID of the edge node to be unbound.

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Table 4-49 added

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

```
{
   "update_nodes": {
      "removed": [],
      "added": {
         "comment": "hello world",
         "relation": "abcd",
         "node_ids": [
```

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```
            "592ede18-d030-4cc1-afb8-34ac1bae47f6"
        ]
      }
    }
}
```

Error Codes

For details, see **Error Codes**.

4.2.7 Querying an Edge Device Twin

Function

This API is used to query an edge device twin.

URI

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

Table 4-50 URI 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

None

Response

Response parameters

Table 4-51 Parameter description

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 edge 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 an Edge Device Twin

Function

This API is used to update an edge device twin.

URI

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

Table 4-52 describes the parameters.

Table 4-52 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 4-53 Parameter description

Parameter	Mandatory	Type	Description

twin	No	Object	Dynamic properties of an edge 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"
			}
			}
			}

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Parameter	Mandatory	Type	Description
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

Table 6 Parameter description

Parameter	Type	Description
twin	Object	Dynamic properties of an edge 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**.

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Example response

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

Error Codes

For details, see **Error Codes**.

4.3 Edge Device Template Management

4.3.1 Creating an Edge Device Template

Function

This API is used to create an edge device template.

URI

POST /v2/{project_id}/edgemgr/device_templates

Table 4-54 URI 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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Request

Table 4-55 Parameters in the request body

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

Table 4-56 device_template

Parameter	Mandatory	Type	Description
name	Yes	String	Edge device name. The value contains a maximum of 64 characters. Only letters, digits, underscores (_), and hyphens (-) are allowed.
access_protocol	Yes	String	Access protocol. The options are as follows: • **userdefine**: custom protocol • **modbus**: Modbus protocol • **opc-ua**: OPC UA protocol
description	No	String	Device template description. The value contains a maximum of 255 characters.
attributes	No	Object	Static properties of an edge 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 edge 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	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**.

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": {
```


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```
        "dev": "dev1"
      }
    }
}
```

Response

Table 4-57 Parameters in the response body

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

Table 4-58 device_template

Parameter	Type	Description
id	String	Edge device template ID.
name	String	Edge device template name.
access_protocol	String	Access protocol.
description	String	Edge device template description.
attributes	Object	Static properties of an edge 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	Type	Description

twin	Object	Dynamic properties of an edge 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	Time when the edge device template is created.
updated_at	String	Time when the edge device is updated.
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	Object	Device template tag, in key-value pair format.

Example response

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

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```
                "value": "running"
            },
            "metadata": {
                "type": "string"
            }
        }
    }
  }
 }
}
```

Error Codes

For details, see **Error Codes**.

4.3.2 Updating an Edge Device Template

Function

This API is used to update an edge device template.

URI

PUT /v2/{project_id}/edgemgr/device_templates/{device_template_id}

Table 4-59 URI 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 4-60 Parameters in the request body

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

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Table 4-61 device_template

Parameter	Mandatory	Type	Description
description	No	String	Device template description. The value contains a maximum of 255 characters.
attributes	No	Object	Static properties of an edge 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 edge 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" }
			}

tags	No	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**.

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Example request

```
{
       "device_template":{
       "description":"This is a camera template",
       "attributes":{
          "cameraURL":{
             "value":"127.0.0.1",
             "metadata":{
                "type":"string"
             }
          }
       },
       "twin":{
          "runstate":{
             "expected":{
                "value":"running"
             },
             "metadata":{
                "type":"string"
             }
          }
       }
    }
}
```

Response

Table 4-62 Parameter description

Parameter	Type	Description
device_template	Table 4-58	Details about the edge 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 an Edge Device Template

Function

This API is used to query an edge device template.

URI

GET /v2/{project_id}/edgemgr/device_templates/{device_template_id}

Table 4-63 URI 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

None

Response

Table 4-64 Parameter description

Parameter	Type	Description
device_template	**Table 4-58**	Details about the edge 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",
```

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```
    "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 Edge Device Templates

Function

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

URI

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

Table 4-65 URI parameter

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

Table 4-66 Optional query parameters

Parameter	Mandatory	Type	Description
name	No	String	Edge device name, which supports fuzzy match.

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

NOTE

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

Request

None

Response

Response parameters

Table 4-67 Parameter description

Parameter	Type	Description
count	Integer	Number of edge device templates.
device_templates	Array of **Table 4-58** objects	Details about the edge 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,
```

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```
                "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 Edge Device Template

Function

This API is used to delete an edge device template.

URI

DELETE /v2/{project_id}/edgemgr/device_templates/{device_template_id}

Table 4-68 Parameter description

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

None

Response

None

Error Codes

For details, see **Error Codes**.

4.4 Application Template Management

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4.4.1 Creating an Application Template

Function

This API is used to create an application template.

URI

POST /v2/{project_id}/edgemgr/apps

Table 4-69 Parameter description

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

Request

Table 4-70 Parameters in the request body

Parameter	Mandatory	Type	Description
app	Yes	Table 4-71 object	Application template information.

Table 4-71 app

Parameter	Mandatory	Type	Description
name	Yes	String	Application template name. The value contains a maximum of 32 characters. Only letters, digits, and hyphens (-) are allowed. The value must begin and end with a digit or letter. 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.

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Parameter	Mandatory	Type	Description
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.

Request example:

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

Response

Response parameters

Table 4-72 Parameter description

Parameter	Type	Description
app	**Table 4-73** object	Application template details.

Table 4-73 app

Parameter	Type	Description
id	String	Application template ID.

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Parameter	Type	Description
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.
updated_at	String	Time when the application is updated.
project_id	String	Project ID.
svc_type	String	Cloud service type corresponding to the application template.
visibility	String	Template type.
app_versions	**Table 5-17** object	Application version information.

Response example:

```
{
    "app":{
        "name":"test-app-1",
        "svc_type":"flink",
        "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":[

        ]
    }
}
```

Error Codes

For details, see **Error Codes**.

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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 4-74 Parameter description

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 4-75 Parameter description

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: ^~#$ %&*<>()[]{}'"\

Request example:

```
{
   "app": {
```

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```
    "alias": "Edge facial recognition",
    "description": "This is a test."
  }
}
```

Response

Response parameters

Table 4-76 Parameter description

Parameter	Type	Description
app	Table 4-77	Application template details.

Table 4-77 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.
svc_type	String	Cloud service type corresponding to the application template.
visibility	String	Template type.
app_versions	Table 5-17 object	Application version information.
alias	String	Application template alias.
project_id	String	Project ID.

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

Response example:


```
{
   "app":{
      "name":"test",
      "svc_type":null,
      "created_at":"2018-05-25T03:26:33",
      "updated_at":"2018-05-25T03:29:48",
      "visibility":"private",
      "alias": "Edge facial 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**.

4.4.3 Querying Details About an Application Template

Function

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

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URI

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

Table 4-78 Parameter description

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

None

Response

Response parameters

Table 4-79 Parameter description

Parameter	Type	Description
app	**Table 4-80** object	App template details.

Table 4-80 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.
project_id	String	Project ID.

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Parameter	Type	Description
icon_url	String	URL of the application icon.
svc_type	String	Cloud service type corresponding to the application template.
visibility	String	Template type.
app_versions	Table 5-17 object	Application version information.
alias	String	Application template alias.

Response example:

```
{
   "app":{
      "name":"test",
      "svc_type":null,
      "created_at":"2018-05-25T03:26:33",
      "updated_at":"2018-05-25T03:29:48",
      "visibility":"private",
      "alias": "Edge facial 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**.

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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}

Table 4-81 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 4-82 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**.
visibility	No	String	**public**: Indicates a public template, which can only be created by an administrator. **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.

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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

None

Response

Parameter	Type	Description
apps	Array of **Table 4-83** objects	List of application templates.
count	Int	Number of application templates that meet the conditions.

Table 4-83 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 edge device is created.
updated_at	String	Time when the edge device is updated.
project_id	String	Project ID.
svc_type	String	Cloud service type corresponding to the application template.
visibility	String	Template type.
app_versions	**Table 5-17** object	Application version information.
alias	String	Application template alias.

Response example:

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```
{
"app": [
{
       "name": "test",
       "svc_type": null,
       "created_at": "2018-05-25T03:26:33",
       "updated_at": "2018-05-25T03:29:48",
       "visibility": "private",
       "alias": "Edge facial 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**.

4.4.5 Deleting an Application Template

Function

This API is used to delete an application template.

URI

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

Table 4-84 Parameter description

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.

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Request

None

Response

None

Error Codes

For details, see **Error Codes**.

4.4.6 Creating an Application Version

Function

This API is used to create an application version.

URI

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

Table 4-85 Parameter description

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.

Request

Table 4-86 Parameters in the request body

Parameter	Mandatory	Type	Description
version	Yes	**Table 4-87** object	Application version information.

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Table 4-87 version

Parameter	Mandatory	Type	Description
version	Yes	String	Version description. The value contains a maximum of 64 characters. Only letters, digits, hyphens (-), and periods (.) are allowed. The value must begin and end with a digit or letter.
image_url	Yes	String	Container image URL. The value 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 strings	Parameters.

Request example:

```
{
    "version": {
        "version": "v2",
        "image_url": "edge-demo-app:latest",
        "resources": {
            "limits": {
                "cpu": 0.1,
                "memory": 1024,
```


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```
            "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 4-88 Parameter description

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

Response example:

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

      "volumes": [
         {
            "read_only": true,
            "source": "/tmp",
            "destination": "/tmp0",
            "type": "hostPath",
            "name": "test"
```

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```
            }
        ],
        "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 Version

Function

This API is used to update an application version.

URI

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

Table 4-89 Parameter description

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.

Request

Request parameters

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Table 4-90 Parameter description

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	Particular parameters of an application template.
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.

Request example:

```
{
    "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"
```

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```
    }
  }
}
```

Response

Response parameters

Table 4-91 Parameter description

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

Response example:

```
{
  "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": [],
  "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",
  "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 Version

Function

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

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URI

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

Table 4-92 Parameter description

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.

Request

None

Response

Response parameters

Table 4-93 Parameter description

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

Response example:


```
{
    "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",
        "volumes": [
            {
                "read_only": true,
                "source": "/tmp",
                "destination": "/tmp0",
                "type": "hostPath",
                "name": "test2"
```


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```
            }
        ],
        "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 Versions

Function

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

URI

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

Table 4-94 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 ID.

Table 4-95 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

None

Response

Table 4-96 Parameter description

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

Response example:


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

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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 4-97 Parameter description

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.

Request

None

Response

None

Error Codes

For details, see **Error Codes**.

4.5 Deployment Management v3 (Recommended)

4.5.1 Creating a Deployment

Function

This API is used to create a Deployment.

URI

POST /v3/{project_id}/edgemgr/deployments

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Table 4-98 URI 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.

Request

Table 4-99 Parameters in the request body

Parameter	Mandatory	Type	Description
name	Yes	String	Deployment 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.
description	No	String	Deployment description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
source	No	String	Deployment source. The value can be **iem** (edge marketplace) or **userdefined** (custom).
group_id	No	String	ID of the node group to which the application is deployed. Specify either **group_id** or **node_ids**.
node_ids	Yes	Array of strings	ID of the edge node to which the application is deployed. Currently, only one edge node is supported.
tags	No	Array of **Attribute** objects	Deployment tag.
deployment	Yes	**CreateAppsInDeploymentV3** object	-

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Table 4-100 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	**PodRequest** object	Application template.

Table 4-101 PodRequest

Parameter	Mandatory	Type	Description
configs	Yes	**PodConfigs** object	Application instance configuration.
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 4-102 ContainerDef

Parameter	Mandatory	Type	Description
name	Yes	String	Container 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.
image_url	Yes	String	Container image URL.
args	No	Array of strings	Container startup arguments. The value contains a maximum of 65,536 characters.

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Parameter	Mandatory	Type	Description
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	**ResQuest** object	Container resource amount.
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	Volume onto which the container is mounted.

Table 4-103 Volume

Parameter	Mandatory	Type	Description
name	Yes	String	Volume name. The value contains a maximum of 63 characters. Only lowercase letters and digits are allowed.

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Parameter	Mandatory	Type	Description
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 the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	Yes	String	Volume mount path. It must be a valid path.

Table 4-104 Probe

Parameter	Mandatory	Type	Description
http_get	No	**HttpGet** object	HTTP health check. Specify either this parameter or **exec**.
exec	No	**Table 4-105** 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**.

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Table 4-105 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 4-106 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**.

Table 4-107 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	**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 4-108 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 4-109 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The value must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, uppercase letters, lowercase 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 4-114** 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 4-110 ResQuest

Parameter	Mandatory	Type	Description
limits	No	**Res** object	Resource amount limit.

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

Table 4-111 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 unit of MB. 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 unit of MB. 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 4-112 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**.

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Parameter	Mandatory	Type	Description
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	int	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 4-113 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 uppercase letters, lowercase letters, digits, underscores (_), and hyphens (-) are allowed.
value	No	String	The value contains a maximum of 43 characters. Only uppercase letters, lowercase letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

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Table 4-114 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-115 object	This parameter specifies the secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-116 object	This parameter specifies the ConfigMap to be referenced by an environment variable.

Table 4-115 secret

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

Table 4-116 configmap

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

Response

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

Table 4-117 Parameters in the response body

Parameter	Type	Description
id	String	Deployment ID.

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Parameter	Type	Description
name	String	Deployment 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.
replicas	Integer	Total number of instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The value 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 application 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.
project_id	String	Project ID.
created_at	String	Time when the Deployment is created.
updated_at	String	Time when the Deployment is updated.
template	**PodRequest** object	Application template.
state	String	Application status, which can be **Frozen**, **Deleting**, or **Deletion failed**. This field is reserved.
source_id	String	Reserved.

Table 4-118 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.

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

Table 4-119 ContainerDef

Parameter	Type	Description
name	String	Container 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.
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	Volume onto which the container is mounted.

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Table 4-120 Volume

Parameter	Type	Description
name	String	Volume name. The value 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 the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	String	Volume mount path. It must be a valid path.

Table 4-121 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-123** 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 4-122 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 4-123 Exec

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

Table 4-124 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 4-125 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 4-126 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The value must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, uppercase letters, lowercase letters, and underscores (_) are allowed.
value	No	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	No	**Table 4-131** 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 4-127 ResQuest

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

Table 4-128 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in unit of MB. 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 unit of MB. 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 4-129 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	int	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 4-130 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 uppercase letters, lowercase letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	The value contains a maximum of 43 characters. Only uppercase letters, lowercase letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

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Table 4-131 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-115 object	This parameter specifies the secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-116 object	This parameter specifies the ConfigMap to be referenced by an environment variable.

Table 4-132 secret

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

Table 4-133 configmap

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

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

Table 4-134 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 4-135 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": {
      "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 201:

```
{
   "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"
   ],
```

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```
  "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",
           "resources": {
              "limits": {
                 "cpu": "0.25",
                 "memory": "500"
              },
              "requests": {
                 "cpu": "0.25",
                 "memory": "500"
              }
           },
           "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 infomation"
}
```


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

Table 4-136 URI 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 4-137 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

None

Response

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

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Table 4-138 Parameters in the response body

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

Table 4-139 EdgeDeploymentResponseV3

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment 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.
replicas	Integer	Total number of instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The value 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 application 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 **iem** (edge marketplace) or **userdefined** (custom).
project_id	String	Project ID.
created_at	String	Time when the Deployment is created.
updated_at	String	Time when the Deployment is updated.
template	**PodRequest** object	Application template.

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Parameter	Type	Description
state	String	Application status, which can be **Frozen**, **Deleting**, or **Deletion failed**. This field is reserved.
source_id	String	Reserved.

Table 4-140 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.
init_containers	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-141 ContainerDef

Parameter	Type	Description
name	String	Container 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.
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.

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Parameter	Type	Description
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	Volume onto which the container is mounted.

Table 4-142 Volume

Parameter	Type	Description
name	String	Volume name. The value 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 the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	String	Volume mount path. It must be a valid path.

Table 4-143 Probe

Parameter	Type	Description
exec	**Table 4-145** object	CLI-based check.
http_get	**HttpGet** object	HTTP health check.

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Parameter	Type	Description
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 4-144 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 4-145 Exec

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

Table 4-146 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.

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Parameter	Type	Description
host_port_range	**HostPortRange** object	Host port range. Host ports in the specified range are automatically allocated to application instances. Either **host_port_range** or **host_port** must be specified.

Table 4-147 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 4-148 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The value must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, uppercase letters, lowercase letters, and underscores (_) are allowed.
value	No	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	No	**Table 4-153** 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 4-149 ResQuest

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

Table 4-150 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in unit of MB. 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 unit of MB. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-151 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	String	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.

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Table 4-152 Attribute

Parameter	Type	Description
key	String	-
value	String	-

Table 4-153 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-154 object	This parameter specifies the secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-155 object	This parameter specifies the ConfigMap to be referenced by an environment variable.

Table 4-154 secret

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

Table 4-155 configmap

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

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

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Table 4-156 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 4-157 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": "",
         "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": []
```


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```
        "containers": [
          {
            "name": "container-0",
            "image_url": "swr.cn-north-1.myhuaweicloud.com/ief-test/nginx:0705",
            "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": {
              "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"
              }
            ]
          }
        ]
      }
    }
```

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```
  ]
}
```

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 infomation"
}
```

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 4-158 URI 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.
deployment_id	Yes	String	Deployment ID.

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Request

Table 4-159 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 4-160 UpdatePodDeployment

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

Table 4-161 PodRequest

Parameter	Mandatory	Type	Description
configs	Yes	**PodConfigs** object	Application instance configuration.
init_containers	No	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Yes	Array of **ContainerDef** objects	Container configuration of the Deployment.

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Table 4-162 ContainerDef

Parameter	Mandatory	Type	Description
name	Yes	String	Container 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.
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.
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	Volume onto which the container is mounted.

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Table 4-163 Volume

Parameter	Mandatory	Type	Description
name	Yes	String	Volume name. The value 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**.
source	Yes	String	Volume source. When the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	Yes	String	Volume mount path. It must be a valid path.

Table 4-164 Probe

Parameter	Mandatory	Type	Description
http_get	No	**HttpGet** object	HTTP health check. Specify either this parameter or **exec**.
exec	No	**Table 4-166** 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**.

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Table 4-165 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**.

Table 4-166 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 4-167 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.

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Parameter	Mandatory	Type	Description
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.

Table 4-168 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 4-169 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The value must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, uppercase letters, lowercase 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 4-173 object	Environment variables can be imported from ConfigMaps or secrets.

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Parameter	Mandatory	Type	Description
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 4-170 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.

Table 4-171 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 unit of MB. 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 unit of MB. 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.

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Table 4-172 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.
toleration_seconds	No	int	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 4-173 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-174 object	This parameter specifies the secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-175 object	This parameter specifies the ConfigMap to be referenced by an environment variable.

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Table 4-174 secret

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

Table 4-175 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.

Table 4-176 Parameters in the response body

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment 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.
replicas	Integer	Total number of instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The value 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 application is deployed. Currently, only one edge node is supported.

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Parameter	Type	Description
tags	Array of **Attribute** objects	-
api_version	String	Deployment version.
source	String	Deployment source. The value can be **iem** (edge marketplace) or **userdefined** (custom).
project_id	String	Project ID.
created_at	String	Time when the Deployment is created.
updated_at	String	Time when the Deployment is updated.
template	**PodRequest** object	Application template.
state	String	Application status, which can be **Frozen**, **Deleting**, or **Deletion failed**. This field is reserved.
source_id	String	Reserved.

Table 4-177 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.
init_containers	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-178 ContainerDef

Parameter	Type	Description
name	String	Container 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.
image_url	String	Container image URL.

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Parameter	Type	Description
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	Volume onto which the container is mounted.

Table 4-179 Volume

Parameter	Type	Description
name	String	Volume name. The value 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 the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	String	Volume mount path. It must be a valid path.

Table 4-180 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-182** 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 4-181 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 4-182 Exec

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

Table 4-183 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 4-184 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 4-185 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The value must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, uppercase letters, lowercase 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 4-190** 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 4-186 ResQuest

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

Table 4-187 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in unit of MB. 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 unit of MB. 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 4-188 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	int	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 4-189 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 uppercase letters, lowercase letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	The value contains a maximum of 43 characters. Only uppercase letters, lowercase letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

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Table 4-190 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-191 object	This parameter specifies the secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-192 object	This parameter specifies the ConfigMap to be referenced by an environment variable.

Table 4-191 secret

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

Table 4-192 configmap

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

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

Table 4-193 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 4-194 Parameters in the response body

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

Example Request

```
{
   "deployment": {
      "replicas": 0,
      "template": {
         "configs": {
            "host_network": true,
            "host_pid": true,
            "migration": true,
            "restart_policy": "Always",
            "toleration_seconds": 300
         },
         "containers": [
            {
               "name": "container-0",
               "image_url": "swr.cn-north-1.myhuaweicloud.com/ief-test/nginx:0705",
               "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": "swr.cn-north-1.myhuaweicloud.com/ief-test/nginx:0705",
        "args": [
          "-c",
          "sleep 1000"
        ],
        "command": [
          "/bin/bash"
        ],
        "resources": {
          "limits": {
            "cpu": "0.25",
            "memory": "500",
            "gpu": 500"
          },
          "requests": {
```

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```
                "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 infomation"
}
```


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 4-195 URI 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.
deployment_id	Yes	String	Deployment ID.

Table 4-196 Query parameter

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

Request

None

Response

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

Table 4-197 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 4-198 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 infomation"
}
```

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 specified Deployment.

URI

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

Table 4-199 URI 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.
deployment_id	Yes	String	Deployment ID.

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Request

None

Response

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

Table 4-200 Parameters in the response body

Parameter	Type	Description
id	String	Deployment ID.
name	String	Deployment 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.
replicas	Integer	Total number of instances.
ready_replicas	Integer	Number of normal instances.
description	String	Deployment description. The value 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 application 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 **iem** (edge marketplace) or **userdefined** (custom).
project_id	String	Project ID.
created_at	String	Time when the Deployment is created.
updated_at	String	Time when the Deployment is updated.
template	**PodRequest** object	Application template.
state	String	Application status, which can be **Frozen**, **Deleting**, or **Deletion failed**. This field is reserved.

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Parameter	Type	Description
source_id	String	Reserved.

Table 4-201 PodRequest

Parameter	Type	Description
configs	**PodConfigs** object	Application instance configuration.
init_containers	Array of **ContainerDef** objects	init container configuration of the Deployment.
containers	Array of **ContainerDef** objects	Container configuration of the Deployment.

Table 4-202 ContainerDef

Parameter	Type	Description
name	String	Container 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.
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.

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Parameter	Type	Description
liveness_probe	**Probe** object	Workload liveness probe configuration.
version	String	Container version.
volumes	Array of **Volume** objects	Volume onto which the container is mounted.

Table 4-203 Volume

Parameter	Type	Description
name	String	Volume name. The value 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 the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	String	Volume mount path. It must be a valid path.

Table 4-204 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-206** 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 4-205 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 4-206 Exec

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

Table 4-207 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. Either **host_port_range** or **host_port** must be specified.

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Table 4-208 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 4-209 Env

Parameter	Mandatory	Type	Description
name	Yes	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, uppercase letters, lowercase letters, and underscores (_) are allowed.
value	No	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	No	**Table 4-214** 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 4-210 ResQuest

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

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Table 4-211 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in unit of MB. 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 unit of MB. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-212 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	int	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 4-213 Attribute

Parameter	Type	Description
key	String	-
value	String	-

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Table 4-214 value_from

Parameter	Mandatory	Type	Description
secret	No	Table 4-215 object	This parameter specifies the secret to be referenced by an environment variable. If **value_from** is specified, either **secret** or **configmap** must be specified.
configmap	No	Table 4-216 object	This parameter specifies the ConfigMap to be referenced by an environment variable.

Table 4-215 secret

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

Table 4-216 configmap

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

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

Table 4-217 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 4-218 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",
    "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": "swr.cn-north-1.myhuaweicloud.com/ief-test/nginx:0705",

                "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": {
                "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 infomation"
}
```


Error Codes

For details, see **Error Codes**.

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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

Table 4-219 URI 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 4-220 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 ID 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**.

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Parameter	Mandatory	Type	Description
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**.

Request

None

Response

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

Table 4-221 Parameters in the response body

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

Table 4-222 PodResponse

Parameter	Type	Description
id	String	ID of the application instance.
name	String	Name of the application instance.
configs	**PodConfigs** object	Application instance configuration.
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.

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Parameter	Type	Description
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 is created.
updated_at	String	Time when the application instance is updated.
state	String	Application instance status.

Table 4-223 ContainerResp

Parameter	Type	Description
args	Array of strings	Container startup arguments.
command	Array of strings	Container startup commands.
name	String	Container 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.
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.
ports	Array of **HostContainerPortMapping** objects	Container port mapping.
resources	**ResQuest** object	Resource amount.
volumes	Array of **Volume** objects	Volume onto which the container is mounted.

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Parameter	Type	Description
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.

Table 4-224 Volume

Parameter	Type	Description
name	String	Volume name. The value 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 the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
destination	String	Volume mount path. It must be a valid path.

Table 4-225 ResQuest

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

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Table 4-226 Res

Parameter	Type	Description
cpu	String	Number of CPU cores. The value range is 0.01–1000.
memory	String	Memory size, in unit of MB. 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 unit of MB. The value range is 0.01–1,024,000.
npu	String	Number of NPUs. The value range is 1–1000.

Table 4-227 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.

Table 4-228 Probe

Parameter	Type	Description
http_get	**HttpGet** object	HTTP health check.
exec	**Table 4-230** 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**.

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Table 4-229 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 4-230 Exec

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

Table 4-231 Env

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

Table 4-232 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**.

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Parameter	Type	Description
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	int	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 4-233 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 4-234 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",
```

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```
"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": "swr.cn-north-1.myhuaweicloud.com/ief-test/nginx:0705",

        "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,
            "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",
```


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```
                    "destination": "/var/IEF"
                }
            ],
            "restarts": 0,
            "message": "",
            "reason": ""
        }
    ],
    "node_id": "bcd83056c918480f8f190844bd425b23",
    "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 infomation"
}
```


Error Codes

For details, see **Error Codes**.

4.6 Tag Management

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 4-235 Path parameters

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

Parameter	Type	Description
resource_type	String	Resource type. • ief-edge_node • ief-deployment • ief-application • ief-device

Request

Table 4-236 Body parameters

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 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. 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 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 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 **not_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 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 **not_tags_any**. 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 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.

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Parameter	Mandatory	Type	Description
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.
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. Determine whether fuzzy match is required based on the keys. For example, if **key** is **resource_name**, fuzzy match (case insensitive) is used by default. If **value** is an empty string, exact match is used. For IEF, **resource_name** cannot be left blank; therefore, an empty list is returned.
console	No	Boolean	Whether the request is initiated from the console.
sorted	No	**Table 5-31** object	Sorting mode of results returned after resources are filtered by tag.

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Table 4-237 tag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key, which can contain a maximum of 127 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	Yes	Array of strings	List of tag values. Each value contains a maximum of 255 Unicode characters. Before verifying and using **values**, delete SBC spaces before and after the value. The value can be an empty array but cannot be left blank. 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 4-238 match

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key. Currently, only **resource_name** is supported.
value	Yes	String	Tag value. Each tag value can contain a maximum of 255 Unicode characters. The character set is not verified.

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Request example:

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

Table 4-239 Body parameters

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

Table 4-240 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 4-241 resource_tag

Parameter	Mandatory	Type	Description
key	Yes	String	Key.
value	Yes	String	Value.

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Response example

Response body 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 4-242 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

Table 4-243 Body parameters

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**.

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Table 4-244 resource_tag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key, which can contain a maximum of 36 Unicode characters. The key cannot be left blank and can contain only uppercase letters, lowercase letters, digits, hyphens (-), and underscores (_).
value	Mandatory when **action** is set to **create**; optional when **action** is set to **delete**	String	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. The value cannot be left blank and can contain only uppercase letters, lowercase letters, digits, hyphens (-), and underscores (_).

Request example

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

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```
    },
    {
        "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 for 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

Table 4-245 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.

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Request

Table 4-246 Body parameter

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

Table 4-247 tag

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

Request example:

```
{
   "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.

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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}

Table 4-248 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

None

Response

None

Error Codes

For details, see **Error Codes**.

4.6.5 Querying Resource Tags

Function

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

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URI

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

Table 4-249 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

None

Response

Table 4-250 Body parameter

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

Table 4-251 resource_tag

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

Response example

```
{
   "tags": [
      {
         "value": "",
         "key": "testtest"
```


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```
    },
    {
        "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

Table 4-252 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

None

Response

Table 4-253 Body parameter

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

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Table 4-254 tag

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

Response example

```
{
   "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

Table 4-255 Parameters in the request body

Parameter	Mandatory	Type	Description
configmap	Yes	Table 4-256 object	ConfigMap information.

Table 4-256 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: ^~#$%&*<>()[]{}'"\

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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 is a string of 1 to 63 characters starting 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.

Request example:

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

Response

Table 4-257 Parameters in the response body

Parameter	Mandatory	Type	Description
configmap	Yes	Table 4-256 object	ConfigMap information.

Table 4-258 configmap

Parameter	Type	Description
id	String	ConfigMap ID.

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Parameter	Type	Description
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	Time when the ConfigMap is updated.

Response example:

```
{
   "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}

Table 4-259 Parameter description

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.

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Request

Table 4-260 Parameters in the request body

Parameter	Mandatory	Type	Description
configmap	Yes	**Table 4-261** object	ConfigMap information.

Table 4-261 configmap

Parameter	Mandatory	Type	Description
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 is a string of 1 to 63 characters starting 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.

Request example:

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


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```
        "key3": "val-3"
    }
  }
}
```

Response

Table 4-262 Parameters in the response body

Parameter	Mandatory	Type	Description
configmap	Yes	Table 4-263 object	ConfigMap information.

Table 4-263 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	Time when the ConfigMap is updated.

Response example:

```
{
  "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**.

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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}

Table 4-264 Parameter description

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

None

Response

Table 4-265 Parameters in the response body

Parameter	Mandatory	Type	Description
configmap	Yes	Table 4-266 object	ConfigMap information.

Table 4-266 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.

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Parameter	Type	Description
updated_at	String	Time when the ConfigMap is updated.

Response example:

```
{
   "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 4-267 Parameter description

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

Table 4-268 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	ConfigMap name, which supports fuzzy match.

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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**.

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

None

Response

Table 4-269 Parameters in the response body

Parameter	Type	Description
configmaps	Table 4-270 object	ConfigMap list.
count	Int	Number of ConfigMaps that meet the conditions.

Table 4-270 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.

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Parameter	Type	Description
updated_at	String	Time when the ConfigMap is updated.

Response example:

```
{
   "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**.

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 4-271 Parameter description

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

None

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Response

None

Error Codes

For details, see **Error Codes**.

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

Table 4-272 Parameters in the request body

Parameter	Mandatory	Type	Description
secret	Yes	**Table 4-273** object	Secret information.

Table 4-273 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.

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Parameter	Mandatory	Type	Description
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 is a string of 1 to 63 characters starting 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.

Request example:

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

Response

Table 4-274 Parameters in the response body

Parameter	Mandatory	Type	Description
secret	Yes	Table 4-275 object	KeySecret information.

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Table 4-275 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.

Response example:

```
{
   "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**.

4.8.2 Updating a Secret

Function

This API is used to update a secret.

URI

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

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Table 4-276 Parameter description

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 4-277 Parameter description

Parameter	Mandatory	Type	Description
secret	Yes	Table 4-278 object	Secret information.

Table 4-278 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 is a string of 1 to 63 characters starting 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.

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Request example:

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

Response

Table 4-279 Parameter description

Parameter	Mandatory	Type	Description
secret	Yes	Table 4-280 object	Secret information.

Table 4-280 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.

Response example:

```
{
   "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",
```


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```
    "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}

Table 4-281 Parameter description

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

None

Response

Table 4-282 Parameter description

Parameter	Mandatory	Type	Description
secret	Yes	**Table 4-283** object	Secret information.

Table 4-283 secret

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

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Parameter	Type	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.

Response example:

```
{
   "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 4-284 Parameter description

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 4-285 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 • create_at • update_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

None

Response

Parameter	Type	Description
secrets	Array of **Table 4-286** object	Secret list.
count	Int	Number of secrets that meet the conditions.

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Table 4-286 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.

Response example:

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

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Table 4-287 Parameter description

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

None

Response

None

Error Codes

For details, see **Error Codes**.

4.9 Endpoint Management

4.9.1 Querying a List of Endpoints

Description

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

Table 4-288 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

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Table 4-289 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Endpoint name.
type	No	String	Endpoint type. Enumeration values: • dis • servicebus • apigw
is_shared	No	Boolean	Whether the endpoint is shared.

Request Parameters

None

Response Parameters

If a status code 200 is returned:

Table 4-290 Response body parameters

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

Table 4-291 EndpointResponse

Parameter	Type	Description
created_at	String	Time when the endpoint is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.
properties	Object	Endpoint properties, which need to be displayed externally. Example: • dis: {"domain id":"user's domain id"} • servicebus: {"service port":8080} • apigw: {"domain id":"user's domain id"}
type	String	Endpoint type. Enumeration values: • dis • servicebus • apigw
updated_at	String	Time when the endpoint is updated.

If a status code 401 is returned:

Table 4-292 Response body parameters

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

If a status code 500 is returned:

Table 4-293 Response body parameters

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

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Request Examples

None

Response Examples

If a status code 200 is returned:


```
{
  "count" : 4,
  "endpoints" : [ {
    "created_at" : "2018-11-26T00:52:47Z",
    "description" : "",
    "id" : "19a5cbc3-d25e-4706-aa39-a1fc0e3c042c",
    "is_shared" : true,
    "name" : "SystemREST",
    "project_id" : "e632aba927ea4ac2b575ec1603d56f10",
    "properties" : {
      "public" : "10.154.72.82:8883"
    },
    "type" : "rest",
    "updated_at" : "2018-11-26T00:52:47Z"
  }, {
    "created_at" : "2018-11-26T00:52:54Z",
    "description" : "",
    "id" : "87b1e30f-c574-46ff-84f8-f5a0962453f5",
    "is_shared" : true,
    "name" : "SystemEventBus",
    "project_id" : "e632aba927ea4ac2b575ec1603d56f10",
    "properties" : { },
    "type" : "eventbus",
    "updated_at" : "2018-11-26T00:52:54Z"
  }, {
    "created_at" : "2018-11-26T00:52:46Z",
    "description" : "",
    "id" : "88626dd0-0616-47c0-9980-e702e0fb8f7c",
    "is_shared" : true,
    "name" : "SystemMQTT",
    "project_id" : "e632aba927ea4ac2b575ec1603d56f10",
    "properties" : {
      "public" : "10.154.72.82:8883"
    },
    "type" : "mqtt",
    "updated_at" : "2018-11-26T00:52:46Z"
  }, {
    "created_at" : "2018-11-26T01:07:18Z",
    "description" : "",
    "id" : "e7d02d47-961d-4e65-9f15-856272983ca9",
    "is_shared" : false,
    "name" : "dis_example",
    "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
    "properties" : {
      "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
    },
    "type" : "dis",
    "updated_at" : "2018-11-26T01:07:18Z"
  } ]
}
```


If a status code 401 is returned:


```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```


If a status code 500 is returned:

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```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
200	The endpoint list is successfully queried.
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.9.2 Creating an Endpoint

Description

This API is used to create an endpoint.

URI

POST /v2/{project_id}/routemgr/endpoints

Table 4-294 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request Parameters

Table 4-295 Request body parameters

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

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Table 4-296 Endpoint

Parameter	Mandatory	Type	Description
description	No	String	Endpoint description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
ief_instance_id	No	String	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.

properties	Yes	Object	Endpoint properties, which need to be displayed externally. Example:
			• dis:
			`{"domain_id":"user's domain id"}`
			• servicebus:
			`{"service_port":8080}`
			• apigw:
			`{"domain_id":"user's domain id"}`

type	Yes	String	Endpoint type. Enumeration values: • dis • servicebus • apigw

Response Parameters

If a status code 201 is returned:

Table 4-297 Response body parameters

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

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Table 4-298 EndpointResponse

Parameter	Type	Description
created_at	String	Time when the endpoint is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.

properties	Object	Endpoint properties, which need to be displayed externally. Example:
		• dis:
		`{"domain id":"user's domain id"}`
		• servicebus:
		`{"service port":8080}`
		• apigw:
		`{"domain id":"user's domain id"}`

type	String	Endpoint type. Enumeration values: • dis • servicebus • apigw
updated_at	String	Time when the endpoint is updated.

If a status code 400 is returned:

Table 4-299 Response body parameters

Parameter	Type	Description
error_code	String	Error code.

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Parameter	Type	Description
error_message	String	Error description.

If a status code 401 is returned:

Table 4-300 Response body parameters

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

If a status code 500 is returned:

Table 4-301 Response body parameters

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

Request Examples

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

Response Examples

If a status code 201 is returned:

```
{
  "endpoint" : {
    "name" : "dis_example",
    "description" : "",
    "type" : "dis",
    "properties" : {
      "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
    },
    "is_shared" : false,
    "id" : "e7d02d47-961d-4e65-9f15-856272983ca9",
```

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```
    "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
    "created_at" : "2018-11-26T01:07:18Z",
    "updated_at" : "2018-11-26T01:07:18Z"
  }
}
```

If a status code 400 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
201	The endpoint is successfully created.
400	Error response.
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.9.3 Querying Details About an Endpoint

Description

This API is used to query details about an endpoint.

URI

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

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Table 4-302 Path parameters

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

Request Parameters

None

Response Parameters

If a status code 200 is returned:

Table 4-303 Response body parameters

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

Table 4-304 EndpointResponse

Parameter	Type	Description
created_at	String	Time when the endpoint is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.

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Parameter	Type	Description
properties	Object	Endpoint properties, which need to be displayed externally. Example: • dis: {"domain id":"user's domain id"} • servicebus: {"service port":8080} • apigw: {"domain id":"user's domain id"}
type	String	Endpoint type. Enumeration values: • dis • servicebus • apigw
updated_at	String	Time when the endpoint is updated.

If a status code 401 is returned:

Table 4-305 Response body parameters

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

If a status code 404 is returned:

Table 4-306 Response body parameters

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

If a status code 500 is returned:

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Table 4-307 Response body parameters

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

Request Examples

None

Response Examples

If a status code 200 is returned:

```
{
  "endpoint" : {
    "name" : "dis_example",
    "description" : "",
    "type" : "dis",
    "properties" : {
      "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
    },
    "is_shared" : false,
    "id" : "e7d02d47-961d-4e65-9f15-856272983ca9",
    "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
    "created_at" : "2018-11-26T01:07:18Z",
    "updated_at" : "2018-11-26T01:07:18Z"
  }
}
```

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 404 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
200	The endpoint information is successfully queried.

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Status Code	Description
401	Error response.
404	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.9.4 Deleting an Endpoint

Description

This API is used to delete an endpoint.

URI

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

Table 4-308 Path parameters

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

Request Parameters

None

Response Parameters

If a status code 401 is returned:

Table 4-309 Response body parameters

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

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If a status code 404 is returned:

Table 4-310 Response body parameters

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

If a status code 500 is returned:

Table 4-311 Response body parameters

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

Request Examples

None

Response Examples

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 404 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

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Status Codes

Status Code	Description
204	The endpoint is successfully deleted.
401	Error response.
404	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10 Rule Management

4.10.1 Querying a List of Rules

Description

This API is used to query all rules.

URI

GET /v2/{project_id}/routemgr/rules

Table 4-312 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-313 Query parameters

Parameter	Mandatory	Type	Description
name	No	String	Rule name.

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Request Parameters

None

Response Parameters

If a status code 200 is returned:

Table 4-314 Response body parameters

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

Table 4-315 RuleResponse

Parameter	Type	Description
created_at	String	Time when the rule is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.
source	**EndpointResponse** object	Source endpoint information.

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Parameter	Type	Description
source_resource	Object	Source endpoint resource. Example: • rest: {"path":"<standard uri format>"} • eventbus: {"topic": "<project id>/nodes/<node id>/user/<topic>","node_id":"<node id>"}
success_messages	Integer	Number of messages that are successfully forwarded.
target	**EndpointResponse** object	Destination endpoint information.
target_resource	Object	Destination endpoint resource. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
updated_at	String	Time when the rule is updated.

Table 4-316 EndpointResponse

Parameter	Type	Description
created_at	String	Time when the endpoint is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.

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Parameter	Type	Description
properties	Object	Endpoint properties, which need to be displayed externally. Example: • dis: {"domain id":"user's domain id"} • servicebus: {"service port":8080} • apigw: {"domain id":"user's domain id"}
type	String	Endpoint type. Enumeration values: • dis • servicebus • apigw
updated_at	String	Time when the endpoint is updated.

If a status code 401 is returned:

Table 4-317 Response body parameters

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

If a status code 500 is returned:

Table 4-318 Response body parameters

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

Request Examples

None

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Response Examples

If a status code 200 is returned:


```
{
  "count" : 1,
  "rules" : [ {
    "created_at" : "2018-11-26T03:35:20Z",
    "description" : "",
    "fail_messages" : 0,
    "id" : "8a866e38-1f39-47a8-a831-88f2e48051e9",
    "in_using" : true,
    "name" : "haha",
    "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
    "source" : {
      "created_at" : "2018-11-26T00:52:46Z",
      "description" : "",
      "id" : "88626dd0-0616-47c0-9980-e702e0fb8f7c",
      "is_shared" : true,
      "name" : "SystemMQTT",
      "project_id" : "e632aba927ea4ac2b575ec1603d56f10",
      "properties" : {
        "public" : "10.154.72.82:8883"
      },
      "type" : "mqtt",
      "updated_at" : "2018-11-26T00:52:46Z"
    },
    "source_resource" : {
      "topic" : "d16e6eb6cc0d49a0941df2f31285757a/device/c978f393-d80a-4aa0-b182-ec8ae879bab8/
messages/#"
    },
    "success_messages" : 0,
    "target" : {
      "created_at" : "2018-11-26T01:07:18Z",
      "description" : "",
      "id" : "e7d02d47-961d-4e65-9f15-856272983ca9",
      "is_shared" : false,
      "name" : "dis_example",
      "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
      "properties" : {
        "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
      },
      "type" : "dis",
      "updated_at" : "2018-11-26T01:07:18Z"
    },
    "target_resource" : {
      "channel" : "AAA"
    },
    "updated_at" : "2018-11-26T03:35:20Z"
  } ]
}
```


If a status code 401 is returned:


```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```


If a status code 500 is returned:


```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```


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Status Codes

Status Code	Description
200	The rule list is successfully queried.
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10.2 Creating a Rule

Description

This API is used to create a rule.

URI

POST /v2/{project_id}/routemgr/rules

Table 4-319 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Request Parameters

Table 4-320 Request body parameters

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

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Table 4-321 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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
source	Yes	String	Source endpoint ID.
source_resource	Yes	Object	Source endpoint resource. Example: ● rest: {"path":"<standard uri format>"} ● eventbus: {"topic": "<project id>/nodes/<node id>/user/<topic>","node_id":"<node id>"}
target	Yes	String	Destination endpoint ID.
target_resource	Yes	Object	Destination endpoint resource. Example: ● dis: {"domain_id":"user's domain id"} ● servicebus: {"service_port":8080} ● apigw: {"domain_id":"user's domain id"}

Response Parameters

If a status code 201 is returned:

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Table 4-322 Response body parameters

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

Table 4-323 RuleResponse

Parameter	Type	Description
created_at	String	Time when the rule is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.
source	**EndpointResponse** object	Source endpoint information.

source_resource	Object	Source endpoint resource. Example:
		• rest:
		`{"path":"<standard uri format>"}`
		• eventbus:
		`{"topic": "<project id>/nodes/<node id>/user/<topic>","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	Object	Destination endpoint resource. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
updated_at	String	Time when the rule is updated.

Table 4-324 EndpointResponse

Parameter	Type	Description
created_at	String	Time when the endpoint is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.
properties	Object	Endpoint properties, which need to be displayed externally. 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. Enumeration values: • dis • servicebus • apigw
updated_at	String	Time when the endpoint is updated.

If a status code 400 is returned:

Table 4-325 Response body parameters

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

If a status code 401 is returned:

Table 4-326 Response body parameters

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

If a status code 500 is returned:

Table 4-327 Response body parameters

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

Request Examples

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

Response Examples

If a status code 201 is returned:

```
{
  "rule" : {
    "name" : "haha",
    "description" : "",
    "source_resource" : {
      "topic" : "d16e6eb6cc0d49a0941df2f31285757a/device/c978f393-d80a-4aa0-b182-ec8ae879bab8/
messages/#"
    },
    "target_resource" : {
      "channel" : "AAA"
    },
    "in_using" : true,
    "id" : "8a866e38-1f39-47a8-a831-88f2e48051e9",
    "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
    "created_at" : "2018-11-26T03:35:20Z",
    "updated_at" : "2018-11-26T03:35:20Z",
    "source" : {
      "name" : "SystemMQTT",
      "description" : "",
      "type" : "mqtt",
      "properties" : {
        "public" : "10.154.72.82:8883"
      },
      "is_shared" : true,
      "id" : "88626dd0-0616-47c0-9980-e702e0fb8f7c",
      "project_id" : "e632aba927ea4ac2b575ec1603d56f10",
      "created_at" : "2018-11-26T00:52:46Z",
      "updated_at" : "2018-11-26T00:52:46Z"
    },
    "target" : {
      "name" : "dis_example",
      "description" : "",
      "type" : "dis",
      "properties" : {
        "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
      },
      "is_shared" : false,
      "id" : "e7d02d47-961d-4e65-9f15-856272983ca9",
      "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at" : "2018-11-26T01:07:18Z",
      "updated_at" : "2018-11-26T01:07:18Z"
    },
    "fail_messages" : 0,
    "success_messages" : 0
  }
}
```

If a status code 400 is returned:

```
{
  "error_code" : "IEF.310001",
```

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```
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
201	The rule is successfully created.
400	Error response.
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10.3 Querying Details About a Rule

Description

This API is used to obtain details about a rule.

URI

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

Table 4-328 Path parameters

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

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Request Parameters

None

Response Parameters

If a status code 200 is returned:

Table 4-329 Response body parameters

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

Table 4-330 RuleResponse

Parameter	Type	Description
created_at	String	Time when the rule is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.
source	**EndpointResponse** object	Source endpoint information.

source_resource	Object	Source endpoint resource. Example:
		• rest:
		`{"path":"<standard uri format>"}`
		• eventbus:
		`{"topic": "<project id>/nodes/<node id>/user/<topic>","node_id":"<node id>"}`

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Parameter	Type	Description
success_messages	Integer	Number of messages that are successfully forwarded.
target	**EndpointResponse** object	Destination endpoint information.
target_resource	Object	Destination endpoint resource. Example: • dis: {"domain_id":"user's domain id"} • servicebus: {"service_port":8080} • apigw: {"domain_id":"user's domain id"}
updated_at	String	Time when the rule is updated.

Table 4-331 EndpointResponse

Parameter	Type	Description
created_at	String	Time when the endpoint is created.
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	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service 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 under an account.
project_id	String	Project ID.

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Parameter	Type	Description
properties	Object	Endpoint properties, which need to be displayed externally. Example: ● dis: {"domain id":"user's domain id"} ● servicebus: {"service port":8080} ● apigw: {"domain id":"user's domain id"}
type	String	Endpoint type. Enumeration values: ● dis ● servicebus ● apigw
updated_at	String	Time when the endpoint is updated.

If a status code 401 is returned:

Table 4-332 Response body parameters

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

If a status code 404 is returned:

Table 4-333 Response body parameters

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

If a status code 500 is returned:

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Table 4-334 Response body parameters

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

Request Examples

None

Response Examples

If a status code 200 is returned:

```
{
  "rule" : {
    "name" : "haha",
    "description" : "",
    "source_resource" : {
      "topic" : "d16e6eb6cc0d49a0941df2f31285757a/device/c978f393-d80a-4aa0-b182-ec8ae879bab8/
messages/#"
    },
    "target_resource" : {
      "channel" : "AAA"
    },
    "in_using" : true,
    "id" : "8a866e38-1f39-47a8-a831-88f2e48051e9",
    "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
    "created_at" : "2018-11-26T03:35:20Z",
    "updated_at" : "2018-11-26T03:35:20Z",
    "source" : {
      "name" : "SystemMQTT",
      "description" : "",
      "type" : "mqtt",
      "properties" : {
        "public" : "10.154.72.82:8883"
      },
      "is_shared" : true,
      "id" : "88626dd0-0616-47c0-9980-e702e0fb8f7c",
      "project_id" : "e632aba927ea4ac2b575ec1603d56f10",
      "created_at" : "2018-11-26T00:52:46Z",
      "updated_at" : "2018-11-26T00:52:46Z"
    },
    "target" : {
      "name" : "dis_example",
      "description" : "",
      "type" : "dis",
      "properties" : {
        "domain_id" : "8fd3691d01f44badab03e28d81abd4ff"
      },
      "is_shared" : false,
      "id" : "e7d02d47-961d-4e65-9f15-856272983ca9",
      "project_id" : "d16e6eb6cc0d49a0941df2f31285757a",
      "created_at" : "2018-11-26T01:07:18Z",
      "updated_at" : "2018-11-26T01:07:18Z"
    },
    "fail_messages" : 0,
    "success_messages" : 0
  }
}
```

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If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 404 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
200	The rule information is successfully queried.
401	Error response.
404	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10.4 Deleting a Rule

Description

This API is used to delete a rule.

URI

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

Table 4-335 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

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Parameter	Mandatory	Type	Description
rule_id	Yes	String	Rule ID.

Request Parameters

None

Response Parameters

If a status code 401 is returned:

Table 4-336 Response body parameters

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

If a status code 404 is returned:

Table 4-337 Response body parameters

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

If a status code 500 is returned:

Table 4-338 Response body parameters

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

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Request Examples

None

Response Examples

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 404 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
204	The rule is successfully deleted.
401	Error response.
404	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10.5 Querying All Errors of a Rule

Description

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

URI

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

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Table 4-339 Path parameters

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

Request Parameters

None

Response Parameters

If a status code 200 is returned:

Table 4-340 Response body parameters

Parameter	Type	Description
count	Long	Number of errors that meet the conditions.
errors	Array of **Error** objects	Error list.

Table 4-341 Error

Parameter	Type	Description
detail	String	Error details.
ief_instance_id	String	ID of a platinum service instance. If this parameter is left blank, the service instance is a professional service instance.
project_id	String	Project ID.
rule_id	String	Rule ID.
time	String	Time when an error occurs.

If a status code 401 is returned:

Table 4-342 Response body parameters

Parameter	Type	Description
error_code	String	Error code.

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Parameter	Type	Description
error_message	String	Error description.

If a status code 500 is returned:

Table 4-343 Response body parameters

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

Request Examples

None

Response Examples

If a status code 200 is returned:

```
{
  "count" : 1,
  "errors" : [ {
    "detail" : "string",
    "ief_instance_id" : "string",
    "project_id" : "string",
    "rule_id" : "string",
    "time" : "string"
  } ]
}
```

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

Status Codes

Status Code	Description
200	The error list is successfully queried.

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Status Code	Description
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10.6 Enabling a Rule

Description

This API is used to enable a rule.

URI

POST /v2/{project_id}/routemgr/rules/{rule_id}/start

Table 4-344 Path parameters

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

Request Parameters

None

Response Parameters

If a status code 400 is returned:

Table 4-345 Response body parameters

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

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If a status code 401 is returned:

Table 4-346 Response body parameters

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

If a status code 500 is returned:

Table 4-347 Response body parameters

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

Request Examples

None

Response Examples

If a status code 400 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

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Status Codes

Status Code	Description
201	The rule is successfully enabled.
400	Error response.
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.10.7 Disabling a Rule

Description

This API is used to disable a rule.

URI

POST /v2/{project_id}/routemgr/rules/{rule_id}/stop

Table 4-348 Path parameters

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

Request Parameters

None

Response Parameters

If a status code 400 is returned:

Table 4-349 Response body parameters

Parameter	Type	Description
error_code	String	Error code.

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Parameter	Type	Description
error_message	String	Error description.

If a status code 401 is returned:

Table 4-350 Response body parameters

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

If a status code 500 is returned:

Table 4-351 Response body parameters

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

Request Examples

None

Response Examples

If a status code 400 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 401 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

If a status code 500 is returned:

```
{
  "error_code" : "IEF.310001",
  "error_message" : "XXXXXXXXXX"
}
```

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Status Codes

Status Code	Description
201	The rule is successfully disabled.
400	Error response.
401	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.11 Service Management

4.11.1 Querying a List of Services

Function

This API is used to query details about all services.

URI

GET /v2/{project_id}/edgemgr/services

Table 4-352 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

Table 4-353 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.

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Parameter	Mandatory	Type	Description
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.

Request Parameters

None

Response Parameters

Status code: 200

Table 4-354 Response body parameters

Parameter	Type	Description
count	Long	Number of services that meet the conditions.
services	Array of **ServiceRespDetail** objects	Service list.

Table 4-355 ServiceRespDetail

Parameter	Type	Description
created_at	String	Time when the service is created.
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	Time when the service is updated.

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Table 4-356 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. Enter 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 4-357 SvcSpec

Parameter	Type	Description
cluster_ip	String	IP address of a virtual service.
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 4-358 SvcPort

Parameter	Type	Description
name	String	Port name.
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.

Status code: 500

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Table 4-359 Response body parameters

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

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	OK
500	Error response.

Error Codes

See **Error Codes**.

4.11.2 Creating a Service

Function

This API is used to create a service.

URI

POST /v2/{project_id}/edgemgr/services

Table 4-360 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.

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Request Parameters

Table 4-361 Request body parameters

Parameter	Mandatory	Type	Description
service	No	**ServiceReqDetail** object	Service details.

Table 4-362 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 4-363 SvcMetadata

Parameter	Mandatory	Type	Description
labels	No	Map<String,String>	List of customized labels.
name	Yes	String	Service name. Enter 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 4-364 SvcSpec

Parameter	Mandatory	Type	Description
cluster_ip	No	String	IP address of a virtual service.
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.

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Parameter	Mandatory	Type	Description
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 4-365 SvcPort

Parameter	Mandatory	Type	Description
name	No	String	Port name.
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 Parameters

Status code: 201

Table 4-366 Response body parameters

Parameter	Type	Description
service	**ServiceRespDetail** object	Service details.

Table 4-367 ServiceRespDetail

Parameter	Type	Description
created_at	String	Time when the service is created.
id	String	Service ID.

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Parameter	Type	Description
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	Time when the service is updated.

Table 4-368 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. Enter 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 4-369 SvcSpec

Parameter	Type	Description
cluster_ip	String	IP address of a virtual service.
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 4-370 SvcPort

Parameter	Type	Description
name	String	Port name.

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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.

Status code: 400

Table 4-371 Response body parameters

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

Status code: 500

Table 4-372 Response body parameters

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

Example Requests

```
{
  "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 Responses

None

Status Codes

Status Code	Description
201	OK
400	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.11.3 Querying Service Details

Function

This API is used to query details about a service.

URI

GET /v2/{project_id}/edgemgr/services/{service_id}

Table 4-373 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
service_id	Yes	String	Service ID.

Request Parameters

None

Response Parameters

Status code: 200

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Table 4-374 Response body parameters

Parameter	Type	Description
service	**ServiceRespDetail** object	Service details.

Table 4-375 ServiceRespDetail

Parameter	Type	Description
created_at	String	Time when the service is created.
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	Time when the service is updated.

Table 4-376 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. Enter 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 4-377 SvcSpec

Parameter	Type	Description
cluster_ip	String	IP address of a virtual service.
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.

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Parameter	Type	Description
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 4-378 SvcPort

Parameter	Type	Description
name	String	Port name.
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.

Status code: 404

Table 4-379 Response body parameters

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

Status code: 500

Table 4-380 Response body parameters

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

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Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	OK
404	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.11.4 Updating a Service

Function

This API is used to update a service.

URI

PUT /v2/{project_id}/edgemgr/services/{service_id}

Table 4-381 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
service_id	Yes	String	Service ID.

Request Parameters

Table 4-382 Request body parameters

Parameter	Mandatory	Type	Description
service	No	**ServiceReqDetail** object	Service details.

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Table 4-383 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 4-384 SvcMetadata

Parameter	Mandatory	Type	Description
labels	No	Map<String,String>	List of customized labels.
name	Yes	String	Service name. Enter 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 4-385 SvcSpec

Parameter	Mandatory	Type	Description
cluster_ip	No	String	IP address of a virtual service.
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 4-386 SvcPort

Parameter	Mandatory	Type	Description
name	No	String	Port name.
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 Parameters

Status code: 200

Table 4-387 Response body parameters

Parameter	Type	Description
service	**ServiceRespDetail** object	Service details.

Table 4-388 ServiceRespDetail

Parameter	Type	Description
created_at	String	Time when the service is created.
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	Time when the service is updated.

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Table 4-389 SvcMetadata

Parameter	Type	Description
labels	Map<String,String>	List of customized labels.
name	String	Service name. Enter 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 4-390 SvcSpec

Parameter	Type	Description
cluster_ip	String	IP address of a virtual service.
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 4-391 SvcPort

Parameter	Type	Description
name	String	Port name.
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.

Status code: 400

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Table 4-392 Response body parameters

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

Status code: 500

Table 4-393 Response body parameters

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

Example Requests

```
{
  "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 Responses

None

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Status Codes

Status Code	Description
200	OK
400	Error response.
500	Error response.

Error Codes

See **Error Codes**.

4.11.5 Deleting a Service

Function

This API is used to delete a service.

URI

DELETE /v2/{project_id}/edgemgr/services/{service_id}

Table 4-394 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID.
service_id	Yes	String	Service ID.

Request Parameters

None

Response Parameters

Status code: 404

Table 4-395 Response body parameters

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

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Status code: 500

Table 4-396 Response body parameters

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

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
204	OK
404	Error response.
500	Error response.

Error Codes

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 edge node 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.
package	String	Compress **certificate/ca/private_key** into a **tar.gz** package and encode the package using Base64.
master_addr	String	Cloud service URL.
cpu	Integer	Number of CPU cores on the edge node.

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Parameter	Type	Description
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 edge devices.
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.
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.
device_num	Integer	Number of associated devices.
enable_npu	Boolean	Whether the NPU is enabled for devices.
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).

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Parameter	Type	Description
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**	NTP configuration.
error_reason	String	Node fault cause.
tags	Array of **Table 5-27** object	Edge node tags.
npu_num	Integer	Number of NPUs.
npu_info	**npu_info** object	NPU model and memory size.
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.

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Parameter	Mandatory	Type	Description
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.
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.

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Parameter	Mandatory	Type	Description
component	Yes	String	• **app**: logs of applications deployed on edge devices • **system**: system logs on edge devices

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.
comment	No	String	Description of the relationship between the device and node. The value 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.

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Parameter	Type	Description
capacity	Integer	GPU memory size. Unit: MB.

Table 5-5 device

Parameter	Type	Description
id	String	Edge device ID.
name	String	Edge device name.
description	String	Edge device description.
state	String	Status of the edge device. The default value is **unknown**.
last_online	String	Last active time of an edge device.
project_id	String	Project ID.
attributes	**Table 5-6** object	Static attribute information.
created_at	String	Creation time.
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"}.

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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 an attribute is optional. Default value: **true**. The value for an inheriting template is **false**.
metadata	No	Table 5-9 object	Metadata of a static attribute. Default value: {"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.
metadata	No	Table 5-23	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**.

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Table 5-10 Env

Parameter	Mandatory	Type	Description
name	Yes	String	Key of an environment variable. The value must be unique and can contain a maximum of 2,048 characters starting with a letter or underscore. Only digits, uppercase letters, lowercase 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.

Table 5-11 volumes

Parameter	Mandatory	Type	Description
name	Yes	String	Volume name. The value 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**.

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Parameter	Mandatory	Type	Description
source	Yes	String	Volume source. When the type is set to **hostPath**, enter a path beginning with a slash (/). Only hyphens (-), backslashes (/), underscores (_), periods (.), letters, and digits are allowed in the path. Enter a secret name when the type is set to **secret**. Enter a ConfigMap name when the type is set to **configMap**. Enter a disk or memory when the type is set to **emptyDir**.
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.

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.

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Parameter	Mandatory	Type	Description
memory	No	String	Memory size, in unit of MB. 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 unit of MB. 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	Value: **Always**, **OnFailure**, or **Never**. Default value: **Always**, indicating that the container is restarted regardless of the container's working status. **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	No, but either of the following values must be chosen: **exec_command** and **http_get**.	String	Command for probing a container. The value is a string of 1 to 1,0240 characters.
http_get	No, but either of the following values must be chosen: **exec_command** and **http_get**.	**Table 5-16** object	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.

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Parameter	Mandatory	Type	Description
scheme	No	String	Protocol type. The value can be **HTTP** or **HTTPS**. The default value is **HTTP**.

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.
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.

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Parameter	Type	Description
description	String	Deployment description.
created_at	String	Creation time.
updated_at	String	Update time.
instances	**Table 5-19** object	Application instance.
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 an edge 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	Metadata of dynamic properties.
optional	Boolean	Whether a 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 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 is a string of 1 to 128 characters. Only uppercase letters, lowercase letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a node property. The value is a string of 1 to 256 characters. Only uppercase letters, lowercase letters, digits, underscores (_), and hyphens (-) are allowed.

Table 5-27 tags

Parameter	Type	Description
key	String	Key of a tag. The key is a string of 1 to 36 characters. Only uppercase letters, lowercase letters, digits, underscores (_), and hyphens (-) are allowed.
value	String	Value of a tag. The value is a string of 1 to 43 characters. Only uppercase letters, lowercase 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	Interger	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	Interger	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	Interger	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: 1. **Always**: The system restarts the container regardless of whether it had quit normally or abnormally. 2. **Onfailure**: The system only restarts the container if it had previously quit abnormally (that is, the exit code is not 0). 3. **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	This parameter specifies the 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	This parameter specifies the 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.

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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 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 that 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

Format of an Error Response Body

If an error occurs during API calling, the system returns an error code and message to you. The following shows the format of an error response body:

```
{
  "error_code": "IEF.5000002",
  "error_msg": "xxxxxxxxx"
}
```

In the preceding information, **error_code** is an error code, and **error_msg** describes the error.

Error Code Description

If an error code starting with **APIGW** is returned after you call an IEF API, rectify the fault by referring to the instructions provided in **API Gateway Error Codes**.

Table 7-1 Error codes

Status Code	Error Code	Description
400	IEF.011005	Invalid token.

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Status Code	Error Code	Description
400	IEF.100001	PROJECT_ID not found.
400	IEF.100002	Invalid SORT_KEY.
400	IEF.100003	Invalid SORT_DIR.
400	IEF.100004	Invalid MARKER.
400	IEF.100005	Invalid LIMIT.
400	IEF.100006	Invalid RESOURCE_TYPE.
400	IEF.100007	Invalid TAG_QUERY.
400	IEF.100008	Invalid DEPLOYMENT_ACTION.
400	IEF.100009	Invalid VOLUME_TYPE.
400	IEF.100010	Invalid APP_VERSION.
400	IEF.100011	Invalid APP_NAME.
400	IEF.100012	Invalid RESOURCE_NAME.
400	IEF.100013	Invalid ENV_NAME.
400	IEF.100014	Invalid VOLUME_NAME.
400	IEF.100015	Invalid HOST_PATH_SOURCE.
400	IEF.100016	Invalid TAG_KEY.
400	IEF.100017	Invalid TAG_VALUE.
400	IEF.100018	Invalid LOG_TYPE.
400	IEF.100019	Invalid LOG_COMPONENT.
400	IEF.100018	Invalid FLOAT.
400	IEF.100019	The value is greater than the maximum value.
400	IEF.100020	The value is less than the minimum value.
400	IEF.100021	Invalid STRING.
400	IEF.100022	Invalid STRING.
400	IEF.100023	Invalid STRING.
400	IEF.100024	Invalid INT.
400	IEF.100025	Invalid INT.
400	IEF.100026	Invalid INT.

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Status Code	Error Code	Description
400	IEF.100027	Invalid JSON.
400	IEF.100028	Invalid UUID.
400	IEF.100029	Name is mandatory in %(resource)s.
400	IEF.100030	The environment variable name is mandatory.
400	IEF.100031	The environment variable name is mandatory.
400	IEF.100032	The volume name is mandatory.
400	IEF.100033	The volume source is mandatory.
400	IEF.100034	The destination address of the volume is mandatory.
400	IEF.100035	The application version is mandatory.
400	IEF.100036	The image URL in the application version is mandatory.
400	IEF.100037	The group ID of the edge device is mandatory.
400	IEF.100038	The group ID and name cannot be queried at the same time.
400	IEF.100038	Duplicate volume destination addresses.
400	IEF.100039	Duplicate log types and components.
400	IEF.100040	The log configuration length exceeded 4 characters.
400	IEF.100041	Failed to connect to IAM.
400	IEF.100042	Tag not supported.
400	IEF.100043	Visibility type not supported.
400	IEF.100058	The device has been bound.
400	IEF.100067	The node cannot be deleted because there are devices bound to this node.
400	IEF.100100	The name parameter in the request is incorrect.
400	IEF.100126	Insufficient quota.
400	IEF.104004	The resource to be created already exists.
400	IEF.101001	GROUP does not exist.

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Status Code	Error Code	Description
400	IEF.101002	EDGE_MASTER does not exist.
400	IEF.101003	TAG does not exist.
400	IEF.101004	DEPLOYMENT does not exist.
400	IEF.101005	DEVICE does not exist.
400	IEF.101006	APP does not exist.
400	IEF.101007	AK/SK does not exist.
400	IEF.101008	APP_VERSION does not exist.
400	IEF.101009	LOG_CONFIG does not exist.
400	IEF.1030001	The request is not allowed by the policy.
400	IEF.1090001	Duplicate tag keys.
400	IEF.1090002	The resource name already exists.
400	IEF.1090003	Any operation is not allowed on the instance because it is running.
400	IEF.1090004	The group cannot be deleted because there are edge devices in the group.
400	IEF.1090005	Certain edge devices in the group are not ready.
400	IEF.1090006	No edge device is found in the group.
400	IEF.1090007	The edge device cannot be deleted because there are instances deployed on it.
400	IEF.1090008	The group has already contained one edge device and any other edge devices cannot be added.
400	IEF.5000001	Failed to decrypt the private key.
400	IEF.5000002	Failed to create the certificate.
400	IEF.5000003	Failed to connect to Kubernetes.
400	IEF.130089	Failed to create or update the application because the node is not running.
409	IEF.130097	The container runtime environment on the edge node is not ready.
409	IEF.100161	The operation is not allowed because the edge node is being upgraded.

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Status Code	Error Code	Description
404	IEF.110074	Application template not found.
400	IEF.100047	The template's visibility property values are not supported.
409	IEF.130093	The application version already exists.
400	IEF.100011	Invalid application template name.
400	IEF.100010	Invalid application version name.
400	IEF.100009	Invalid volume type.
400	IEF.100013	Invalid environment variable name.
400	IEF.100014	Invalid volume name.
400	IEF.100015	The source path or destination path of the volume is invalid.
400	IEF.100020	The service type of the application template is invalid.
400	IEF.100042	A conflict occurs on the destination path of the volume.
400	IEF.100051	Duplicate property values.
400	IEF.100052	The volume type is mandatory.
400	IEF.100054	The emptyDir type is not supported.
404	IEF.110072	Application instance not found.
404	IEF.110076	Application version not found.
400	IEF.100113	The resource limit of the application instance cannot be less than the requested value. If GPUs are used, the GPU limit must be the same as the requested value.
400	IEF.100118	Failed to obtain the GPU information of the node.
400	IEF.100133	Probe properties are incomplete or redundant.
400	IEF.100134	The length of the command specified by the probe exceeded the limit.
400	IEF.100135	Invalid probe URL.
400	IEF.100160	ConfigMap or secret volumes must be read-only.

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Status Code	Error Code	Description
500	IEF.100158	Failed to parse GPU information.
400	IEF.100162	Port mapping cannot be specified when the host network is used.
400	IEF.100163	The host port or container port is not specified in the port mapping record.
409	IEF.100164	The host port is already occupied.
400	IEF.100112	The list of edge nodes on which the application is to be deployed is empty.
400	IEF.100119	Invalid ConfigMap name.
400	IEF.100120	The key in ConfigMap data is invalid.
400	IEF.100121	The value in ConfigMap data is invalid.
400	IEF.100122	The ConfigMap data length exceeded the limit.
409	IEF.100155	The secret is in use and cannot be deleted.
409	IEF.100159	The ConfigMap is in use and cannot be deleted.
400	IEF.100148	Invalid secret name.
400	IEF.100149	The secret data length exceeded the limit.
400	IEF.100150	Invalid secret type.
400	IEF.100151	The key in the secret data is invalid.
400	IEF.100152	The value in the secret data is invalid.
400	IEF.100153	The secret of the kubernetes.io/dockerconfigjson type must contain a key-value pair in which the key is .dockerconfigjson and the value is a character string encoded using base64.
400	IEF.100165	At least one secret data record exists.
400	IEF.100065	Invalid notification ID.
400	IEF.100114	Invalid topic.
409	IEF.100166	The edge software version is too early and does not support the feature required by the request.
400	IEF.100167	Architecture not supported. Supported architecture values are: %s.

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Status Code	Error Code	Description
500	IEF.100412	Failed to obtain the application list.
500	IEF.120001	Internal error.
401	IEF.310000	Token not set.
401	IEF.310001	Token parsing failed.
401	IEF.310002	Token expired.
403	IEF.310003	The project ID does not match.
500	IEF.340000	Failed to parse the server token.
400	IEF.300000	Failed to parse the request body.
400	IEF.300001	The endpoint is mandatory in the request body.
400	IEF.300002	Invalid endpoint name. Enter a maximum of 64 characters that consist of letters, digits, hyphens (-), and underscores (_).
400	IEF.300003	Invalid endpoint description. The following characters are not allowed: ^~# $%&*<>()[]{}'\"\\
400	IEF.300004	Invalid endpoint type. The endpoint type can only be dis or servicebus.
400	IEF.300005	Invalid endpoint property. The endpoint of the dis and apigw type must contain domain_id, and the endpoint of the servicebus type must contain service_port.
500	IEF.340001	Unknown server error.
409	IEF.300006	Duplicate endpoint names.
500	IEF.320000	Unknown database error.
404	IEF.300007	Endpoint not found.
400	IEF.300008	Endpoint in use.
400	IEF.300009	Insufficient endpoint quota.
400	IEF.300101	The rule is mandatory in the request body.
400	IEF.300102	Invalid rule name. Enter a maximum of 64 characters that consist of letters, digits, hyphens (-), and underscores (_).

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Status Code	Error Code	Description
400	IEF.300103	Invalid rule description. The following characters are not allowed: ^~#$%&*<>()[]{}'\"\\
400	IEF.300104	Invalid source endpoint. The source endpoint must be the ID of an endpoint whose type is rest or eventbus.
400	IEF.300105	Invalid source endpoint resource. The source resource varies depending on the source endpoint type. When the source endpoint type is rest, the source resource must contain a path in the URI format. When the source endpoint type is eventbus, the source resource must contain node_id and a topic in the format of <project_id>/nodes/<node_id>/user/<custom mqtt topic>.
400	IEF.300106	Invalid destination endpoint. The destination endpoint must be the ID of an endpoint whose type is dis, eventbus, servicebus, or apigw.
400	IEF.300107	Invalid destination endpoint resource. The destination resource varies depending on the destination endpoint type. When the destination endpoint type is dis, the destination resource must contain an existing DIS stream. When the destination endpoint type is servicebus, the destination resource must contain a path in the URI format. When the target endpoint type is eventbus, the target resource must contain an MQTT topic. When the target endpoint type is apigw, the target resource must contain a resource in the URL format.
409	IEF.300108	Duplicate rule names.
404	IEF.300109	Rule not found.
400	IEF.300110	The rule is mandatory in the request body.
400	IEF.300111	Invalid rule action. The rule action can be Start or Stop.
400	IEF.300112	A disabled rule cannot be disabled again. Similarly, an enabled rule cannot be enabled again.

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Status Code	Error Code	Description
400	IEF.300113	Insufficient rule quota.
400	IEF.300114	DIS stream not found.
400	IEF.300115	1. DIS stream not set. 2. Incorrect DIS stream format.
400	IEF.300116	1. servicebus path not set. 2. Invalid servicebus path.
400	IEF.300117	1. eventbus topic not set. 2. Incorrect eventbus topic format.
400	IEF.300118	eventbus topic conflict.
400	IEF.300119	1. apigw resource not set. 2. Incorrect apig resource format.
400	IEF.300120	1. mqtt topic not set. 2. Incorrect mqtt topic format.
400	IEF.300121	mqtt topic overlapped.
400	IEF.300122	1. rest path not set. 2. Incorrect rest path format.
400	IEF.300123	rest path overlapped.
400	IEF.300124	1. Incorrect device format. 2. The device type does not match.
400	IEF.300125	Device not found.
400	IEF.300126	Edge node not found.
400	IEF.300127	Edge node conflict.
400	IEF.300128	Project ID not set in tsdb.
400	IEF.300129	Incorrect project ID in tsdb.
400	IEF.300130	Incorrect domain ID in tsdb.
400	IEF.300131	Incorrect URL in tsdb.
400	IEF.300132	Incorrect tags in tsdb.
400	IEF.300133	edgedb resource error.
400	IEF.300134	tsdb resource error.
400	IEF.300135	1. eventbus node ID not set. 2. Incorrect eventbus node ID format.

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Status Code	Error Code	Description
400	IEF.300201	Incorrect quota type.
400	IEF.300202	Failed to update the quota.
400	IEF.300301	IEF instance unavailable.
500	IEF.330000	1. DIS network error. 2. IDS unavailable.
500	IEF.330001	1. edgemanager network error. 2. edgemanager unavailable. 3. Device parsing failed.

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 the project ID by calling the API used to **query for 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 **3.2 Authentication**.

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

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

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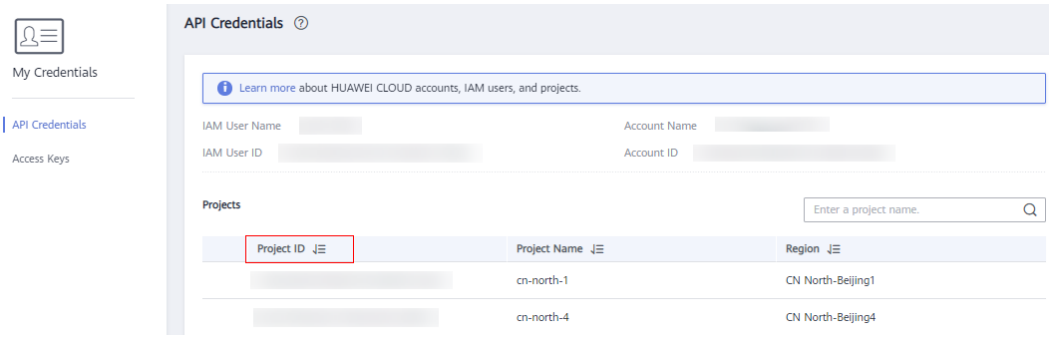
```
        "previous": null,
        "self": "https://www.example.com/v3/projects"
    }
}
```

Obtain a Project ID from the Console

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

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

Figure 7-1 Viewing the project ID



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8 Out-of-Date APIs

8.1 Deployment Management v2

8.1.1 Creating a Deployment

Function

This API is used to deploy one or more applications to a group of edge nodes.

URI

POST /v2/{project_id}/edgemgr/deployments

Table 8-1 URI parameter

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

Request

Table 8-2 Parameter description

Parameter	Mandatory	Type	Description
name	Yes	String	Deployment name. Enter 1 to 64 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.

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Parameter	Mandatory	Type	Description
description	No	String	Deployment description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$%&*<>()[]{}'"\
node_ids	Yes	Array of strings	List of edge node IDs. Currently, only one edge node is supported.
app	Yes	Table 8-3 object	Application configuration.
group_id	No	String	ID of an edge node group.
visibility	No	String	Reserved.

Table 8-3 app

Parameter	Mandatory	Type	Description
name	Yes	String	Application name (an embedded field). Enter 1 to 64 characters starting and ending with a letter or digit. Only lowercase letters, digits, and hyphens (-) are allowed.
version	No	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.

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Parameter	Mandatory	Type	Description
image_url	Yes	String	Container image URL. The value 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 settings.
liveness_probe	No	**Table 5-15** object	Workload liveness probe. This parameter does not need to be provided in the request body if it is not required.
readiness_probe	No	**Table 5-15** object	Workload readiness probe. This parameter does not need to be provided in the request body if it is not required.
command	No	Array of strings	Container command.
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.

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Parameter	Mandatory	Type	Description
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**.
args	No	Array of strings	Arguments.

Example request

```
{
   "deployment": {
      "name": "deployment-test",
      "description": "This is a test deployment",

      "node_ids": [
         "09dafd3e-63df-47a8-b7c6-119563fefa85"
      ],
      "app": {
         "name": "test-hw",
         "version": "1.0.0",
         "image_url": "100.95.181.176:5300/op_svc_ief_container1/sample:latest",
         "envs": [],
         "volumes": [],
         "configs": {
            "privileged": false,
            "host_network": false,
            "restart_policy": "Always",
            "ports": [
               {
                  "container_port": 8888,
                  "host_port": 88
               }
            ]
         },
         "resources": {
            "requests": {
               "cpu": 0.25,
               "memory": 512
            },
            "limits": {
               "cpu": 1,
               "memory": 512
            }
         },
         "liveness_probe": {
            "exec_command": "/bin/bash",
            "initial_delay_seconds": 10,
            "timeout_seconds": 10
         }
      }
```

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```
  }
}
```

Response

Table 8-4 Parameter description

Parameter	Type	Description
deployment	Table 5-18	Deployment details.

Example response


```
{
  "deployment": {
    "description": "This is a test deployment",
    "created_at": "2019-07-10T07:12:44.020393",
    "updated_at": null,
    "visibility": null,
    "instances": [
      {
        "restarts": 0,
        "name": "test-hw",
        "envs": [],
        "liveness_probe": {
          "timeout_seconds": 10,
          "exec_command": "/bin/bash",
          "initial_delay_seconds": 10
        },
        "state": "PENDING_CREATE",
        "group_name": null,
        "configs": {
          "host_network": false,
          "restart_policy": "Always",
          "privileged": false,
          "ports": [
            {
              "host_port": 88,
              "container_port": 8888
            }
          ]
        },
        "reason": null,
        "version": "1.0.0",
        "image_url": "100.95.181.176:5300/op_svc_ief_container1/sample:latest",
        "resources": {
          "requests": {
            "cpu": 0.25,
            "memory": 512.0
          },
          "limits": {
            "cpu": 1.0,
            "memory": 512.0
          }
        },
        "volumes": [],
        "is_ready": null,
        "readiness_probe": null,
        "message": null,
        "group_id": null,
        "id": "f4f87339-fe33-483a-a838-6d5250a96fc5",
        "node_id": "09dafd3e-63df-47a8-b7c6-119563fefa85"
      }
    ],
```


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```
    "project_id": "9ff38382ccc546ac9635800c3315a5e2",
    "id": "8170e363-0232-44eb-b89c-dab6b6e915ff",
    "name": "deployment-test"
  }
}
```

Error Codes

For details, see Error Codes.

8.1.2 Updating a Deployment

Function

This API is used to update a Deployment.

URI

PUT /v2/{project_id}/edgemgr/deployments/{deployment_id}

Table 8-5 URI parameters

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

Request

Table 8-6 Parameter description

Parameter	Mandatory	Type	Description
description	No	String	Deployment description. The value contains a maximum of 255 characters. The following characters are not allowed: ^~#$ %&*<>()[]{}'"\
deployment	No	Table 8-7 object	Deployment configuration parameters.

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Table 8-7 appPut

Parameter	Mandatory	Type	Description
image_url	No	String	Container image URL. The value 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 settings.
toleration_seconds	No	Integer	Time that a fault can be tolerated before an application instance is migrated. This parameter is valid only when the application is deployed to a node group.
migration	No	Boolean	Whether application instances in a node group can be migrated after a node is faulty. This parameter is valid only when the application is deployed to a node group.
command	No	Array of strings	Container command.
args	No	Array of strings	Arguments.
liveness_probe	No	**Table 5-15** object	Workload liveness probe. This parameter does not need to be provided in the request body if it is not required.
readiness_probe	No	**Table 5-15** object	Workload readiness probe. This parameter does not need to be provided in the request body if it is not required.

Example request

```
{
   "description":"ok",
   "deployment": {
      "image_url": "xxx.xxx.xxx/edgecloud/version:v1",
```

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```
      "envs":[
      ],
      "volumes":[
        {
          "name":"test",
          "type":"hostPath",
          "source":"/var1",
          "destination":"/var1",
          "read_only":true
        }
      ],
      "configs":{
        "privileged":false,
        "host_network":false,
        "restart_policy":"Always",
        "ports":[
          {
            "host_port":99,
            "container_port":5050
          }
        ]
      },
      "liveness_probe":{
        "http_get":{
          "path":"/",
          "port":9090,
          "host":"127.0.0.1",
          "scheme":"HTTP"
        },
        "initial_delay_seconds":20,
        "timeout_seconds":10
      },
      "readiness_probe":{
        "http_get":{
          "path":"/",
          "port":9090,
          "host":"127.0.0.1",
          "scheme":"HTTP"
        },
        "initial_delay_seconds":2,
        "timeout_seconds":2
      },
      "resources":{
        "requests":{
          "cpu":0.25,
          "memory":512
        },
        "limits":{
          "cpu":1,
          "memory":512
        }
      }
    }
}
```

Response

Table 8-8 Parameter description

Parameter	Type	Description
deployment	**Table 5-18** object	Deployment details.

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Parameter	Type	Description
upgrade_ret	String	Upgrade result.
reason	String	Upgrade result description.

Example response


```
{
    "reason":null,
    "upgrade_ret":"success",
    "deployment":{
        "name":"test1203",
        "envs":[
            {
                "name":"IP",
                "value":"127.0.0.1"
            },
            {
                "name":"PORT",
                "value":"9090"
            },
            {
                "name":"VERSION",
                "value":"2.1.0"
            }
        ],
        "liveness_probe":{
            "timeout_seconds":10,
            "http_get":{
                "path":"/",
                "host":"127.0.0.1",
                "scheme":"HTTP",
                "port":9090
            },
            "initial_delay_seconds":10
        },
        "instances":[
            {
                "name":"test-app-version",
                "state":"PENDING",
                "restarts":0,
                "reason":null,
                "is_ready":null,
                "message":null,
                "id":"56149553-d7b4-486d-92b2-0a691123551c"
            }
        ],
        "version":"1.0",
        "image_url":"xxx.xxx.xxx/edgecloud/version:v1",
        "volumes":[

       ],
         "readiness_probe":{
            "timeout_seconds":10,
            "http_get":{
                "path":"/",
                "host":"127.0.0.1",
                "scheme":"HTTP",
                "port":9090
            },
            "initial_delay_seconds":10
        },
```


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```
        "configs":{
            "host_network":true,
            "restart_policy":"Always",
            "privileged":false,
            "ports":null
        },
        "id":"8f900fa3-5dd4-48e1-a0f3-7b7af8c6d54c",
        "resources":{
            "requests":{
                "cpu":0.25,
                "memory":512
            },
            "limits":{
                "cpu":1,
                "memory":512
            }
        }
    }
}
```


Error Codes

For details, see Error Codes.

8.1.3 Querying Details About a Deployment

Function

This API is used to query details about a specified Deployment.

URI

GET /v2/{project_id}/edgemgr/deployments/{deployment_id}

Table 8-9 URI parameters

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

Request

None

Response

Parameter	Type	Description
deployment	Table 5-18 object	Deployment details.

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Example response


```
{
   "deployment": {
      "description": "a@aaa",
      "created_at": "2018-07-20T15:18:42",
      "updated_at": null,
      "instances": [
         {
            "name": "test17",
            "envs": [],
            "state": "PENDING_CREATE",
            "version": "",
            "image_url": "camerachecker:1.5.31",
            "resources": {
               "requests": {
                  "gpu": 2,
                  "cpu": 3,
                  "memory": 2
               },
               "limits": {
                  "gpu": 2,
                  "cpu": 3,
                  "memory": 2
               }
            },
            "volumes": [
               {
                  "read_only": true,
                  "source": "/tmp",
                  "destination": "/tmp0",
                  "type": "hostPath",
                  "name": "test"
               },
               {
                  "read_only": true,
                  "source": "/tmp",
                  "destination": "/tmp2",
                  "type": "hostPath",
                  "name": "test1"
               }
            ],
            "reason": "CrashLoopBackOff ",
            "message": null,
            "configs": {
               "host_network": true,
               "restart_policy": "Always",
               "privileged": false
            },
            "is_ready": "NORMAL",
            "restarts": 0,
            "node_id": "2fac08a3-f1b0-4326-a1e9-77f0f4f6df43",
            "liveness_probe": {
               "http_get": {
                  "path": "/v1",
                  "port": 8080,
                  "host": "",
                  "scheme": "HTTP"
               },
               "initial_delay_seconds": 5,
               "timeout_seconds": 5
            },
            "readiness_probe": {
               "http_get": {
                  "path": "/v1",
                  "port": 9090,
                  "host": "",
                  "scheme": "HTTP"
               },
               "initial_delay_seconds": 5,
```


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```
                "timeout_seconds": 5
            }
          }
        ],
        "project_id": "d16e6eb6cc0d49a0941df2f31285757a",
        "id": "12529bc1-7146-43cc-a24f-9199743d7dc6",
        "name": "test6"
    }
}
```


Error Codes

For details, see Error Codes.

8.1.4 Querying a List of Deployments

Function

This API is used to query a list of Deployments.

URI

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

Table 8-10 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 8-11 Query parameters

Parameter	Mandatory	Type	Description
limit	No	String	Number of records displayed per page.
offset	No	String	Start position for a query.
name	No	String	Deployment name.
node_id	No	String	Node ID.
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 instances of an account are returned.
- **tags** can be used with other parameters for a compound query.

Request

None

Response

Parameter	Type	Description
deployments	Array of **Table 5-18** objects	Deployment list.
count	Integer	Number of Deployments that meet the conditions.

Response example:


```
{
   "count": 1,
   "deployments": [
      {
         "created_at": "2020-05-30 09:42:49.055868 +0000 UTC",
         "replicas": 1,
         "description": "",
         "group_id": "",
         "group_name": "",
         "id": "7a7ffbc6-a247-4898-a24b-4020226978c5",
         "name": "e-deployment-auto-qe77",
         "project_id": "e78acc02d9d141eda5ca8e88fa35f6f8",
         "updated_at": "2020-05-30 09:42:49.132984 +0000 UTC",
         "instances": [
            {
               "id": "12429567-c9dd-4ad7-8a6b-0b1eabf7cef0",
               "node_id": "f73b8f40-237a-4994-94ec-e58d4db882b3",
               "name": "e-deployment-auto-qe77-65f6c67d7-zptfx",
               "image_url": "test-app:latest",
               "version": "latest",
               "configs": {
                  "host_network": false,
                  "restart_policy": "Always",
                  "privileged": false
               },
               "envs": [],
               "volumes": [],
               "message": "",
               "state": "RUNNING",
               "liveness_probe": {
                  "initial_delay_seconds": 30,
                  "timeout_seconds": 60,
                  "http_get": {
                     "path": "/",
                     "port": 80,
                     "scheme": "HTTP"
                  }
               },
               "readiness_probe": {
                  "initial_delay_seconds": 30,
                  "timeout_seconds": 60,
```


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```
                    "http_get": {
                        "path": "/",
                        "port": 80,
                        "scheme": "HTTP"
                    }
                },
                "resources": {
                },
                "reason": "",
                "is_ready": "ABNORMAL",
                "restarts": 0
            }
        ],
        "visibility": ""
    }
  ]
}
```


Error Codes

For details, see Error Codes.

8.1.5 Deleting a Deployment

Function

This API is used to delete a Deployment.

URI

DELETE /v2/{project_id}/edgemgr/deployments/{deployment_id}

Table 8-12 URI parameters

Parameter	Mandatory	Description
project_id	Yes	Project ID. For details about how to obtain a project ID, see Obtaining a Project ID.
deployment_id	Yes	Deployment ID.
force_delete	No	If **force_delete** is **true**, the Deployment is forcibly deleted. This parameter is used in the scenarios where application instances cannot be normally deleted.

Request

None

Response

None

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Error Codes

For details, see Error Codes.

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A Change History

Table A-1 Change history

Date	Change History
2020-08-30	This issue is the fourth official release, which incorporates the following change: Added Service-related APIs.
2020-04-30	This issue is the third official release, which incorporates the following changes: • Added endpoint management APIs. • Added rule management APIs.
2019-12-30	This issue is the second official release, which incorporates the following change: Added **application deployment APIs v3**.
2019-06-30	This issue is the first official release.

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