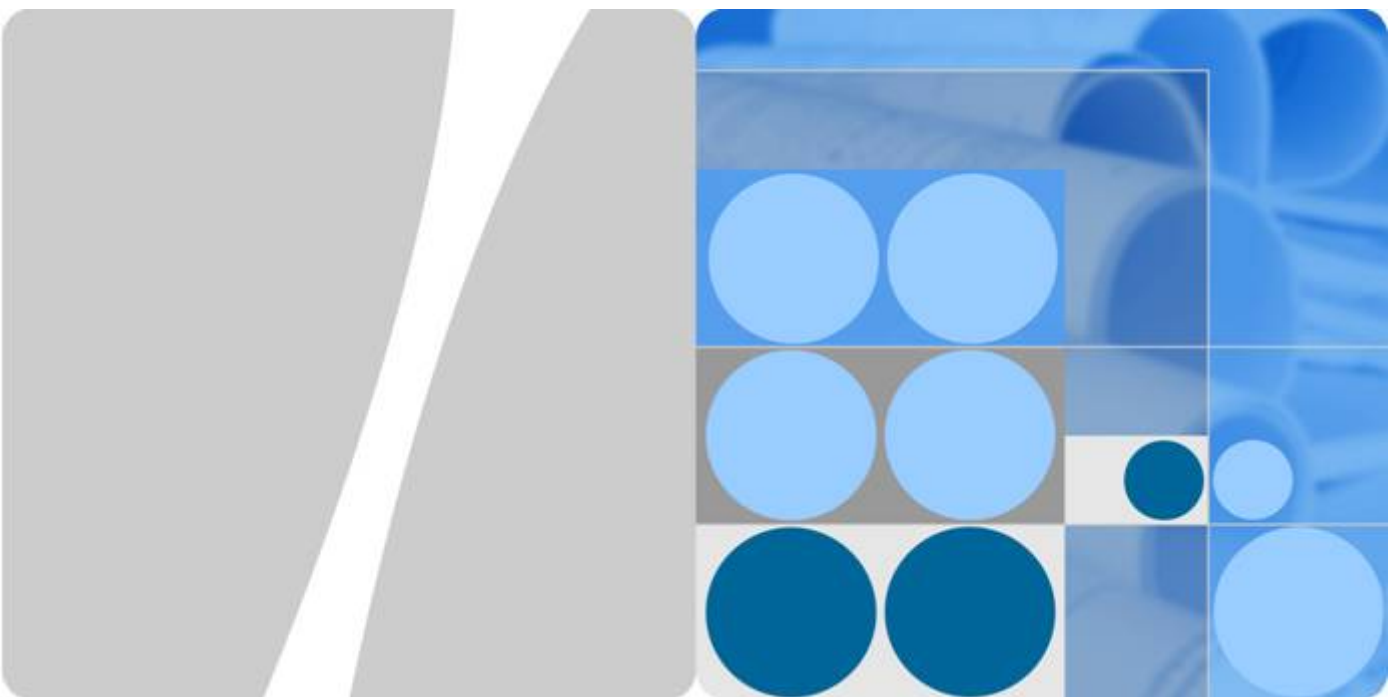




Bare Metal Server

API Reference

Date **2020-09-16**

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1 Before You Start

1.1 Overview

Welcome to . A BMS is a physical server that is dedicated for you on the cloud. It provides the excellent computing performance and data security needed for core databases, key application systems, high-performance computing (HPC), and Big Data services. With the high scalability offered by cloud resources, you can apply for and use BMSs flexibly.

This document describes how to use application programming interfaces (APIs) to perform operations on BMSs, such as creating a BMS, attaching disks to a BMS, and start or stop a BMS. For details about all supported operations, see [API Overview](#).

If you plan to access BMSs through an API, ensure that you are familiar with BMS concepts. For details, see *Bare Metal Server User Guide*.

1.2 API Calling

BMS supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see [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 BMS, see [Regions and Endpoints](#).

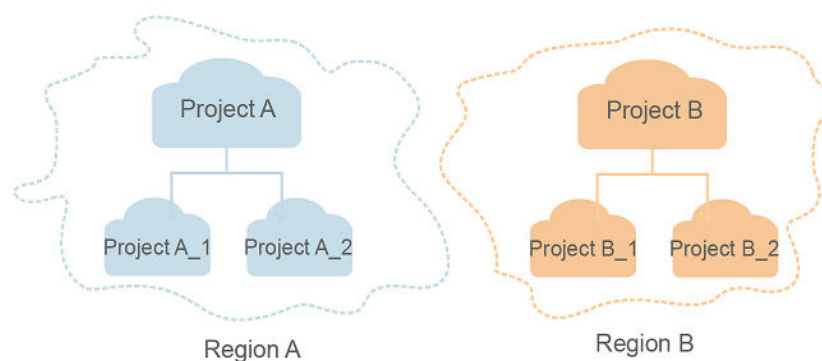
1.4 Constraints

- The number of BMSs that you can create is determined by your quota. To view or increase the quota, see section "Adjusting Resource Quotas" in *Bare Metal Server User Guide*.
- For more constraints, see API description.

1.5 Concepts

- **Account**
An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity, which should not be used directly to perform routine management. For security purposes, create Identity and Access Management (IAM) users and grant them permissions for routine management.
- **User**
An IAM user is created by an account in IAM to use cloud services. Each IAM user has its own identity credentials (password and access keys).
API authentication requires information such as the account name, username, and password.
- **Region**
A region is a geographic area in which cloud resources are deployed. Availability zones (AZs) in the same region can communicate with each other over an intranet, while AZs in different regions are isolated from each other. Deploying cloud resources in different regions can better suit certain user requirements or comply with local laws or regulations.
- **AZ**
An AZ comprises of one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Computing, network, storage, and other resources in an AZ are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.
- **Project**
A project corresponds to a region. Default projects are defined to group and physically isolate resources (including computing, storage, and network resources) across regions. Users can be granted permissions in a default project to access all resources under their accounts in the region associated with the project. If you need more refined access control, create subprojects under a default project and create resources in subprojects. Then you can assign users the permissions required to access only the resources in the specific subprojects.

Figure 1-1 Project isolation model



1.6 Selecting an API Type

BMS APIs are classified as follows:

1. APIs for services with customized specifications (BMS APIs)
2. Native OpenStack APIs that comply with OpenStack community specifications

The two types of APIs offer similar functions but are used in different application scenarios. Native OpenStack APIs are used to meet open-source ecosystem requirements, while the APIs for the BMS service with customized specifications are developed based on Native OpenStack APIs with enhanced functions, such as creation of yearly/monthly BMSs and enterprise project management.

Currently, BMS APIs are v1 version, and the native OpenStack APIs are v2.1 version. To use native OpenStack APIs, you must be familiar with basic concepts and knowledge of OpenStack. For details, visit <https://www.openstack.org/>.

2 API Overview

API Introduction

Native OpenStack APIs and BMS APIs are provided.

A combination of the two types of APIs allows you to use all functions provided by the BMS service. For example, you can create a BMS using a native OpenStack API or a BMS API.

Table 2-1 API description

Type	Subtype	Description
BMS APIs	Lifecycle management	View BMS details.
	Status management	Change the name of a BMS.
	EVS disk management	Attach EVS disks to and detach EVS disks from BMSs.
	Task status query	After a task, such as creating a BMS or attaching disks, is delivered, job_id is returned, based on which you can query the execution status of the task.
Native OpenStack v2.1 APIs	Lifecycle management	Create a BMS, delete a BMS, query BMS details, query BMSs, and query details about BMSs.
	Status management	Start, restart, and stop BMSs.

Type	Subtype	Description
	Metadata management	The BMS metadata includes BMS basic information on the cloud platform, such as the BMS ID, hostname, and network information. You can query, update, and delete BMS metadata.
	IP address query	Query the private IP address of a BMS, including the IP address version (IPv4 or IPv6) and the specific IP address.
	BMS flavor query	• Querying BMS Flavors: Query all BMS flavors or query specified BMS flavors by filters. • Querying BMS Flavor Details: Query details about a BMS based on the flavor ID, such as the flavor name, number of CPUs, and memory. • Querying Parameter <code>extra_specs</code> of a BMS Flavor: Parameter <code>extra_specs</code> specifies the key-value pair of a BMS flavor. If you want to check whether a BMS flavor supports quick provisioning, call this API.
	BMS NIC query	Query all NICs of a BMS or query details about a NIC based on the NIC ID, such as the IP address and MAC address of the NIC.
	EVS disk management	Query all EVS disks attached to a BMS or query details about an EVS disk attached to a BMS based on the disk ID, such as the mount directory and EVS disk ID.
	SSH key management	Query SSH key pairs or details about an SSH key pair, and create and delete SSH key pairs.
	1D tag management	Add, delete, modify, and query 1D tags of BMSs.

 NOTE

- When using BMS APIs, you must use the endpoints of the BMS service.
- When using native OpenStack APIs, you must use the endpoints registered by the ECS service.
- In the current version, long HTTP connections cannot be used to call native OpenStack APIs.

BMS API Constraints

Table 2-2 BMS API constraints

Type	API	URI	Constraint
Lifecycle management	Querying Details About a BMS	GET /v1/{project_id}/baremetalservers/{server_id}	600 times per minute
Status management	Changing the Name of a BMS	PUT /v1/{project_id}/baremetalservers/{server_id}	100 times per minute
Disk management	Attaching an EVS Disk to a BMS	POST /v1/{project_id}/baremetalservers/{server_id}/attachvolume	100 times per minute
	Detaching an EVS Disk from a BMS	DELETE /v1/{project_id}/baremetalservers/{server_id}/detachvolume/{attachment_id}	100 times per minute
Task management	Querying the Task Status	GET /v1/{project_id}/jobs/{jobId}	2000 times per minute

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

 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.
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://{{endpoint}}/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 <i>Hostname:Port number</i> . 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
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in Obtaining a Project ID .	No This field is mandatory for requests that use AK/SK authentication in the Dedicated Cloud (DeC) scenario or multi-project scenario.	e9993fc787d94b6c886cbaa340f9c0f4

Parameter	Description	Mandatory	Example Value
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: MIIPAgYJKoZlhvcNAQcCo...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 [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://{endpoint}}/v3/auth/tokens
Content-Type: application/json
```

(Optional) Request Body

This part is optional. The body of a request is often sent in a structured format as specified in the **Content-Type** header field. The request body transfers content except the request header.

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

In the case of the API used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace *username*, *domainname*, ******* (login password), and *xxxxxxxxxxxxxxxxxxxx* (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://{endpoint}}/v3/auth/tokens
Content-Type: application/json
```

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

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.

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": "xxxxxxx"
  }
}
}
```

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

```
POST https://{endpoint}/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.

3.3 Response

Status Code

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

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

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

Response Header

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

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

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

```
connection → keep-alive
content-type → application/json
date → Tue, 12 Feb 2019 06:52:13 GMT
server → Web Server
strict-transport-security → max-age=31536000; includeSubdomains;
transfer-encoding → chunked
via → proxy A
x-content-type-options → nosniff
x-download-options → noopen
x-frame-options → SAMEORIGIN
x-iam-trace-id → 218d45ab-d674-4995-af3a-2d0255ba41b5
x-subject-token
→ MIIYXQVJKoZlIhvcNAQcCoIIYJCCEoCAQExDTALBglghkgB8ZQMEEAgEwgharBglqhkiG9w0BBwGgghacBIIWmHsidG9rZW4iOnsiZXhwaXJlc19hdCI6IjIwMTktMDItMTNUMC
fj3KJs6YgKnpVNRbW2eZ5eb78SZOkqjACgklqO1wi4JlGzrpd18LGXK5tdfq4lqHCYb8P4NaY0NYejcAgz/VeFYtLWT1GSO0zxKZmlQHq82HBqHdgIZO9fuEbL5dMhdavj+33wEI
xHRCE9I87o+k9-
j+CMZSEB7bUGd5Uj6eRASXl1jipPEGA270g1FrUooL6jagIFkNPQuFSOU8+uSsttVwRtNfsC+qTp22Rkd5MCqFGQ8LcuUxC3a+9CMBnOintWW7oeRUVhVpxk8pxiX1wTEboX-
RzT6MUbvpvGw-oPNFYxJECKnoH3HROzv0vN--n5d6Nbxg==
x-xss-protection → 1; mode=block;
```

(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": {
    "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.

4 BMS APIs

4.1 API Use Instructions

- For details about network service APIs, see *Virtual Private Cloud API Reference*.
- For details about Dedicated Distributed Storage Service (DSS) APIs, see *Dedicated Distributed Storage Service API Reference*.
- When using BMS APIs, you must use the endpoints of the BMS service. For details, see [Endpoints](#).

4.2 BMS Lifecycle Management

4.2.1 Querying BMS Details

Function

This API is used to query BMS details.

The information that can be queried includes the BMS billing mode and whether the BMS is frozen.

URI

GET /v1/{project_id}/baremetalservers/{server_id}

[Table 4-1](#) lists the parameters.

Table 4-1 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
GET https://{BMS Endpoint}/v1/bbf1946d374b44a0a2a95533562ba954/baremetalservers/  
53206ed0-56de-4d6b-b7ee-ffc62ca26f43
```

Response Message

- Response parameters

Parameter	Type	Description
server	Object	Specifies BMS information. For details, see Table 4-2 .

Table 4-2 server field data structure description

Parameter	Type	Description
id	String	Specifies the BMS ID in UUID format.
user_id	String	Specifies the ID of the user to which the BMS belongs. The value is in UUID format.
name	String	Specifies the BMS name.
created	String	Specifies the time when the BMS was created. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T03:30:52Z.

Parameter	Type	Description
updated	String	Specifies the time when the BMS was updated. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T04:30:52Z.
tenant_id	String	Specifies the ID of the tenant owning the BMS. The value is in UUID format. This parameter specifies the same meaning as project_id .
hostId	String	Specifies the host ID of the BMS.
addresses	Object	Specifies network addresses of the BMS. For details, see Table 4-3 .
key_name	String	Specifies the key pair that is used to authenticate the BMS.
image	Object	Specifies the BMS image. For details, see Table 4-5 .
flavor	Object	Specifies the BMS flavor. For details, see Table 4-7 .
security_groups	Array of objects	Specifies the security groups to which the BMS belongs. For details, see Table 4-8 .
accessIPv4	String	This is a reserved attribute.
accessIPv6	String	This is a reserved attribute.
status	String	Specifies the BMS status. Value range: • ACTIVE: Running, Stopping, Deleting • BUILD: Creating • ERROR: Faulty • HARD_REBOOT: Forcibly Restarting • REBOOT: Restarting • SHUTOFF: Stopped, Starting, Deleting, Rebuilding, Reinstalling OS, OS Reinstallation Failed
progress	Integer	This is a reserved attribute.

Parameter	Type	Description
config_drive	String	Specifies whether to configure the config drive partition for the BMS. The value can be True or an empty string.
metadata	Object	Specifies the BMS metadata. For details, see Table 4-12 . NOTE Metadata includes system default fields and the fields set by users.
OS-EXT-STS:task_state	String	Specifies the task status of the BMS. This is an extended attribute. Examples: • rebooting: The BMS is being restarted. • reboot_started: The BMS is normally restarted. • reboot_started_hard: The BMS is forcibly restarted. • powering-off: The BMS is being powered off. • powering-on: The BMS is being powered on. • rebuilding: The BMS is being rebuilt. • scheduling: The BMS is being scheduled. • deleting: The BMS is being deleted.
OS-EXT-STS:vm_state	String	Specifies the stable BMS status. This is an extended attribute. Examples: • active: The BMS is running. • shutoff: The BMS is stopped. • suspended: The BMS is suspended. • reboot: The BMS is restarted.
OS-EXT-SRV-ATTR:host	String	Specifies the host name of the BMS. This is an extended attribute.
OS-EXT-SRV-ATTR:instance_name	String	Specifies the BMS alias. This is an extended attribute.

Parameter	Type	Description
OS-EXT-STS:power_state	Integer	Specifies the power status of the BMS. This is an extended attribute. Examples: • 0: indicates NO STATE. • 1: indicates RUNNING. • 4: indicates SHUTDOWN.
OS-EXT-SRV-ATTR:hypervisor_hostname	String	Specifies the name of the host on which the BMS is deployed.
OS-EXT-AZ:availability_zone	String	Specifies the AZ where the BMS is located.
OS-DCF:diskConfig	String	Specifies the disk configuration. This is an extended attribute. The value can be: • MANUAL: The API uses the partitioning scheme in the image and the file system to create a BMS. If the target flavor has a large disk, the API does not partition the remaining disk space. • AUTO: The API uses a single partition with the same size as the disk of the target flavor to create a BMS. The API automatically adjusts the file system to adapt to the entire partition.
fault	Object	Specifies the cause of the BMS fault. For details, see Table 4-9 .
OS-SRV-USG:launched_at	String	Specifies the time when the BMS was started. The timestamp format is ISO 8601, for example, 2019-05-22T03:23:59.000000 .
OS-SRV-USG:terminated_at	String	Specifies the time when the BMS was deleted. The timestamp format is ISO 8601, for example, 2019-05-22T04:23:59.000000 .

Parameter	Type	Description
os-extended-volumes:volumes_attached	Array of objects	Specifies the disks attached to the BMS. For details, see Table 4-10 .
description	String	Specifies BMS information.
host_status	String	Specifies the status of the host that accommodates the BMS. • UP: The nova-compute status is normal. • UNKNOWN: The nova-compute status is unknown. • DOWN: the nova-compute status is abnormal. • MAINTENANCE: The nova-compute is in the maintenance state. • Empty string: The BMS does not have host information.
OS-EXT-SRV-ATTR:hostname	String	Specifies the hostname of the BMS.
OS-EXT-SRV-ATTR:reservation_id	String	Specifies the reserved BMS IDs in the batch creation scenario. When BMSs are created in a batch, they have the same reservation_id .
OS-EXT-SRV-ATTR:launch_index	Integer	Specifies the BMS startup sequence in the batch creation scenario.
OS-EXT-SRV-ATTR:kernel_id	String	Specifies the UUID of the kernel image when the AMI image is used. In other scenarios, leave this parameter blank.
OS-EXT-SRV-ATTR:ramdisk_id	String	Specifies the UUID of the Ramdisk image when the AMI image is used. In other scenarios, leave this parameter blank.
OS-EXT-SRV-ATTR:root_device_name	String	Specifies the device name of the BMS system disk, for example, /dev/sda .
OS-EXT-SRV-ATTR:user_data	String	Specifies the user_data specified during BMS creation. The value is encoded using Base64 or an empty string.

Parameter	Type	Description
locked	Boolean	Specifies whether the BMS is locked. • true: The BMS is locked. • false: The BMS is not locked.
tags	Array of strings	Specifies tags of the BMS.
os:scheduler_hints	Object	Specifies scheduling information of the BMS. For details, see Table 4-11 .
sys_tags	Array of objects	Specifies system tags of the BMS. For details, see Table 4-13 .

Table 4-3 addresses field data structure description

Parameter	Type	Description
vpc_id	Array of objects	Specifies the network to which the BMS belongs. • key: indicates the ID of the VPC used by the BMS. • value: indicates the network details. For details, see Table 4-4.

Table 4-4 address field data structure description

Parameter	Type	Description
version	Integer	Specifies the IP address version. • 4: indicates IPv4. • 6: indicates IPv6.
addr	String	Specifies the IP address.
OS-EXT-IPS:type	String	Specifies the IP address type. • fixed: indicates the private IP address. • floating: indicates the EIP.
OS-EXT-IPS-MAC:mac_addr	String	Specifies the MAC address.
OS-EXT-IPS:port_id	String	Specifies the port ID corresponding to the IP address.

Table 4-5 image field data structure description

Parameter	Type	Description
id	String	Specifies the image ID in UUID format.
name	String	Specifies the image name.
__os_type	String	Specifies the image type. The value can be: • Linux (including SUSE, Red Hat, CentOS, Oracle Linux, EulerOS, and Ubuntu) • Windows • Other (ESXi)
links	Array of objects	Specifies shortcut links of the image. For details, see Table 4-6 .

Table 4-6 links field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name.
href	String	Specifies the corresponding shortcut link.

Table 4-7 flavor field data structure description

Parameter	Type	Description
id	String	Specifies the flavor ID of the BMS.
name	String	Specifies the flavor name of the BMS.
disk	String	Specifies the system disk size in the BMS flavor. The value 0 indicates that the disk size is not limited.
vcpus	String	Specifies the number of CPU cores in the BMS flavor.
ram	String	Specifies the memory size (MB) in the BMS flavor.

Table 4-8 security_groups field data structure description

Parameter	Type	Description
name	String	Specifies the security group name.

Table 4-9 fault field data structure description

Parameter	Type	Description
message	String	Specifies the fault information.
code	Integer	Specifies the fault code.
details	String	Specifies the fault details.
created	String	Specifies the time when the fault occurred. The time is in ISO 8601 format.

Table 4-10 os-extended-volumes:volumes_attached field data structure description

Parameter	Type	Description
id	String	Specifies the disk ID in UUID format.
delete_on_termination	String	Specifies whether to delete the disk when deleting the BMS. • true: Yes • false: No
bootIndex	String	Specifies whether it is a boot disk. 0 specifies a boot disk, and -1 specifies a non-boot disk.
device	String	Specifies the device name of the disk, for example, /dev/sdb .

Table 4-11 os:scheduler_hints field data structure description

Parameter	Type	Description
dec_baremetal	String	Specifies whether to create the BMS in a DeC. The value can be share or dedicate .

Table 4-12 metadata field data structure description

Parameter	Type	Description
chargingMode	String	Specifies the billing type of the BMS. 1 : yearly/monthly billing mode (pre-paid)
metering.order_id	String	Specifies the order ID for a yearly/monthly BMS.
metering.product_id	String	Specifies the product ID for a yearly/monthly BMS.
vpc_id	String	Specifies the ID of the VPC where the BMS is located.
metering.image_id	String	Specifies the image ID of the BMS.
metering.imagetype	String	Specifies the image type. The following types are supported: - Public image: The value is gold. - Private image: The value is private. - Shared image: The value is shared.
baremetalPortID-List	String	Specifies NICs of the BMS.
metering.resourcespeccode	String	Specifies the flavor code of the BMS in <i>{Flavor ID}.{os_type}</i> format, for example, physical.o2.medium.linux .
metering.resourcetype	String	Specifies the resource type of the BMS. The value is __type_baremetal .
image_name	String	Specifies the image name of the BMS.
op_svc_userid	String	Specifies the user ID. You can obtain the user ID from My Credential on the management console.
os_type	String	Specifies the OS type. The value can be Linux or Windows .
__bms_support_evs	String	Specifies whether the BMS supports EVS disks.

Parameter	Type	Description
os_bit	String	Specifies the number of bits in the OS: 32 or 64 .

Table 4-13 sys_tags field data structure description

Parameter	Type	Description
key	String	Specifies the key of a system tag. The value is _sys_enterprise_project_id , indicating an enterprise project ID.
value	String	Specifies the system tag value.

- Example response

```
{
  "server": {
    "id": "53206ed0-56de-4d6b-b7ee-ffc62ca26f43",
    "name": "bms-test",
    "addresses": {
      "5849fdf1-9d79-4589-80c2-fe557990c417": [
        {
          "version": "4",
          "addr": "192.168.1.216",
          "OS-EXT-IPS-MAC:mac_addr": "fa:16:3e:25:56:c3",
          "OS-EXT-IPS:port_id": "9e62503b-094e-4c6e-bc95-f10bbfb455d5",
          "OS-EXT-IPS:type": "fixed"
        },
        {
          "version": "4",
          "addr": "10.154.72.77",
          "OS-EXT-IPS-MAC:mac_addr": "fa:16:3e:25:56:c3",
          "OS-EXT-IPS:port_id": "9e62503b-094e-4c6e-bc95-f10bbfb455d5",
          "OS-EXT-IPS:type": "floating"
        }
      ]
    },
    "flavor": {
      "disk": "9309",
      "vcpus": "32",
      "ram": "193047",
      "id": "physical.o2.medium",
      "name": "physical.o2.medium"
    },
    "accessIPv4": "",
    "accessIPv6": "",
    "status": "ACTIVE",
    "progress": 0,
    "hostId": "cd243addb5d2c64e89218180b7a3ed95abe6882e81c337cc563137df",
    "updated": "2018-09-18T09:29:44Z",
    "created": "2018-09-18T02:43:26Z",
    "metadata": {
      "metering.order_id": "CS1809181040HCFC2",
      "metering.image_id": "8589958c-6bc7-40c6-b81b-3fe4cd2e3d85",
      "baremetalPortIDList": "[9e62503b-094e-4c6e-bc95-f10bbfb455d5]",
      "metering.resourcespeccode": "physical.o2.medium.linux",
      "regionId": "region_id",
      "image_name": "redhat_7_2",
      "op_svc_userid": "745973c535ec4d4caba86f6f9419ff6d",
```

```
    "metering.resourcetype": "__type_baremetal",
    "agency_name": "CES_test",
    "metering.product_id": "00301-74069-0--0",
    "os_bit": "64",
    "vpc_id": "5849fdf1-9d79-4589-80c2-fe557990c417",
    "os_type": "Linux",
    "chargingMode": "1"
  },
  "tags": [
    "__type_baremetal"
  ],
  "description": "bms-6e18",
  "locked": false,
  "image": {
    "id": "8589958c-6bc7-40c6-b81b-3fe4cd2e3d85"
  },
  "config_drive": "",
  "tenant_id": "bbf1946d374b44a0a2a95533562ba954",
  "user_id": "3fc5ab2b0c544979abcaafd86edd80e6",
  "OS-EXT-STS:power_state": 1,
  "OS-EXT-STS:vm_state": "active",
  "OS-EXT-SRV-ATTR:host": "bms.dc1",
  "OS-EXT-SRV-ATTR:instance_name": "instance-00154f94",
  "OS-EXT-SRV-ATTR:hypervisor_hostname": "nova002@2",
  "OS-DCF:diskConfig": "MANUAL",
  "OS-EXT-AZ:availability_zone": "az-dc-1",
  "os:scheduler_hints": {},
  "OS-EXT-SRV-ATTR:root_device_name": "/dev/sda",
  "OS-EXT-SRV-ATTR:ramdisk_id": "",
  "enterprise_project_id": "2c7b6d77-9013-4d74-a221-2f612fc56372",
  "OS-EXT-SRV-ATTR:user_data":
    "lyEvYmluL2Jhc2gKZWNObyAncm9vdDokNiRtTGM1REEkN3lvWFVZaEl0VG1YZ0FCT1F2SE4wOHNoWTVZcDYzUXFDTTVyMHpmWjhJLklnNW92UIU2QW85a25QNIZUVnhkckF5RTJtdC40S0NxcXBNUVUUVppNC4nlHwgY2hwyXNzd2QgLUU7",
  "OS-SRV-USG:launched_at": "2018-09-18T02:46:07.954587",
  "OS-EXT-SRV-ATTR:kernel_id": "",
  "OS-EXT-SRV-ATTR:launch_index": 0,
  "host_status": "UP",
  "OS-EXT-SRV-ATTR:reservation_id": "r-08tuyo8v",
  "OS-EXT-SRV-ATTR:hostname": "bms-6e18",
  "sys_tags": [
    {
      "key": "_sys_enterprise_project_id",
      "value": "2c7b6d77-9013-4d74-a221-2f612fc56372"
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

4.3 BMS Status Management

4.3.1 Changing the BMS Name

Function

This API is used to change the name of a BMS.

Constraints

The new name must meet the following requirements:

Contain 1 to 63 characters, consisting of letters (case-insensitive), digits, underscores (_), hyphens (-), and periods (.).

NOTE

This API can only be used to change the BMS name. The hostname will not be changed. The new name takes effect after the BMS is restarted.

URI

PUT /v1/{project_id}/baremetalservers/{server_id}

[Table 4-14](#) lists the parameters.

Table 4-14 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
server	Yes	Object	Specifies the BMS data structure. For details, see Table 4-15 .

Table 4-15 server field data structure description

Parameter	Mandatory	Type	Description
name	Yes	String	Specifies the new BMS name.

- Example request

```
PUT https://{BMS Endpoint}/v1/c685484a8cc2416b97260938705deb65/baremetalservers/95bf2490-5428-432c-ad9b-5e3406f869dd
{
  "server":
  {
    "name": "new-server-test"
  }
}
```

Response Message

- Response parameters

Parameter	Type	Description
server	Object	Specifies BMS information. For details, see Table 4-16 .

Table 4-16 server field data structure description

Parameter	Type	Description
name	String	Specifies the BMS name.
id	String	Specifies the unique ID of the BMS.
status	String	Specifies the BMS status. • ACTIVE: Running, Stopping, Deleting • BUILD: Creating • ERROR: Faulty • HARD_REBOOT: Forcibly Restarting • REBOOT: Restarting • SHUTOFF: Stopped, Starting, Deleting, Rebuilding, Reinstalling OS, OS Reinstallation Failed

Parameter	Type	Description
created	String	Specifies the time when the BMS was created. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T03:30:52Z.
updated	String	Specifies the time when the BMS was last updated. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T04:30:52Z.
flavor	Object	Specifies the BMS flavor. For details, see Table 4-19 .
image	Object	Specifies the BMS image. For details, see Table 4-20 .
tenant_id	String	Specifies the ID of the tenant owning the BMS. The value is in UUID format. This parameter specifies the same meaning as project_id .
key_name	String	Specifies the SSH key name.
user_id	String	Specifies the ID of the user to which the BMS belongs.
metadata	Object	Specifies the BMS metadata. For details, see Table 4-22 .
hostId	String	Specifies the hos ID of the BMS.
addresses	Object	Specifies BMS network addresses. For details, see Table 4-23 .
security_groups	Array of objects	Specifies the security groups to which the BMS belongs. For details, see Table 4-25 .
links	Array of objects	Specifies shortcut links of the BMS. For details, see Table 4-21 .

Parameter	Type	Description
OS-DCF:diskConfig	String	Specifies the disk configuration method. This is an extended attribute. The value can be: • MANUAL: The API uses the partitioning scheme in the image and the file system to create a BMS. If the target flavor has a large disk, the API does not partition the remaining disk space. • AUTO: The API uses a single partition with the same size as the disk of the target flavor to create a BMS. The API automatically adjusts the file system to adapt to the entire partition.
OS-EXT-AZ:availability_zone	String	Specifies the AZ where the BMS is located.
OS-EXT-SRV-ATTR:host	String	Specifies the host name of the BMS. This is an extended attribute.
OS-EXT-SRV-ATTR:hypervisor_hostname	String	Specifies the name of the host on which the BMS is deployed.
OS-EXT-SRV-ATTR:instance_name	String	Specifies the BMS alias. This is an extended attribute.
OS-EXT-STS:power_state	Integer	Specifies the power status of the BMS. This is an extended attribute. Examples: • 0: indicates NO STATE. • 1: indicates RUNNING. • 4: indicates SHUTDOWN.

Parameter	Type	Description
OS-EXT-STS:task_state	String	Specifies the task status of the BMS. This is an extended attribute. Examples: • rebooting: The BMS is being restarted. • reboot_started: The BMS is normally restarted. • reboot_started_hard: The BMS is forcibly restarted. • powering-off: The BMS is being powered off. • powering-on: The BMS is being powered on. • rebuilding: The BMS is being rebuilt. • scheduling: The BMS is being scheduled. • deleting: The BMS is being deleted.
OS-EXT-STS:vm_state	String	Specifies the BMS status. This is an extended attribute. Examples: • active: The BMS is running. • shutoff: The BMS is stopped. • suspended: The BMS is suspended. • reboot: The BMS is restarted.
OS-SRV-USG:launched_at	String	Specifies the time when the BMS was started. This is an extended attribute. The timestamp format is ISO 8601, for example, 2019-05-25T03:40:25.000000 .
OS-SRV-USG:terminated_at	String	Specifies the time when the BMS was stopped. This is an extended attribute. The timestamp format is ISO 8601, for example, 2019-06-25T03:40:25.000000 .
os-extended-volumes:volumes_attached	Array of objects	Specifies the EVS disks attached to the BMS. For details, see Table 4-26 .
accessIPv4	String	This is a reserved attribute.
accessIPv6	String	This is a reserved attribute.
fault	Object	Specifies the cause of the BMS fault. For details, see Table 4-27 .

Parameter	Type	Description
config_drive	String	This is a reserved attribute.
progress	Integer	This is a reserved attribute.
description	String	Specifies BMS information.
host_status	String	Specifies the status of the host that accommodates the BMS. • UP: The nova-compute status is normal. • UNKNOWN: The nova-compute status is unknown. • DOWN: the nova-compute status is abnormal. • MAINTENANCE: The nova-compute is in the maintenance state. • Empty string: The BMS does not have host information.
OS-EXT-SRV-ATTR:hostname	String	Specifies the hostname of the BMS.
OS-EXT-SRV-ATTR:reservation_id	String	Specifies the reserved BMS IDs in the batch creation scenario. When BMSs are created in a batch, they have the same reservation_id .
OS-EXT-SRV-ATTR:launch_index	Integer	Specifies the BMS startup sequence in the batch creation scenario.
OS-EXT-SRV-ATTR:kernel_id	String	Specifies the UUID of the kernel image when the AMI image is used. In other scenarios, leave this parameter blank.
OS-EXT-SRV-ATTR:ramdisk_id	String	Specifies the UUID of the Ramdisk image when the AMI image is used. In other scenarios, leave this parameter blank.
OS-EXT-SRV-ATTR:root_device_name	String	Specifies the device name of the BMS system disk, for example, /dev/sdb .
OS-EXT-SRV-ATTR:user_data	String	Specifies the user_data specified during BMS creation. The value is encoded using Base64 or an empty string.

Parameter	Type	Description
locked	Boolean	Specifies whether the BMS is locked. • true: The BMS is locked. • false: The BMS is not locked.
tags	Array of strings	Specifies tags of the BMS.
sys_tags	Array of objects	Specifies system tags of the BMS.
enterprise_project_id	String	Specifies the enterprise project ID.
os:scheduler_hints	Object	Specifies the BMS scheduling information.

Table 4-17 [sys_tags](#) field data structure description

Parameter	Type	Description
key	String	Specifies the system tag key.
value	String	Specifies the system tag value.

Table 4-18 [os:scheduler_hints](#) field data structure description

Parameter	Type	Description
group	Array of strings	Specifies the BMS group ID in UUID format.

Table 4-19 [flavor](#) field data structure description

Parameter	Type	Description
id	String	Specifies the flavor ID.
links	Array of objects	Specifies shortcut links of the flavor. For details, see Table 4-21 .

Table 4-20 [image](#) field data structure description

Parameter	Type	Description
id	String	Specifies the image ID of the BMS.

Parameter	Type	Description
links	Array of objects	Specifies shortcut links of the BMS image. For details, see Table 4-21 .

Table 4-21 links field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name. The value can be: • self: resource link that contains the version number. It is used when immediate tracing is required. • bookmark: resource link that can be stored for a long time.
href	String	Specifies the corresponding shortcut link.

Table 4-22 metadata field data structure description

Parameter	Type	Description
key	String	Specifies the key and value pair of the metadata. The maximum size for each metadata key and value pair is 255 bytes.

Table 4-23 addresses field data structure description

Parameter	Type	Description
vpc_id	Array of objects	Specifies the VPC used by the BMS. • key: indicates the ID of the VPC used by the BMS. • value: indicates the VPC details. For details, see Table 4-24.

Table 4-24 address field data structure description

Parameter	Type	Description
addr	String	Specifies the IP address.

Parameter	Type	Description
version	Integer	Specifies the type of the IP address. The value can be 4 or 6 . • 4: The type of the IP address is IPv4. • 6: The type of the IP address is IPv6.
OS-EXT-IPS-MAC:mac_addr	String	Specifies the MAC address. This is an extended attribute.
OS-EXT-IPS:type	String	Specifies the IP address assignment mode. This is an extended attribute.
OS-EXT-IPS:port_id	String	Specifies the port ID corresponding to the IP address.

Table 4-25 security_groups field data structure description

Parameter	Type	Description
name	String	• If no security group is specified during BMS creation, the default value is used. • When creating a BMS, you need to specify the ID of an existing security group (in UUID format).

Table 4-26 os-extended-volumes:volumes_attached field data structure description

Parameter	Type	Description
id	String	Specifies the EVS disk ID.
delete_on_termination	Boolean	Specifies whether to delete the disk when deleting the BMS. • true: Yes • false: No

Table 4-27 fault field data structure description

Parameter	Type	Description
message	String	Specifies the fault information.
code	Integer	Specifies the fault code.

Parameter	Type	Description
details	String	Specifies the fault details.
created	String	Specifies the time when a fault occurred. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T03:30:52Z.

- Example response

```
{
  "server": {
    "tenant_id": "c685484a8cc2416b97260938705deb65",
    "addresses": {
      "08a7715f-7de6-4ff9-a343-95ba4209f24a": [
        {
          "OS-EXT-IPS-MAC:mac_addr": "fa:16:3e:0e:c4:77",
          "OS-EXT-IPS:type": "fixed",
          "OS-EXT-IPS:port_id": "0c111191-9785-49e6-8b42-66ef2802bd8f",
          "addr": "192.168.0.107",
          "version": 4
        }
      ]
    },
    "metadata": {
      "op_svc_userid": "1311c433dd9b408886f57d695c229cbe"
    },
    "OS-EXT-STS:task_state": null,
    "OS-DCF:diskConfig": "MANUAL",
    "OS-EXT-AZ:availability_zone": "az-dc-1",
    "links": [
      {
        "rel": "self",
        "href": "https://bms.az0.dc1.domainname.com/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd"
      },
      {
        "rel": "bookmark",
        "href": "https://bms.az0.dc1.domainname.com/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd"
      }
    ],
    "OS-EXT-STS:power_state": 1,
    "id": "95bf2490-5428-432c-ad9b-5e3406f869dd",
    "os-extended-volumes:volumes_attached": [
      {
        "id": "dfa375b5-9856-44ad-a937-a4802b6434c3"
      },
      {
        "id": "bb9f1b27-843b-4561-b62e-ca18eeaec417"
      },
      {
        "id": "86e801c3-acc6-465d-890c-d43ba493f553"
      },
      {
        "id": "0994d3ac-3c6a-495c-a439-c597a4f08fa6"
      }
    ],
    "OS-EXT-SRV-ATTR:host": "bms.az-dc-1",
    "image": {
      "links": [
        {
          "rel": "bookmark",
          "href": "https://bms.az0.dc1.domainname.com/c685484a8cc2416b97260938705deb65/"
        }
      ]
    }
  }
}
```

```
images/1a6635d8-afea-4f2b-abb6-27a202bad319"
    },
    "id": "1a6635d8-afea-4f2b-abb6-27a202bad319"
  },
  "OS-SRV-USG:terminated_at": null,
  "accessIPv4": "",
  "accessIPv6": "",
  "created": "2017-05-24T06:14:05Z",
  "hostId": "e9c3ee0fcc58ab6085cf30df70b5544eab958858fb50d925f023e53e",
  "OS-EXT-SRV-ATTR:hypervisor_hostname": "nova004@2",
  "key_name": "KeyPair-JX",
  "flavor": {
    "links": [
      {
        "rel": "bookmark",
        "href": "https://bms.az0.dc1.domainname.com/c685484a8cc2416b97260938705deb65/
flavors/physical.83.medium"
      }
    ],
    "id": "physical.83.medium"
  },
  "security_groups": [
    {
      "name": "0011b620-4982-42e4-ad12-47c95ca495c4"
    }
  ],
  "config_drive": "",
  "OS-EXT-STS:vm_state": "active",
  "OS-EXT-SRV-ATTR:instance_name": "instance-0000ebd3",
  "user_id": "1311c433dd9b408886f57d695c229cbe",
  "name": "bms-83",
  "progress": 0,
  "OS-SRV-USG:launched_at": "2017-05-25T03:40:25.066078",
  "updated": "2017-05-25T03:40:25Z",
  "status": "ACTIVE"
}
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

4.4 BMS Disk Management

4.4.1 Attaching an EVS Disk to a BMS

Function

This API is used to attach EVS disks to a BMS as data disks after the BMS is created if existing disks are insufficient or cannot meet requirements.

Constraints

- EVS disks cannot be attached to a BMS in a batch.
- A maximum of 40 EVS disks can be attached to a BMS.
- A bootable disk cannot be attached to a BMS.
- A disk cannot be attached to a BMS in the **SUSPENDED** or **PAUSED** state, which is specified using the **OS-EXT-STS:vm_state** parameter.
- Only a shared disk or a disk in the **available** state can be attached to a BMS.
- Only EVS disks whose device type is **SCSI** can be attached to a BMS.

URI

POST /v1/{project_id}/baremetalservers/{server_id}/attachvolume

[Table 4-28](#) lists the parameters.

Table 4-28 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
volumeAttachment	Yes	Object	Specifies the disks to be attached. For details, see Table 4-29 .

Table 4-29 volumeAttachment field data structure description

Parameter	Mandatory	Type	Description
volumeld	Yes	String	Specifies the ID of the disk to be attached to a BMS. You can obtain the disk ID from the EVS console or by calling the .
device	No	String	Specifies the mount point, such as /dev/sda and /dev/sdb . The new disk mount point cannot be the same as an existing one. The mount point must be specified based on the sequence of existing device names. If this parameter is left blank or set to "", the system automatically generates a mount point.

- Example request

POST https://{BMS Endpoint}/v1/bbf1946d374b44a0a2a95533562ba954/baremetalservers/cf2a8b97-b5c6-47ef-9714-eb27adf26e5b/attachvolume

```
{
  "volumeAttachment": {
    "volumeld": "b53f23bd-ee8f-49ec-9420-d1acfeaf91d6",
    "device": ""
  }
}
```

Response Message

See [Task ID Response](#).

Returned Values

Normal values

Returned Value	Description
202	The request has been accepted, but the processing has been delayed.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

4.4.2 Detaching an EVS Disk from a BMS

Function

This API is used to detach a disk from a BMS.

- A disk attached to **/dev/sda** functions as the system disk. You can only detach the system disk from a stopped BMS.
- Disks attached to a mount point other than **/dev/sda** function as data disks and can be detached from a running or stopped BMS.

Stopped and **Running** indicate that the BMS is running or stopped.

Constraints

If a BMS is stopped, disks can be detached from it without any limitation on the OS. If a BMS is running, the constraints are as follows:

- Before detaching an EVS disk from a Linux BMS, log in to the BMS, run the **umount** command to disassociate the disk to be detached from the file system, and ensure that no program is reading data from or writing data to the disk. Otherwise, the disk will fail to be detached.
- Before detaching an EVS disk from a Windows BMS, ensure that no program is reading data from or writing data to the disk. Otherwise, data will be lost.

URI

DELETE /v1/{project_id}/baremetalservers/{server_id}/detachvolume/{attachment_id}

[Table 4-30](#) lists the parameters.

Table 4-30 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
attachment_id	Yes	Specifies the IDs of the EVS disks attached to the BMS.

Request Message

- Request parameters

None

- Example request

```
DELETE https://{BMS Endpoint}/v1/bbf1946d374b44a0a2a95533562ba954/baremetalservers/  
cf2a8b97-b5c6-47ef-9714-eb27adf26e5b/detachvolume/6b604cef-9bd8-4f5a-ae56-45839e6e1f0a
```

Response Message

See [Task ID Response](#).

Returned Values

Normal values

Returned Value	Description
202	The request has been accepted, but the processing has been delayed.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

4.5 Task Management

4.5.1 Querying Task Statuses

Function

This interface is used to query the execution status of a task, such as ECS creation, ECS deletion, ECS batch operation, and NIC operation.

After a task, such as creating a BMS or attaching disks, is delivered, **job_id** is returned, based on which you can query the execution status of the task.

URI

GET /v1/{project_id}/jobs/{job_id}

[Table 4-31](#) lists the parameters.

Table 4-31 Parameter description

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

Request

- Request parameters
None

- Example request

```
GET https://{BMS Endpoint}/v1/bbf1946d374b44a0a2a95533562ba954/jobs/  
2c9eb2c5544cbf6101544f0635672b60
```

Response

- Response parameters

Parameter	Type	Description
status	String	Specifies the task status. SUCCESS: The task is successful. RUNNING: The task is running. FAIL: The task failed. INIT: The task is being initialized.
entities	Object	Specifies the task object. For details, see Table 4-32 . The displayed information varies depending on the task type. For operations related to BMSs, server_id is displayed. For operations related to NICs, nic_id is displayed. If subtasks exist, details about the subtasks are also displayed.
job_id	String	Specifies the task ID.

Parameter	Type	Description
job_type	String	Specifies the task type. The value can be: • baremetalBatchCreate: creating BMSs in a batch • baremetalBatchOperate: changing the power status of BMSs in a batch. • baremetalAttachVolume: attaching a disk • baremetalDetachVolume: detaching a disk
begin_time	String	Specifies the time when the job started. The timestamp format is ISO 8601, for example, 2019-04-25T20:04:47.591Z .
end_time	String	Specifies the time when the job ended. The timestamp format is ISO 8601, for example, 2019-04-26T20:04:47.591Z .
error_code	String	Specifies the error code returned upon a task execution failure.
fail_reason	String	Specifies the cause of a task execution failure.
message	String	Specifies the message returned when an error occurs.
code	String	Specifies the error code returned when an error occurs. For details about error codes, see section Status Codes .

Table 4-32 entities field data structure description

Parameter	Type	Description
sub_jobs_total	Integer	Specifies the number of subtasks. If the task has no subtasks, the value of this parameter is 0 .

Parameter	Type	Description
sub_jobs	Array of objects	Specifies the execution information about a subtask. If the task has no subtasks, the value of this parameter is left blank. For details, see Table 4-33 .

Table 4-33 sub_jobs field data structure description

Parameter	Type	Description
status	String	Specifies the task status. • SUCCESS: The task is successful. • RUNNING: The task is running. • FAIL: The task failed. • INIT: The task is being initialized.
entities	Array of objects	Specifies the task object. The displayed information varies depending on the task type. For operations related to BMSs, server_id is displayed. For operations related to NICs, nic_id is displayed. For details, see Table 4-34 .
job_id	String	Specifies the task ID.
job_type	String	Specifies the task type. The value can be: • baremetalSingleCreate: creating a single BMS • baremetalSingleOperate: changing the power status of a single BMS
begin_time	String	Specifies the time when the job started. The timestamp format is ISO 8601, for example, 2019-04-25T20:04:47.591Z .
end_time	String	Specifies the time when the job ended. The timestamp format is ISO 8601, for example, 2019-04-26T20:04:47.591Z .
error_code	String	Specifies the error code returned upon a task execution failure.

Parameter	Type	Description
fail_reason	String	Specifies the cause of a task execution failure.
message	String	Specifies the message returned when an error occurs.
code	String	Specifies the error code returned when an error occurs. For details about error codes, see section Status Codes .

Table 4-34 entities field data structure description

Parameter	Type	Description
server_id	String	If the task is a BMS-related operation, server_id is displayed.
nic_id	String	If the task is a NIC-related operation, the value is nic_id .

- Example response

```
{
  "status": "SUCCESS",
  "entities": {
    "sub_jobs_total": 1,
    "sub_jobs": [
      {
        "status": "SUCCESS",
        "entities": {
          "server_id": "bae51750-0089-41a1-9b18-5c777978ff6d"
        },
        "job_id": "2c9eb2c5544cbf6101544f0635672b60",
        "job_type": "baremetalSingleCreate",
        "begin_time": "2019-04-25T20:04:47.591Z",
        "end_time": "2019-04-25T20:08:21.328Z",
        "error_code": null,
        "fail_reason": null
      }
    ]
  },
  "job_id": "2c9eb2c5544cbf6101544f0602af2b4f",
  "job_type": "baremetalBatchCreate",
  "begin_time": "2019-04-25T20:04:34.604Z",
  "end_time": "2019-04-25T20:08:41.593Z",
  "error_code": null,
  "fail_reason": null
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5 Native OpenStack Nova V2.1 APIs

5.1 API Use Instructions

- For details about network service APIs, see *Virtual Private Cloud API Reference*.
- For details about DSS APIs, see *Dedicated Distributed Storage Service API Reference*.
- When using native OpenStack APIs, you must use the endpoints of the ECS service. For details, see [Endpoints](#).
- To support function extension, Nova APIs can be distinguished by version. There are two types of versions:
 - Major version: independent URL
 - Microversion: Used by the HTTP request header X-OpenStack-Nova-API-Version. Since microversion 2.27, the new microversion header OpenStack-API-Version has been supported.

5.2 BMS Lifecycle Management

5.2.1 Creating a BMS (Native OpenStack API)

Function

This interface is used to create a BMS.

Constraints

- This interface cannot be used to create BMSs in batches.
- When you create a BMS using an image that supports Cloud-Init or Cloudbase-Init, only parameter **key_name** can be configured. (Parameter **adminPass** is invalid.) The password of a Linux BMS can be injected only using parameter **user_data**. The password of a Windows BMS can be injected only using metadata **admin_pass**.

- When you create a BMS using an image that does not support Cloud-Init or Cloudbase-Init, both parameters **adminPass** and **key_name** are invalid. You need to use the password or certificate of the image to log in to the BMS.
- File injection is not supported.
- BMS creation from a system volume is not supported.
- Parameter **port** in the three network parameters (**port**, **uuid**, and **fixed_ip**) has the highest priority. If parameter **fixed_ip** is set, you must specify the UUID.
- After a BMS is created, it is recommended that you attach the **__type_baremetal** tag to the BMS. This tag specifies that the created server is a BMS. Otherwise, the BMS may not be displayed in the BMS list on the management console.
- A BMS can have a maximum of two VPCs, in which case the first VPC will be used by the primary NIC.

URI

POST /v2.1/{project_id}/servers

[Table 5-1](#) lists the parameters.

Table 5-1 Parameter description

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

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
server	Yes	Object	Specifies the BMS information, see Table 5-2 .

Table 5-2 server field data structure description

Parameter	Mandatory	Type	Description
imageRef	Yes	String	Specifies the ID of the image used by the BMS or the image resource uniform resource locator (URL). • Example image ID: 3b8d6fef-af77-42ab-b8b7-5a7f0f0af8f2 • Example image URL: http://glance.openstack.example.com/images/3b8d6fef-af77-42ab-b8b7-5a7f0f0af8f2 NOTE • BMSs using certain flavors do not support all public images provided by the cloud service platform. To obtain the images supported by a BMS flavor, log in to the management console, view the images displayed on the Create ECS page, and obtain the image IDs on the Image Management Service page. • If the creation fails, modify the parameter settings.
flavorRef	Yes	String	Specifies the ID or URL of the flavor used by the BMS.
name	Yes	String	Specifies the BMS name. It contains 0 to 255 characters.
metadata	No	Object	Specifies the BMS metadata. The maximum size for each metadata key and value pair is 255 bytes. For details, see Table 5-3 .

Parameter	Mandatory	Type	Description
user_data	No	String	Specifies the user data to be injected during the BMS creation. Text, text files, and .gzip files can be injected. The content to be injected cannot be greater than 32 KB in size. The content to be injected must be encoded with base64.

Parameter	Mandatory	Type	Description
adminPass	No	String	Specifies the initial login password of the BMS administrator account. This parameter is invalid for a Linux BMS. The administrator account of a Windows BMS is Administrator. Password complexity requirements: • The password contains 8 to 26 characters. • The password must contain at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@\$%^_+=+[]{}:./?). • The password cannot contain the username or the username in reverse. • The Windows BMS password cannot contain the username, the username in reverse order, or more than two consecutive characters in the username. Note: If this parameter is not specified, a random password will be generated. Special characters: !@\$%^_+=+[]{}:./?

Parameter	Mandatory	Type	Description
security_groups	No	Array of objects	Specifies the security group of a BMS. The default value is default . This parameter is valid when you specify parameter network . You are not allowed to specify multiple security groups. For details, see Table 5-4 .
networks	Yes	Array of objects	Specifies the BMS NICs. For details, see Table 5-5 . You can specify a maximum of four networks for a BMS, including two VXLAN networks and two GENEVE networks. The first network in the parameter must be a VXLAN network. The network is used as by the primary NIC of the BMS. If multiple groups of network parameters are specified, ensure that the parameters of each group belong to the same VPC.
key_name	No	String	Specifies the name of a key pair. This is an extended attribute.
availability_zone	Yes	String	Specifies information about the AZ to which the BMS belongs. You are not allowed to specify host information.

Table 5-3 metadata field data structure description

Parameter	Mandator y	Type	Description
User-defined field key and value pair	No	String	Specifies the key and value pair of the metadata. The maximum size for each metadata key and value pair is 255 bytes.

Table 5-4 security_groups field data structure description

Parameter	Mandator y	Type	Description
name	Yes	String	Specifies the name of the security group to which the BMS belongs.

Table 5-5 networks field data structure description

Parameter	Mandator y	Type	Description
port	No	String	Specifies the UUID of the network port.
uuid	No	String	Specifies the network UUID.
fixed_ip	No	String	Specifies the fixed IP address.

- **Example request**

POST https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers

```
{
  "server": {
    "imageRef": "1a6635d8-afea-4f2b-abb6-27a202bad319",
    "flavorRef": "physical.o2.medium",
    "name": "bms_name01",
    "availability_zone": "az-dc-1",
    "networks": [
      {
        "uuid": "8470310b-bfa2-4edf-8f64-d15196b2b2c9"
      }
    ]
  }
}
```

Response Message

- Response parameters

Parameter	Type	Description
server	Object	Specifies the BMS information. For details, see Table 5-6 .

Table 5-6 server field data structure description

Parameter	Type	Description
security_groups	Array of objects	Specifies information about the BMS security group. For details, see Table 5-7 .
OS-DCF:diskConfig	String	Specifies the disk configuration. The value can be: • MANUAL: The API uses the partitioning scheme in the image and the file system to create a BMS. If the target flavor has a large disk, the API does not partition the remaining disk space. • AUTO: The API uses a single partition with the same size as the disk of the target flavor to create a BMS. The API automatically adjusts the file system to adapt to the entire partition.
id	String	Specifies the BMS ID.
links	Array of objects	Specifies the shortcut links of the BMS. For details, see Table 5-8 .
adminPass	String	Specifies the initial login password of the BMS administrator account.

Table 5-7 security_groups field data structure description

Parameter	Type	Description
name	String	Specifies the name of the security group to which the BMS belongs.

Table 5-8 links field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name. The value can be: • self: resource link that contains the version number. It is used when immediate tracing is required. • bookmark: resource link that can be stored for a long time.
href	String	Specifies the corresponding shortcut link.

- Example response

```
{
  "server": {
    "security_groups": [
      {
        "name": "default"
      }
    ],
    "OS-DCF:diskConfig": "MANUAL",
    "links": [
      {
        "rel": "self",
        "href": "https://openstack.example.com/v2/c685484a8cc2416b97260938705deb65/servers/9ab74d89-61e7-4259-8546-465fdebe4944"
      },
      {
        "rel": "bookmark",
        "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/servers/9ab74d89-61e7-4259-8546-465fdebe4944"
      }
    ],
    "id": "9ab74d89-61e7-4259-8546-465fdebe4944",
    "adminPass": "RjdD3h8U2DBe"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.2.2 Deleting a BMS (Native OpenStack API)

Function

This interface is used to delete a BMS.

URI

DELETE /v2.1/{project_id}/servers/{server_id}

[Table 5-9](#) lists the parameters.

Table 5-9 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
DELETE https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/  
9ab74d89-61e7-4259-8546-465fdebe4944
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.2.3 Querying Details About a BMS (Native OpenStack API)

Function

This API is used to query details about a BMS based on the BMS ID.

URI

GET /v2.1/{project_id}/servers/{server_id}

[Table 5-10](#) lists the parameters.

Table 5-10 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/  
9ab74d89-61e7-4259-8546-465fdebe4944
```

Response Message

- Response parameters

Parameter	Type	Description
server	Object	Specifies BMS information. For details, see Table 5-11 .

Table 5-11 server field data structure description

Parameter	Type	Description
name	String	Specifies the BMS name.
id	String	Specifies the unique ID of the BMS.
status	String	Specifies the BMS status. Value range: • ACTIVE: Running, Stopping, Deleting • BUILD: Creating • ERROR: Faulty • HARD_REBOOT: Forcibly Restarting • REBOOT: Restarting • SHUTOFF: Stopped, Starting, Deleting, Rebuilding, Reinstalling OS, OS Reinstallation Failed
created	String	Specifies the time when the BMS was created. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T03:30:52Z.
updated	String	Specifies the time when the BMS was last updated. The timestamp format is YYYY-MM-DDTHH:MM:SSZ (ISO 8601), for example, 2019-05-22T04:30:52Z.
flavor	Object	Specifies the BMS flavor. For details, see Table 5-12 .
image	Object	Specifies the BMS image. For details, see Table 5-13 .
tenant_id	String	Specifies the ID of the tenant owning the BMS. The value is in UUID format. This parameter specifies the same meaning as project_id .
key_name	String	Specifies the SSH key name.
user_id	String	Specifies the ID of the user to which the BMS belongs.
metadata	Object	Specifies the BMS metadata. For details, see Table 5-15 .

Parameter	Type	Description
hostId	String	Specifies the host ID of the BMS.
addresses	Object	Specifies BMS network addresses. For details, see Table 5-16 .
security_groups	Array of objects	Specifies the security groups to which the BMS belongs. For details, see Table 5-18 .
links	Array of objects	Specifies shortcut links of the BMS. For details, see Table 5-14 .
OS-DCF:diskConfig	String	Specifies the disk configuration method. This is an extended attribute. The value can be: • MANUAL: The API uses the partitioning scheme in the image and the file system to create a BMS. If the target flavor has a large disk, the API does not partition the remaining disk space. • AUTO: The API uses a single partition with the same size as the disk of the target flavor to create a BMS. The API automatically adjusts the file system to adapt to the entire partition.
OS-EXT-AZ:availability_zone	String	Specifies the AZ where the BMS is located.
OS-EXT-SRV-ATTR:host	String	Specifies the host name of the BMS. This is an extended attribute.
OS-EXT-SRV-ATTR:hypervisor_hostname	String	Specifies the name of a host on the hypervisor. This is an extended attribute provided by the Nova virt driver.
OS-EXT-SRV-ATTR:instance_name	String	Specifies the BMS alias. This is an extended attribute.

Parameter	Type	Description
OS-EXT-STS:power_state	Integer	Specifies the power status of the BMS. This is an extended attribute. Options: 0, 1, 2, 3, and 4 • 0: pending • 1: running • 2: paused • 3: shutdown • 4: crashed
OS-EXT-STS:task_state	String	Specifies the task status of the BMS. This is an extended attribute. Value range: • rebooting: The BMS is being restarted. • reboot_started: The BMS is normally restarted. • reboot_started_hard: The BMS is forcibly restarted. • powering-off: The BMS is being powered off. • powering-on: The BMS is being powered on. • rebuilding: The BMS is being rebuilt. • scheduling: The BMS is being scheduled. • deleting: The BMS is being deleted.
OS-EXT-STS:vm_state	String	Specifies the stable BMS status. This is an extended attribute. Value range: • active: The BMS is running. • shutoff: The BMS is stopped. • suspended: The BMS is suspended. • reboot: The BMS is restarted.
OS-SRV-USG:launched_at	String	Specifies the time when the BMS was started. This is an extended attribute. The timestamp format is ISO 8601, for example, 2019-05-22T03:23:59.000000 .

Parameter	Type	Description
OS-SRV-USG:terminated_at	String	Specifies the time when the BMS was deleted. This is an extended attribute. The timestamp format is ISO 8601, for example, 2019-05-22T04:23:59.000000 .
os-extended-volumes:volumes_attached	Array of objects	Specifies the EVS disks attached to the BMS. For details, see Table 5-19 .
accessIPv4	String	This is a reserved attribute.
accessIPv6	String	This is a reserved attribute.
fault	Object	Specifies the fault cause. If the BMS is faulty, this field is returned. For details, see Table 5-20 .
config_drive	String	This is a reserved attribute.
progress	Integer	This is a reserved attribute.
description	String	Provides supplementary information about the pool. This parameter is added in micro version 2.19.
host_status	String	Specifies the status of the host that accommodates the BMS. • UP: The nova-compute is normal. • UNKNOWN: The nova-compute status is unknown. • DOWN: the nova-compute status is abnormal. • MAINTENANCE: The nova-compute is in the maintenance state. • Empty string: The BMS does not have host information. Added in micro version 2.16.
OS-EXT-SRV-ATTR:hostname	String	Specifies the host name of the BMS. Added in micro version 2.3.
OS-EXT-SRV-ATTR:reservation_id	String	Specifies the reserved BMS IDs in the batch BMS creation scenario. Added in micro version 2.3.

Parameter	Type	Description
OS-EXT-SRV-ATTR:launch_index	Integer	Specifies the BMS startup sequence in the batch BMS creation scenario. Added in micro version 2.3.
OS-EXT-SRV-ATTR:kernel_id	String	Specifies the UUID of the kernel image when the AMI image is used. In other scenarios, leave this parameter blank. Added in micro version 2.3.
OS-EXT-SRV-ATTR:ramdisk_id	String	Specifies the UUID of the Ramdisk image when the AMI image is used. In other scenarios, leave this parameter blank. Added in micro version 2.3.
OS-EXT-SRV-ATTR:root_device_name	String	Specifies the device name of the BMS system disk, for example, /dev/sda . Added in micro version 2.3.
OS-EXT-SRV-ATTR:user_data	String	Specifies the user_data specified during BMS creation. The value is encoded using Base64 or an empty string.
locked	Boolean	Specifies whether the BMS is locked. • true: The BMS is locked. • false: The BMS is not locked. Added in micro version 2.9.
tags	Array of strings	Specifies tags of the BMS. This parameter is added in microversion 2.26. If the microversion is not used for query, the response does not contain the tags field. The value of this field meets the following requirements: • The key and value of a tag are connected using an equal sign (=), for example, key=value. • If the value is empty, only the key is returned.

Table 5-12 flavor field data structure description

Parameter	Type	Description
id	String	Specifies the BMS type ID.
links	Array of objects	Specifies shortcut links of the BMS type. For details, see Table 5-14 .

Table 5-13 image field data structure description

Parameter	Type	Description
id	String	Specifies the image ID of the BMS.
links	Array of objects	Specifies shortcut links of the BMS image. For details, see Table 5-14 .

Table 5-14 links field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name. The value can be: • self: resource link that contains the version number. It is used when immediate tracing is required. • bookmark: resource link that can be stored for a long time.
href	String	Specifies the corresponding shortcut link.

Table 5-15 metadata field data structure description

Parameter	Type	Description
User-defined field key and value pair	String	Specifies the key and value pair of the metadata. The maximum size for each metadata key and value pair is 255 bytes.

Table 5-16 `addresses` field data structure description

Parameter	Type	Description
<code>vpc_id</code>	Array of objects	Specifies the VPC used by the BMS. • key: indicates the ID of the VPC used by the BMS. • value: indicates the VPC details. For details, see Table 5-17.

Table 5-17 `address` field data structure description

Parameter	Type	Description
<code>addr</code>	String	Specifies the IP address.
<code>version</code>	Integer	Specifies the type of the IP address. The value can be 4 or 6 . • 4: The type of the IP address is IPv4. • 6: The type of the IP address is IPv6.
<code>OS-EXT-IPS-MAC:mac_addr</code>	String	Specifies the MAC address. This is an extended attribute.
<code>OS-EXT-IPS:type</code>	String	Specifies the IP address type. This is an extended attribute. • fixed: indicates the private IP address. • floating: indicates the EIP.

Table 5-18 `security_groups` field data structure description

Parameter	Type	Description
<code>name</code>	String	• If no security group is specified during BMS creation, the default value is used. • If a security group is specified when you create the BMS, the value of this parameter is the security group name.

Table 5-19 os-extended-volumes:volumes_attached field data structure description

Parameter	Type	Description
id	String	Specifies the EVS disk ID.
delete_on_termination	Boolean	Specifies whether to delete the disk when deleting the BMS. • true: Yes • false: No Added in micro version 2.3.

Table 5-20 fault field data structure description

Parameter	Type	Description
message	String	Specifies the fault information.
code	Integer	Specifies the fault code.
details	String	Specifies the fault details.
created	String	Specifies the time when the fault occurred. The time is in ISO 8601 format.

- Example response

```
{
  "server": {
    "tenant_id": "c685484a8cc2416b97260938705deb65",
    "addresses": {
      "08a7715f-7de6-4ff9-a343-95ba4209f24a": [
        {
          "OS-EXT-IPS-MAC:mac_addr": "fa:16:3e:0e:c3:77",
          "OS-EXT-IPS:type": "fixed",
          "addr": "192.168.0.107",
          "version": 4
        }
      ]
    },
    "metadata": {
      "op_svc_userid": "1311c433dd9b408886f57d695c229cbe"
    },
    "OS-EXT-STS:task_state": null,
    "OS-DCF:diskConfig": "MANUAL",
    "OS-EXT-AZ:availability_zone": "az-dc-1",
    "links": [
      {
        "rel": "self",
        "href": "https://openstack.example.com/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd"
      },
      {
        "rel": "bookmark",
        "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd"
      }
    ]
  },
}
```

```
"OS-EXT-STS:power_state": 1,
"id": "95bf2490-5428-432c-ad9b-5e3406f869dd",
"os-extended-volumes:volumes_attached": [
{
    "id": "dfa375b5-9856-44ad-a937-a4802b6434c3"
},
{
    "id": "bb9f1b27-843b-4561-b62e-ca18eeaec417"
},
{
    "id": "86e801c3-acc6-465d-890c-d43ba493f553"
},
{
    "id": "0994d3ac-3c6a-495c-a439-c597a4f08fa6"
}
],
"OS-EXT-SRV-ATTR:host": "bms.az1",
"image": {
    "links": [
{
    "rel": "bookmark",
    "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/images/1a6635d8-afea-4f2b-abb6-27a202bad319"
}
],
    "id": "1a6635d8-afea-4f2b-abb6-27a202bad319"
},
"OS-SRV-USG:terminated_at": null,
"accessIPv4": "",
"accessIPv6": "",
"created": "2017-05-24T06:14:05Z",
"hostId": "e9c3ee0fcc58ab6085cf30df70b5544eab958858fb50d925f023e53e",
"OS-EXT-SRV-ATTR:hypervisor_hostname": "nova004@2",
"key_name": "KeyPair-JX",
"flavor": {
    "links": [
{
    "rel": "bookmark",
    "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/flavors/physical.83.medium"
}
],
    "id": "physical.83.medium"
},
"security_groups": [
{
    "name": "0011b620-4982-42e4-ad12-47c95ca495c4"
}
],
"config_drive": "",
"OS-EXT-STS:vm_state": "active",
"OS-EXT-SRV-ATTR:instance_name": "instance-0000ebd3",
"user_id": "1311c433dd9b408886f57d695c229cbe",
"name": "bms-83",
"progress": 0,
"OS-SRV-USG:launched_at": "2017-05-25T03:40:25.066078",
"updated": "2017-05-25T03:40:25Z",
"status": "ACTIVE"
}
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.2.4 Querying BMSs (Native OpenStack API)

Function

This API is used to query BMSs.

Constraints

- The query result returned by this interface includes both ECSs and BMSs. You need to filter out the BMSs using the flavor used to create the BMSs or the tags added to the BMSs during BMS creation.
- If the image is used as the search criteria, other search criteria and pagination criteria are not supported. If both the image and other search criteria are used, the BMSs are filtered out by image. If the image is not used as the search criteria, this interface has no restrictions.

URI

GET /v2.1/{project_id}/servers{?changes-since={changes-since}&image={image}&flavor={flavor}&name={name}&status={status}&limit={limit}&marker={marker}&tags={tags}¬-tags={not-tags}&reservation_id={reservation_id}&sort_key={sort_key}&sort_dir={sort_dir}}

[Table 5-21](#) lists the parameters.

Table 5-21 Parameter description

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

Request

- Request parameters

Parameter	Mandatory	Type	Description
changes-since	No	String	Specifies the timestamp of the last BMS status update. The parameter is in ISO 8601 time format, for example, 2013-06-09T06:42:18Z .
image	No	String	Specifies the image ID. NOTE If the image is used as the search criteria, other search criteria and pagination criteria are not supported. If both the image and other search criteria are used, the BMS details are filtered out by image. If the image is not used as the search criteria, this interface has no restrictions.
flavor	No	String	Specifies the flavor ID. You can obtain the flavor ID from the BMS console or using the Querying BMS Flavors (Native OpenStack API) API.
name	No	String	Specifies the BMS name. This parameter supports fuzzy matching. For example, the regular expression ?name=bob will return both bob and bobbb . To obtain only bob , you can use a regular expression matching the basic database syntax, such as MySQL or PostgreSQL (official website: https://www.postgresql.org/docs/9.2/static/functions-matching.html).

Parameter	Mandatory	Type	Description
status	No	String	Specifies the BMS status. Value range: ● ACTIVE: Running, Stopping, Deleting ● BUILD: Creating ● ERROR: Faulty ● HARD_REBOOT: Forcibly Restarting ● REBOOT: Restarting ● SHUTOFF: Stopped, Starting, Deleting, Rebuilding, Reinstalling OS, OS Reinstallation Failed
limit	No	Integer	Specifies the number of BMSs displayed on each page.
marker	No	String	Specifies the BMS ID to which the marker corresponds. The query will start from the next ID.
tags	No	String	Queries the BMSs with specified tags. Added in micro version 2.26.
not-tags	No	String	Queries the BMSs with tags not containing the specified value. The value is a list of tag keys. NOTE If the tags added before the function upgrade are in the format of "Key.Value", query tags using "Key". For example, an existing tag is a.b . After the tag function upgrade, query the tag using "not-tags=a". Added in micro version 2.26.
reservation_id	No	String	Specifies the reserved ID, which can be used to query BMSs created in a batch. Added in micro version 2.26.

Parameter	Mandatory	Type	Description
sort_key	No	String	Specifies the BMS sorting attribute, which can be the BMS UUID (uuid), BMS status (vm_state), BMS name (display_name), BMS task status (task_state), power status (power_state), creation time (created_at), last time when the BMS is updated (updated_at), and AZ (availability_zone). You can specify multiple sort_key and sort_dir pairs. The default sorting is the reverse order by created_at .
sort_dir	No	String	Specifies the sorting direction. • asc: The query results are displayed in ascending order. • desc (default value): The query results are displayed in descending order.

- Example request

- With no optional parameter

- GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers

- With an optional parameter

- GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers?
tags=__type_baremetal

- With multiple optional parameters

- GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers?
tags=__type_baremetal&name=bms-test01

Response Message

- Response parameters

Parameter	Type	Description
servers	Array of objects	Specifies the BMS list. For details, see Table 5-22 .

Table 5-22 `servers` field data structure description

Parameter	Type	Description
name	String	Specifies the BMS name.
id	String	Specifies the unique ID of the BMS.
links	Array of objects	Specifies shortcut links of the BMS. For details, see Table 5-23 .

Table 5-23 `links` field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name. The value can be: • self: resource link that contains the version number. It is used when immediate tracing is required. • bookmark: resource link that can be stored for a long time.
href	String	Specifies the corresponding shortcut link.

- Example response

```
{
  "servers": [
    {
      "name": "bms",
      "links": [
        {
          "rel": "self",
          "href": "https://openstack.example.com/v2.1/c685484a8cc2416b97260938705deb65/servers/820abbd0-2d8b-4bc5-ae46-69cacfd4fbba"
        },
        {
          "rel": "bookmark",
          "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/servers/820abbd0-2d8e-4bc5-ae46-69cacfd4fbba"
        }
      ],
      "id": "820abbd0-2d8e-4bc5-ae46-69cacfd4fbba"
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.2.5 Querying Details About BMSs (Native OpenStack API)

Function

This API is used to query details about BMSs.

Constraints

- The query result returned by this interface includes both ECS and BMS details. You need to filter out the BMS details using the flavor used to create the BMSs or the tags added to the BMSs during BMS creation.
- If the image is used as the search criteria, other search criteria and pagination criteria are not supported. If both the image and other search criteria are used, the BMS details are filtered out by image. If the image is not used as the search criteria, this interface has no restrictions.

URI

GET /v2.1/{project_id}/servers/detail{?changes-since={changes-since}&image={image}&flavor={flavor}&name={name}&status={status}&limit={limit}&marker={marker}&tags={tags}¬-tags={not-tags}&reservation_id={reservation_id}&sort_key={sort_key}&sort_dir={sort_dir}}

[Table 5-24](#) lists the parameters.

Table 5-24 Parameter description

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

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
changes-since	No	String	Specifies the timestamp of the last BMS status update. The parameter is in ISO 8601 time format, for example, 2013-06-09T06:42:18Z .
image	No	String	Specifies the image ID. NOTE If the image is used as the search criteria, other search criteria and pagination criteria are not supported. If both the image and other search criteria are used, the BMS details are filtered out by image. If the image is not used as the search criteria, this interface has no restrictions.
flavor	No	String	Specifies the flavor ID. You can obtain the flavor ID from the BMS console or using the Querying BMS Flavors (Native OpenStack API) API.
name	No	String	Specifies the BMS name. This parameter supports fuzzy matching. For example, the regular expression ?name=bob will return both bob and bobbb . To obtain only bob , you can use a regular expression matching the basic database syntax, such as MySQL or PostgreSQL (official website: https://www.postgresql.org/docs/9.2/static/functions-matching.html).

Parameter	Mandatory	Type	Description
status	No	String	Specifies the BMS status. Value range: • ACTIVE: Running, Stopping, Deleting • BUILD: Creating • ERROR: Faulty • HARD_REBOOT: Forcibly Restarting • REBOOT: Restarting • SHUTOFF: Stopped, Starting, Deleting, Rebuilding, Reinstalling OS, OS Reinstallation Failed
limit	No	Integer	Specifies the number of BMSs displayed on each page.
marker	No	String	Specifies the BMS ID to which the marker corresponds. The query will start from the next ID.
tags	No	String	Queries the BMSs with specified tags. Added in micro version 2.26.
not-tags	No	String	Queries the BMSs with tags not containing the specified value. The value is a list of tag keys. NOTE If the tags added before the function upgrade are in the format of "Key.Value", query tags using "Key". For example, an existing tag is a.b . After the tag function upgrade, query the tag using "not-tags=a". Added in micro version 2.26.
reservation_id	No	String	Specifies the reserved ID, which can be used to query BMSs created in a batch. Added in micro version 2.26.

Parameter	Mandatory	Type	Description
sort_key	No	String	Specifies the BMS sorting attribute, which can be the BMS UUID (uuid), BMS status (vm_state), BMS name (display_name), BMS task status (task_state), power status (power_state), creation time (created_at), last time when the BMS is updated (updated_at), and AZ (availability_zone). You can specify multiple sort_key and sort_dir pairs. The default sorting is the reverse order by created_at .
sort_dir	No	String	Specifies the sorting direction. • asc: The query results are displayed in ascending order. • desc (default value): The query results are displayed in descending order.

- Example request

- With no optional parameter

```
https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/detail
```

- With an optional parameter

```
https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/detail?  
tags=__type_baremetal
```

- With multiple optional parameters

```
https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/detail?  
tags=__type_baremetal&name=bms-test01
```

Response Message

- Response parameters

Parameter	Type	Description
servers	Array of objects	Specifies details about the BMS. For details, see Table 5-11 .

- Example response

```
{  
  "servers": [  
    {  
      "tenant_id": "c685484a8cc2416b97260938705deb64",  
      "addresses": {
```

```
    "08a7715f-7de6-4ff9-a343-95ba4209f24a": [
    {
        "OS-EXT-IPS-MAC:mac_addr": "fa:16:3e:0e:c4:77",
        "OS-EXT-IPS:type": "fixed",
        "addr": "192.168.0.107",
        "version": 4
    }
    ],
    },
    "metadata": {
        "op_svc_userid": "1311c433dd9b408886f57d695c229cbe"
    },
    "OS-EXT-STS:task_state": null,
    "OS-DCF:diskConfig": "MANUAL",
    "OS-EXT-AZ:availability_zone": "az-dc-1",
    "links": [
    {
        "rel": "self",
        "href": "https://openstack.example.com/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd"
    },
    {
        "rel": "bookmark",
        "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd"
    }
    ],
    "OS-EXT-STS:power_state": 1,
    "id": "95bf2490-5428-432c-ad9b-5e3406f869dd",
    "os-extended-volumes:volumes_attached": [
    {
        "id": "dfa375b5-9856-44ad-a937-a4802b6434c3"
    },
    {
        "id": "bb9f1b27-843b-4561-b62e-ca18eeaec417"
    },
    {
        "id": "86e801c3-acc6-465d-890c-d43ba493f553"
    },
    {
        "id": "0994d3ac-3c6a-495c-a439-c597a4f08fa6"
    }
    ],
    "OS-EXT-SRV-ATTR:host": "bms.az1",
    "image": {
        "links": [
    {
        "rel": "bookmark",
        "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/images/1a6635d8-afea-4f2b-abb6-27a202bad319"
    }
        ],
        "id": "1a6635d8-afea-4f2b-abb6-27a202bad319"
    },
    "OS-SRV-USG:terminated_at": null,
    "accessIPv4": "",
    "accessIPv6": "",
    "created": "2017-05-24T06:14:05Z",
    "hostId": "e9c3ee0fcc58ab6085cf30df70b5544eab958858fb50d925f023e53e",
    "OS-EXT-SRV-ATTR:hypervisor_hostname": "nova004@2",
    "key_name": "KeyPair-JX",
    "flavor": {
        "links": [
    {
        "rel": "bookmark",
        "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/flavors/physical.83.medium"
    }
        ],
    },
    ],
```

```
        "id": "physical.83.medium"
      },
      "security_groups": [
        {
          "name": "0011b620-4982-42e4-ad12-47c95ca495c4"
        }
      ],
      "config_drive": "",
      "OS-EXT-STS:vm_state": "active",
      "OS-EXT-SRV-ATTR:instance_name": "instance-0000ebd3",
      "user_id": "1311c433dd9b408886f57d695c229cbe",
      "name": "bms",
      "progress": 0,
      "OS-SRV-USG:launched_at": "2017-05-25T03:40:25.066078",
      "updated": "2017-05-25T03:40:25Z",
      "status": "ACTIVE"
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.3 BMS Status Management

5.3.1 Starting a BMS (Native OpenStack API)

Function

This API is used to start a single BMS.

URI

POST /v2.1/{project_id}/servers/{server_id}/action

[Table 5-25](#) lists the parameters.

Table 5-25 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
os-start	Yes	null	Specifies the operation of starting the BMS. The data structure is empty.

- Example request

```
POST https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/action
{
  "os-start": {}
}
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.3.2 Restarting a BMS (Native OpenStack API)

Function

This API is used to restart a single BMS.

Constraints

Currently, only forcible restart is supported.

URI

POST /v2.1/{project_id}/servers/{server_id}/action

[Table 5-26](#) lists the parameters.

Table 5-26 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
reboot	Yes	Object	Specifies the operation of restarting the BMS. For details, see Table 5-27 .

Table 5-27 reboot field data structure description

Parameter	Mandatory	Type	Description
type	Yes	String	Specifies the type of the restart operation. • SOFT: soft restart • HARD: forcible restart NOTE Currently, value SOFT is invalid. All BMS restart operations are forcible restart.

- Example request

POST https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/action

```
{
  "reboot": {
    "type": "HARD"
  }
}
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.3.3 Stopping a BMS (Native OpenStack API)

Function

This API is used to stop a single BMS.

Constraints

- The BMS **OS-EXT-STS:vm_state** attribute (BMS status) must be **active** or **error**.

- Currently, only forcible stopping is supported.

URI

POST /v2.1/{project_id}/servers/{server_id}/action

[Table 5-28](#) lists the parameters.

Table 5-28 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
os-stop	Yes	Object	Specifies the operation of stopping the BMS. For details, see Table 5-29 .

Table 5-29 os-stop field data structure description

Parameter	Mandator y	Type	Description
type	No	String	Specifies the type of the BMS stopping operation. • SOFT: normal BMS stopping • HARD: Forcible BMS stopping NOTE Currently, this parameter is invalid. All BMS stopping operations are forcible stopping.

- Example request

```
POST https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/action
{
  "os-stop": {}
}
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.4 BMS Metadata Management

5.4.1 Querying BMS Metadata (Native OpenStack API)

Function

The BMS metadata includes BMS basic information on the cloud platform, such as the BMS ID, hostname, and network information. This API is used to query the BMS metadata.

Constraints

Pagination query is not supported.

URI

GET /v2.1/{project_id}/servers/{server_id}/metadata

[Table 5-30](#) lists the parameters.

Table 5-30 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/metadata
```

Response Message

- Response parameters

Parameter	Type	Description
metadata	Object	Specifies the user-defined metadata key and value pair. For details, see Table 5-31 .

Table 5-31 metadata field data structure description

Parameter	Type	Description
User-defined field key and value pair	String	Specifies the key and value pair of the metadata. The maximum size for each metadata key and value pair is 255 bytes.

- Example response

```
{
  "metadata": {
    "key": "value"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.4.2 Updating BMS Metadata (Native OpenStack API)

Function

This API is used to update BMS metadata.

- If the metadata does not contain the target field, the field is automatically added to the field.
- If the metadata contains the target field, the field value is automatically updated.

Constraints

The BMS **OS-EXT-STS:vm_state** attribute (BMS status) must be **active**, **stopped**, **paused**, or **suspended**.

URI

POST /v2.1/{project_id}/servers/{server_id}/metadata

[Table 5-32](#) lists the parameters.

Table 5-32 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
metadata	Yes	Object	Specifies the user-defined metadata key and value pair. For details, see Table 5-33 .

Table 5-33 metadata field data structure description

Parameter	Mandatory	Type	Description
User-defined field key and value pair	Yes	String	Specifies the user-defined metadata key and value pair. - The maximum size for each metadata key and value pair is 255 bytes. - The key does not support the following special characters: :~!@#%&*()=+<,>?/"; {[]}\ - The value does not support the following special characters: \"

- Example request

```
POST https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/metadata
{
  "metadata": {
```

```
"key": "value"
}
```

Response Message

- Response parameters

Parameter	Type	Description
metadata	Object	Specifies the user-defined metadata key and value pair. For details, see Table 5-34 .

Table 5-34 metadata field data structure description

Parameter	Type	Description
User-defined field key and value pair	String	Specifies the key and value pair of the metadata. - The maximum size for each metadata key and value pair is 255 bytes. - The value does not support the following special characters: \"

- Example response

```
{
  "metadata": {
    "key": "value"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.4.3 Modifying Specified BMS Metadata (Native OpenStack API)

Function

This API is used to modify specified BMS metadata.

Constraints

The BMS **OS-EXT-STS:vm_state** attribute (BMS status) must be **active**, **stopped**, **paused**, or **suspended**.

URI

PUT /v2.1/{project_id}/servers/{server_id}/metadata/{key}

[Table 5-35](#) lists the parameters.

Table 5-35 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
key	Yes	Specifies the BMS metadata key value to be modified

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
meta	Yes	Object	Specifies the user-defined metadata key and value pair. For details, see Table 5-36 .

Table 5-36 meta field data structure description

Parameter	Mandatory	Type	Description
User-defined field key and value pair	Yes	String	Specifies the user-defined metadata key and value pair. • The maximum size for each metadata key and value pair is 255 bytes. • The key does not support the following special characters: :~!@#\$\$%^&*()=+<, >?/'"; {[]}\ • The value does not support the following special characters: \"

- Example request

```
PUT https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/metadata/{key}
{
  "meta": {
    "key": "value"
  }
}
```

Response Message

- Response parameters

Parameter	Type	Description
meta	Object	Specifies the user-defined metadata key and value pair. For details, see Table 5-37 .

Table 5-37 meta field data structure description

Parameter	Type	Description
User-defined field key and value pair	String	Specifies the user-defined metadata key and value pair. The maximum size for each metadata key and value pair is 255 bytes.

- Example response

```
{
  "meta": {
    "key": "value"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.4.4 Deleting Specified BMS Metadata (Native OpenStack API)

Function

This API is used to delete specified BMS metadata.

Constraints

The BMS **OS-EXT-STS:vm_state** attribute (BMS status) must be **active**, **stopped**, **paused**, or **suspended**.

URI

DELETE /v2.1/{project_id}/servers/{server_id}/metadata/{key}

[Table 5-38](#) lists the parameters.

Table 5-38 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Parameter	Mandatory	Description
key	Yes	Specifies the BMS metadata key value to be deleted.

Request Message

- Request parameters
None

- Example request

```
DELETE https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/  
95bf2490-5428-432c-ad9b-5e3406f869dd/metadata/{key}
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.5 BMS IP Address Query

5.5.1 Querying IP Addresses of a BMS (Native OpenStack API)

Function

This API is used to query private IP addresses of a BMS.

Constraints

Pagination query is not supported.

URI

GET /v2.1/{project_id}/servers/{server_id}/ips

[Table 5-39](#) lists the parameters.

Table 5-39 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/ips
```

Response Message

- Response parameters

Parameter	Type	Description
addresses	Object	Specifies IP addresses of the BMS. For details, see Table 5-40 .

Table 5-40 addresses parameter structure description

Parameter	Type	Description
vpc_id	Array of objects	Specifies the VPC used by the BMS. key: indicates the ID of the VPC used by the BMS. value: indicates the VPC details. For details, see Table 5-41.

Table 5-41 address parameter structure description

Parameter	Type	Description
version	Integer	Specifies the IP address version. The value can be: • 4: IPv4 address • 6: IPv6 address
addr	String	Specifies the IP address.

- Example response

```
{
  "addresses": {
    "08a7715f-7de6-4ff9-a343-95ba4209f24a": [
      {
        "version": 4,
        "addr": "192.168.2.90"
      }
    ]
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.5.2 Querying the Specified IP Address of a BMS (Native OpenStack API)

Function

This API is used to query the specified IP address of a BMS based on the network name.

URI

GET /v2.1/{project_id}/servers/{server_id}/ips/{vpc_id}

[Table 5-42](#) lists the parameters.

Table 5-42 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
vpc_id	Yes	Specifies the ID of the VPC where the BMS is located.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/ips/{vpc_id}
```

Response Message

- Response parameters

Parameter	Type	Description
VPC where the BMS is located	Array of objects	Specifies the ID of the VPC where the BMS is located. For details about the format, see Table 5-43 .

Table 5-43 Network parameter structure description

Parameter	Type	Description
version	Integer	Specifies the IP address version. The value can be: 4: IPv4 address 6: IPv6 address
addr	String	Specifies the IP address.

- Example response

```
{
  "5849fdf1-9d79-4589-80c2-fe557990c417": [
    {
      "version": 4,
      "addr": "192.168.1.159"
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.6 BMS Flavor Query

5.6.1 Querying BMS Flavors (Native OpenStack API)

Function

This API is used to query BMS flavors.

Constraints

The flavors you obtained using this API are all the flavors in the system. The flavors whose names starting with **physical** are BMS flavors and can be used to create BMSs.

URI

GET /v2.1/{project_id}/flavors/detail?
minDisk={minDisk}&minRam={minRam}&sort_key={sort_key}&sort_dir={sort_dir}}

[Table 5-44](#) lists the parameters.

Table 5-44 Parameter description

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

[Table 5-45](#) lists the optional parameters that can be used to query BMS flavors.

Table 5-45 Optional parameters

Parameter	Mandatory	Type	Description
minDisk	No	String	Specifies the minimum disk size in GB. Only the BMSs with a disk size greater than or equal to the minimum size can be queried.
minRam	No	String	Specifies the minimum memory size in MB. Only the BMSs with the memory size greater than or equal to the minimum size can be queried.
sort_key	No	String	Specifies the sorting field. The default value is flavorid . The value of this parameter can also be name , memory_mb , vcpus , root_gb , or flavorid .
sort_dir	No	String	Specifies the sorting of BMS flavors. The value can be asc or desc , and is asc by default.

Request Message

- Request parameters

None

- Example request

- With no optional parameter

```
GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/flavors/detail
```

- With an optional parameter

```
GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/flavors/detail?  
minDisk=3725
```

- With multiple optional parameters
GET `https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/flavors/detail?minDisk=3725&is_public=true`

Response Message

- Response parameters

Parameter	Type	Description
flavors	Array of objects	Specifies BMS flavors. For details, see Table 5-46 .

Table 5-46 flavors field data structure description

Parameter	Type	Description
id	String	Specifies the BMS flavor ID.
name	String	Specifies the BMS flavor name.
vcpus	Integer	Specifies the number of CPU cores in the BMS flavor.
ram	Integer	Specifies the memory size (MB) in the BMS flavor.
disk	Integer	Specifies the disk size (GB) in the BMS flavor.
swap	String	This is a reserved attribute.
OS-FLV-EXT-DATA:ephemeral	Integer	This is a reserved attribute.
OS-FLV-DISABLED:disabled	Boolean	This is a reserved attribute.
rxtx_factor	Float	This is a reserved attribute.
os-flavor-access:is_public	Boolean	This is a reserved attribute.
links	Array of objects	Specifies shortcut links of the BMS flavor. For details, see Table 5-47 .

Table 5-47 links field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name. • self: resource link that contains the version number. It is used when immediate tracing is required. • bookmark: resource link that can be stored for a long time.
href	String	Specifies the corresponding shortcut link.

- Example response

```
{
  "flavors": [
    {
      "name": "physical.o2.medium",
      "links": [
        {
          "href": "https://openstack.example.com/v2/c685484a8cc2416b97260938705deb65/flavors/physical.o2.medium",
          "rel": "self"
        },
        {
          "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/flavors/physical.o2.medium",
          "rel": "bookmark"
        }
      ],
      "ram": 321725,
      "OS-FLV-DISABLED:disabled": false,
      "vcpus": 56,
      "swap": "",
      "os-flavor-access:is_public": true,
      "rxtx_factor": 1,
      "OS-FLV-EXT-DATA:ephemeral": 0,
      "disk": 3725,
      "id": "physical.o2.medium"
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.6.2 Querying Details About a BMS Flavor (Native OpenStack API)

Function

This API is used to query details about a BMS flavor, such as the flavor name, CPU cores, and memory.

URI

GET /v2.1/{project_id}/flavors/{flavor_id}

[Table 5-48](#) lists the parameters.

Table 5-48 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
flavor_id	Yes	Specifies the flavor ID. You can obtain the flavor ID from the BMS console or using the Querying BMS Flavors (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/flavors/physical.o2.medium

Response Message

- Response parameters

Parameter	Type	Description
flavor	Object	Specifies the BMS flavor. For details, see Table 5-49 .

Table 5-49 flavor field description

Parameter	Type	Description
id	String	Specifies the BMS flavor ID.
name	String	Specifies the BMS flavor name.
vcpus	Integer	Specifies the number of CPU cores in the BMS flavor.
ram	Integer	Specifies the memory size (MB) in the BMS flavor.
disk	Integer	Specifies the disk size (GB) in the BMS flavor.
swap	String	This is a reserved attribute.
OS-FLV-EXT-DATA:ephemeral	Integer	This is a reserved attribute.
OS-FLV-DISABLED:disable	Boolean	This is a reserved attribute.
rxtx_factor	Float	This is a reserved attribute.
os-flavor-access:is_public	Boolean	This is a reserved attribute.
links	Array of objects	Specifies the shortcut link of the BMS flavor. For details, see Table 5-50 .

Table 5-50 links field data structure description

Parameter	Type	Description
rel	String	Specifies the shortcut link marker name. • self: resource link that contains the version number. It is used when immediate tracing is required. • bookmark: resource link that can be stored for a long time.
href	String	Specifies the corresponding shortcut link.

- Example response

```
{
  "flavor": {
    "name": "physical.o2.medium",
```

```
    "links": [
      {
        "href": "https://openstack.example.com/v2/c685484a8cc2416b97260938705deb65/flavors/physical.o2.medium",
        "rel": "self"
      },
      {
        "href": "https://openstack.example.com/c685484a8cc2416b97260938705deb65/flavors/physical.o2.medium",
        "rel": "bookmark"
      }
    ],
    "ram": 192705,
    "OS-FLV-DISABLED:disabled": false,
    "vcpus": 24,
    "swap": "",
    "os-flavor-access:is_public": true,
    "rxtx_factor": 1,
    "OS-FLV-EXT-DATA:ephemeral": 0,
    "disk": 1862,
    "id": "physical.o2.medium"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.6.3 Querying Details About extra_specs Parameters of a BMS Flavor (Native OpenStack API)

Function

extra_specs parameters specify the key-value pair of a BMS flavor. For example, **baremetal:extBootType** specifies the boot device of the BMS. Its value can be **LocalDisk** (local disk) or **Volume** (EVS disk). If you want to check whether a flavor supports quick provisioning, you can call this API.

URI

GET /v2.1/{project_id}/flavors/{flavor_id}/os-extra_specs

[Table 5-51](#) lists the parameters.

Table 5-51 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
flavor_id	Yes	Specifies the flavor ID. You can obtain the flavor ID from the BMS console or using the Querying BMS Flavors (Native OpenStack API) API.

Request

- Request parameters
None
- Example request
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/flavors/physical.s2.medium/os-extra_specs

Response

- Response parameters

Parameter	Type	Description
extra_specs	Object	Specifies the key-value pair of a BMS flavor. • capabilities:cpu_arch: specifies the CPU architecture of the BMS. The value can be x86_64 (for x86 servers) or aarch64 (for ARM servers). • baremetal:disk_detail: specifies the disk description. • capabilities:hypervisor_type: specifies the hypervisor type. The value is fixed at ironic. • baremetal:__support_evs: specifies whether to support EVS disks. The value can be true or false. If the flavor does not contain this parameter, EVS disks are not supported either. • baremetal:extBootType: specifies the boot device of the BMS. The value can be LocalDisk (local disk) or Volume (EVS disk). • baremetal:net_num: specifies the number of NICs that can be attached to a BMS. • baremetal:netcard_detail: specifies description of the NIC. • baremetal:cpu_detail: specifies description of the CPU. • resource_type: specifies the resource type. The value is fixed at ironic. • baremetal:memory_detail: specifies description of the memory.

- Example response

```
{
  "extra_specs": {
    "capabilities:cpu_arch": "x86_64",
    "baremetal:disk_detail": "SAS 8T",
    "capabilities:hypervisor_type": "ironic",
    "baremetal:__support_evs": "true",
    "baremetal:extBootType": "LocalDisk",
    "capabilities:board_type": "s2m",
    "baremetal:net_num": "2",
    "baremetal:netcard_detail": "2*10GE",
    "baremetal:cpu_detail": "2*8coreIntel Xeon E5-2667 V43.2GHz",
    "resource_type": "ironic",
    "baremetal:memory_detail": "256GB DDR4 RAM(GB)"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.7 BMS NIC Management

5.7.1 Querying Information About BMS NICs (Native OpenStack API)

Function

This API is used to query information about BMS NICs, such as the MAC addresses and private IP addresses.

URI

GET /v2.1/{project_id}/servers/{server_id}/os-interface

[Table 5-52](#) lists the parameters.

Table 5-52 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/os-interface
```

Response Message

- Response parameters

Parameter	Type	Description
interfaceAttachments	Array of objects	Specifies information about NICs of the BMS. For details, see Table 5-53 .

Table 5-53 interfaceAttachments field data structure description

Parameter	Type	Description
port_state	String	Specifies the status of the NIC port. The value can be ACTIVE , BUILD , or DOWN .
fixed_ips	Array of objects	Specifies the NIC private IP address. For details, see Table 5-54 .
net_id	String	Specifies the ID of the subnet (network_id) to which the NIC ports belong.
port_id	String	Specifies the ID of the NIC port.
mac_addr	String	Specifies the MAC address of the NIC.

Table 5-54 fixed_ips field data structure description

Parameter	Type	Description
subnet_id	String	Specifies the ID of the subnet (subnet_id) corresponding to the private IP address of the NIC.
ip_address	String	Specifies the NIC private IP address.

- Example response

```
{
  "interfaceAttachments": [
    {
      "port_state": "ACTIVE",
      "fixed_ips": [
        {
          "subnet_id": "f8a6e8f8-c2ec-497c-9f23-da9616de54ef",
          "ip_address": "192.168.1.3"
        }
      ],
      "net_id": "3cb9bc59-5699-4588-a4b1-b87f96708bc6",
      "port_id": "ce531f90-199f-48c0-816c-13e38010b442",
      "mac_addr": "fa:16:3e:4c:2c:30"
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.7.2 Querying Information About a Specified BMS NIC (Native OpenStack API)

Function

This API is used to query information about a specified BMS NIC based on the NIC ID.

URI

GET /v2.1/{project_id}/servers/{server_id}/os-interface/{id}

[Table 5-55](#) lists the parameters.

Table 5-55 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
id	Yes	Specifies the ID of the NIC. You can obtain the NIC ID from the NICs tab page on the BMS details page or by calling the Querying Information About BMS NICs (Native OpenStack API) API. (The NIC ID is the value of port_id).

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/os-interface/ce531f90-199f-48c0-816c-13e38010b442
```

Response Message

- Response parameters

Parameter	Type	Description
interfaceAttachment	Object	Specifies information about the specified BMS NIC. For details, see Table 5-56 .

Table 5-56 interfaceAttachment field data structure description

Parameter	Type	Description
port_state	String	Specifies the status of the NIC port. The value can be ACTIVE , BUILD , or DOWN .
fixed_ips	Array of objects	Specifies the IP addresses of NICs. For details, see Table 5-57 .
net_id	String	Specifies the ID of the subnet (network_id) to which the NIC ports belong.
port_id	String	Specifies the ID of the NIC port.
mac_addr	String	Specifies the MAC address of the NIC.

Table 5-57 fixed_ips field data structure description

Parameter	Type	Description
subnet_id	String	Specifies the ID of the subnet (subnet_id) corresponding to the private IP address of the NIC.
ip_address	String	Specifies the NIC IP address.

- Example response

```
{
  "interfaceAttachment": {
    "port_state": "ACTIVE",
    "fixed_ips": [
      {
        "subnet_id": "f8a6e8f8-c2ec-497c-9f23-da9616de54ef",
        "ip_address": "192.168.1.3"
      }
    ],
    "net_id": "3cb9bc59-5699-4588-a4b1-b87f96708bc6",
    "port_id": "ce531f90-199f-48c0-816c-13e38010b442",
    "mac_addr": "fa:16:3e:4c:2c:30"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.8 BMS Disk Management

5.8.1 Querying Information About the Disks Attached to a BMS (Native OpenStack API)

Function

This API is used to query information about the EVS disks attached to a BMS.

URI

GET /v2.1/{project_id}/servers/{server_id}/os-volume_attachments

[Table 5-58](#) lists the parameters.

Table 5-58 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters
None
- Example request
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/os-volume_attachments

Response Message

- Response parameters

Parameter	Type	Description
volumeAttachments	Object	Specifies information about the disks attached to the BMS. For details, see Table 5-59 .

Table 5-59 volumeAttachments field data structure description

Parameter	Type	Description
device	String	Specifies the mount directory, for example, /dev/vdb .
id	String	Specifies the ID of the attached resource.
serverId	String	Specifies the ID of the BMS to which the disks are attached.
volumeId	String	Specifies the IDs of the EVS disks attached to the BMS.

- Example response

```
{
  "volumeAttachment": {
    "device": "/dev/vdb",
    "serverId": "820abbd0-2d8e-4bc5-ae46-69cacfd4fbaa",
    "id": "b53f23bd-ee8f-49ec-9420-d1acfeaf91d6",
    "volumeId": "b53f23bd-ee8f-49ec-9420-d1acfeaf91d6"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.8.2 Querying Information About a Disk Attached to a BMS (Native OpenStack API)

Function

This API is used to query information about a single disk attached to a BMS based on the disk ID.

URI

GET /v2.1/{project_id}/servers/{server_id}/os-volume_attachments/{volume_id}

Table 5-60 lists the parameters.

Table 5-60 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
volume_id	Yes	Specifies the EVS disk ID. You can query attached EVS disks attached to a BMS using the Querying Information About the Disks Attached to a BMS (Native OpenStack API) API.

Request Message

- Request parameters
None

- Example request

```
GET https://{ECS Endpoint}/v2.1/c685484a8cc2416b97260938705deb65/servers/95bf2490-5428-432c-ad9b-5e3406f869dd/os-volume_attachments/b53f23bd-ee8f-49ec-9420-d1acfeaf91d6
```

Response Message

- Response parameters

Parameter	Type	Description
volumeAttachment	Object	Specifies information about the disk attached to the BMS. For details, see Table 5-61 .

Table 5-61 volumeAttachment field data structure description

Parameter	Type	Description
device	String	Specifies the mount directory, for example, <code>/dev/vdb</code> .
id	String	Specifies the ID of the attached resource.
serverId	String	Specifies the ID of the BMS to which the disks are attached.
volumeId	String	Specifies the ID of the disk attached to the BMS.

- Example response

```
{
  "volumeAttachment": {
    "device": "/dev/vdb",
    "serverId": "820abbd0-2d8e-4bc5-ae46-69cacfd4fbaa",
    "id": "b53f23bd-ee8f-49ec-9420-d1acfeaf91d6",
    "volumeId": "b53f23bd-ee8f-49ec-9420-d1acfeaf91d6"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.9 BMS SSH Key Pair Management

5.9.1 Querying SSH Key Pairs (Native OpenStack API)

Function

This interface is used to query SSH key pairs and to display the query results in a list.

Constraints

Pagination query is not supported.

URI

GET /v2.1/{project_id}/os-keypairs

[Table 5-62](#) lists the parameters.

Table 5-62 Parameter description

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

Request Message

- Request parameters

None

- Example request

GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/os-keypairs

Response Message

- Response parameters

Parameter	Type	Description
keypairs	Array of objects	Specifies key pairs. For details, see Table 5-63 .

Table 5-63 `keypairs` field data structure description

Parameter	Type	Description
keypair	Object	Specifies details about a key pair. For details, see Table 5-64 .

Table 5-64 `keypair` field data structure description

Parameter	Type	Description
<code>fingerprint</code>	String	Specifies fingerprint information about the key pair.
<code>name</code>	String	Specifies the key pair name.
<code>type</code>	String	Specifies the key type, which is ssh by default. This field is supported in microversions later than 2.2.
<code>public_key</code>	String	Specifies information about the public key in the key pair.

- Example response

```
{
  "keypairs": [
    {
      "keypair": {
        "fingerprint": "15:b0:f8:b3:f9:48:63:71:cf:7b:5b:38:6d:44:2d:4a",
        "name": "keypair-test",
        "type": "ssh",
        "public_key": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGC+Eo/
RZRngaGtKFs7I62ZjslO79KklKbMXi8F+KITD4bVQHn+kV
+4gRgkgCRbdoDqoGfpaDFs877DYX9n4z6FrAlZ4PES8TNKhatifpn9NdQYWA+IkU8CuvlEKGuFpKRi/
k7JLos/gHi2hy7QUwgtRvcefvD/vgQZOVw/mGR9Q== Generated-by-Nova"
      }
    }
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.9.2 Querying an SSH Key Pair (Native OpenStack API)

Function

This interface is used to query a specified SSH key pair based on the key pair name.

URI

GET /v2.1/{project_id}/os-keypairs/{keypair_name}

[Table 5-65](#) lists the parameters.

Table 5-65 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
keypair_name	Yes	Specifies the key pair name. You can obtain the key pair name by calling the Querying SSH Key Pairs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/os-keypairs/keypair-test

Response Message

- Response parameters

Parameter	Type	Description
keypair	Object	Specifies the SSH key pair. For details, see Table 5-66 .

Table 5-66 keypair field data structure description

Parameter	Type	Description
public_key	String	Specifies information about the public key in the key pair.
name	String	Specifies the key pair name.
fingerprint	String	Specifies fingerprint information about the key pair.

Parameter	Type	Description
created_at	String	Specifies the time when the key pair was created. The timestamp format is ISO 8601, for example, 2019-05-07T12:06:13.681238 .
deleted	Boolean	Specifies the deleted key pair. • true: indicates that the key has been deleted. • false: indicates that the key is not deleted.
deleted_at	String	Specifies the time when the key pair was deleted. The timestamp format is ISO 8601, for example, 2019-05-07T12:06:13.681238 .
id	String	Specifies the key pair ID.
updated_at	String	Specifies the time when the key pair was updated. The timestamp format is ISO 8601, for example, 2019-05-07T12:06:13.681238 .
user_id	String	Specifies information about the user to which the key pair belongs.

- Example response

```
{
  "keypair": {
    "created_at": "2019-05-07T12:06:13.681238",
    "deleted": false,
    "deleted_at": null,
    "fingerprint": "9d:00:f4:d7:26:6e:52:06:4c:c1:d3:1d:fd:06:66:01",
    "id": 1,
    "name": "keypair-3582d8b7-e588-4aad-b7f7-f4e76f0e4314",
    "public_key": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDYYJrTVpcMwFqQy/
oMvtUSRofZdSRHEwrsX8AYkRvn2ZnCXm+b6+GZ2NQuuWj+ocznlnwiGFQDsL/yeE+/
kurqcPJFKKp60mToXIMyzioFxW88fJtwEWawHKAclbHWpR1t4fQ4DS+/slbX/
Yd9btIVQ2tpQjodGDbM9Tr9/+3i6rcR+EoLqmbgCgAiGiVV6VbM2Zx79yUwd
+GnQejHX8BIYZoOjCnt3NREsITcmWE9FVFy6TnLmahs3FkEO/
QGgWGkaohAJlsgaVvSWGgDn2AujKYwyDokK3dXyeX3m2Vmc3ejjqPa/C4nRrCOLko5nSgV/
9IXRx1ERlmsqZnE9usB Generated-by-Nova",
    "updated_at": null,
    "user_id": "fake"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.9.3 Creating and Importing an SSH Key Pair (Native OpenStack API)

Function

This interface is used to create an SSH key pair or import a public key to generate a key pair.

After an SSH key is created, download the private key to a local directory. Then, you can use this private key to log in to the BMS. To ensure BMS security, the private key can be downloaded only once. Keep it secure.

URI

POST /v2.1/{project_id}/os-keypairs

[Table 5-67](#) lists the parameters.

Table 5-67 Parameter description

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

Request Message

- Request parameters

NOTE

When creating an SSH key pair, you only need to configure **name**. When importing a public SSH key, you must also configure **public_key**.

Parameter	Mandatory	Type	Description
keypair	Yes	Object	Specifies the created or imported SSH key pair. For details, see Table 5-68 .

Table 5-68 `keypair` field data structure description

Parameter	Mandatory	Type	Description
public_key	No	String	Specifies the imported public key. The maximum size of the imported public key is 1024 bytes. Note: If the length of the public key to be imported exceeds 1024 bytes, the public key import to the BMS will fail.
name	Yes	String	Specifies the key pair name. The new key pair name cannot be the same as an existing one.

- Example request

```
POST https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/os-keypairs
{
  "keypair": {
    "name": "keypair-7d7c3650-dabe-4eb0-b904-5c464453c043",
    "public_key": "ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQGC9mC3WZN9UGLxgPBpP7H5jZMc6pKwOoSgre8yun6REFktn/
Kz7DUt9jaR1UJyRzHxITfCfAlgSxPdGqB/oF1suMyWgu5i0625vavLB5z5kC8Hq3qZJ9zJO1poE1kyD
+htiTtPWJ88e12xuH2XB/CZN9OpEiF98hAagiOE0EnOS5Q== Generated by Nova\n"
  }
}
```

Response Message

- Response parameters

Parameter	Type	Description
keypair	Object	Specifies the SSH key pair. For details, see Table 5-69 .

Table 5-69 keypair field data structure description

Parameter	Type	Description
fingerprint	String	Specifies fingerprint information about the key pair.
name	String	Specifies the key pair name.
public_key	String	Specifies the public key.
private_key	String	Specifies the private key. • The information about the private key is contained in the response for creating an SSH key. • The information about the private key is not contained in the response for importing an SSH key.
user_id	String	Specifies the ID of the user to which the key pair belongs.

- Example response

```
{
  "keypair": {
    "public_key": "ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQgQC9mC3WZN9UGLxgPBpP7H5jZMc6pKwOoSgre8yun6REFktn/
Kz7DUt9jaR1UJyRzHxITfCfAlgSxPdGqB/oF1suMyWgu5i0625vavLB5z5kC8Hq3qZJ9zJO1poE1kyD
+htiTtPWJ88e12xuH2XB/CZN9OpEiF98hAagiOE0EnOS5Q== Generated by Nova\n",
    "user_id": "f882feb345064e7d9392440a0f397c25",
    "name": "keypair-7d7c3650-dabe-4eb0-b904-5c464453c043",
    "fingerprint": "35:9d:d0:c3:4a:80:d3:d8:86:f1:ca:f7:df:c4:f9:d8"
  }
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.9.4 Deleting an SSH Key Pair (Native OpenStack API)

Function

This interface is used to delete a specified SSH key pair based on the key pair name.

URI

DELETE /v2.1/{project_id}/os-keypairs/{keypair_name}

[Table 5-70](#) lists the parameters.

Table 5-70 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
keypair_name	Yes	Specifies the key pair name. You can obtain the key pair name by calling the Querying SSH Key Pairs (Native OpenStack API) API.

Request Message

- Request parameters
None
- Example request
DELETE https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/os-keypairs/keypair-test

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.10 BMS 1D Tag Management

5.10.1 Querying BMS Tags (Native OpenStack API)

Function

This API is used to query all tags of a BMS.

You are required to use the HTTP header **X-OpenStack-Nova-API-Version: 2.26** to specify the micro version on the client.

URI

GET /v2.1/{project_id}/servers/{server_id}/tags

[Table 5-71](#) lists the parameters.

Table 5-71 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/53206ed0-56de-4d6b-b7ee-ffc62ca26f43/tags
```

Response Message

- Response parameters

Parameter	Type	Description
tags	Array of strings	Specifies user-defined tags of a BMS.

- Example response

```
{
  "tags": [
    "baz",
    "foo",
    "qux"
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.10.2 Adding Tags to a BMS (Native OpenStack API)

Function

This API is used to add tags to a BMS.

You are required to use the HTTP header **X-OpenStack-Nova-API-Version: 2.26** to specify the micro version on the client.

Constraints

A BMS can have a maximum of 50 tags.

NOTE

- It is recommended that you add the **__type_baremetal** tag to BMSs to distinguish BMSs from ECSs. Otherwise, BMSs will be available only on the ECS console.
- A new tag will overwrite the existing one. If you want to retain the original tag, add it to the list of new tags. You are advised to add **__type_baremetal** to the added tags list each time you add a tag.

URI

PUT /v2.1/{project_id}/servers/{server_id}/tags

[Table 5-72](#) lists the parameters.

Table 5-72 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

Parameter	Mandatory	Type	Description
tags	Yes	Array of strings	- Specifies the tags of a BMS. Each tag can contain a maximum of 80 characters. - The tag cannot start with a period (.). - A BMS can have a maximum of 50 tags. - An empty tag cannot be created.

- Example request

```
PUT https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/53206ed0-56de-4d6b-b7ee-ffc62ca26f43/tags
{
  "tags": [
    "baz",
    "foo",
    "qux"
  ]
}
```

Response Message

- Response parameters

Parameter	Type	Description
tags	Array of strings	Specifies user-defined tags of a BMS.

- Example response

```
{
  "tags": [
    "baz",
    "foo",
    "qux"
  ]
}
```

Returned Values

Normal values

Returned Values	Description
200	The server has successfully processed the request.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.10.3 Deleting Tags of a BMS (Native OpenStack API)

Function

This API is used to delete all tags of a BMS.

You are required to use the HTTP header **X-OpenStack-Nova-API-Version: 2.26** to specify the micro version on the client.

Constraints

NOTE

- Tag **__type_baremetal** is used to identify a BMS. You are not advised to delete this tag. Otherwise, the BMS will be displayed only on the ECS console.
- After deleting the **__type_baremetal** tag, you can add it again by following the instructions in [Adding a Tag to a BMS \(Native OpenStack API\)](#). After the tag is added, the BMS will be displayed on the BMS console.

URI

DELETE /v2.1/{project_id}/servers/{server_id}/tags

[Table 5-73](#) lists the parameters.

Table 5-73 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Request Message

- Request parameters

None

- Example request

```
DELETE https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/  
53206ed0-56de-4d6b-b7ee-ffc62ca26f43/tags
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.10.4 Adding a Tag to a BMS (Native OpenStack API)

Function

This API is used to add a tag to a BMS.

You are required to use the HTTP header **X-OpenStack-Nova-API-Version: 2.26** to specify the micro version on the client.

Constraints

- A BMS can have a maximum of 50 tags.
- The tag contains a maximum of 80 characters.
- The tag cannot start with a period (.).
- An empty tag cannot be created.

NOTE

It is recommended that you add the **__type_baremetal** tag to BMSs to distinguish BMSs from ECSs.

URI

PUT /v2.1/{project_id}/servers/{server_id}/tags/{tag}

[Table 5-74](#) lists the parameters.

Table 5-74 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
tag	Yes	Specifies the tag information. Constraints: • The tag contains a maximum of 80 characters. • The tag cannot start with a period (.). • An empty tag cannot be created. • URL encoding is required for special characters.

Request Message

- Request parameters
None

- Example request
PUT `https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/53206ed0-56de-4d6b-b7ee-ffc62ca26f43/tags/{tag}`

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.10.5 Checking for Tags of a BMS (Native OpenStack API)

Function

This API is used to check whether a BMS has a specified tag.

You are required to use the HTTP header **X-OpenStack-Nova-API-Version: 2.26** to specify the micro version on the client.

URI

GET `/v2.1/{project_id}/servers/{server_id}/tags/{tag}`

[Table 5-75](#) lists the parameters.

Table 5-75 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.

Parameter	Mandatory	Description
tag	Yes	Specifies the key of the tag to be queried. Constraints: • URL encoding is required for special characters. • If no tag key is specified, all tags of the BMS are displayed.

Request Message

- Request parameters

None

- Example request

```
GET https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/2d85af7c-cbfe-40c5-a378-4d03b42fb0e2/tags/{tag}
```

Response Message

If the specified tag exists, no response is returned.

If the specified tag does not exist, the response is as follows:

```
{
  "itemNotFound": {
    "message": "Server 2d85af7c-cbfe-40c5-a378-4d03b42fb0e2 has no tag 'abc'",
    "code": 404
  }
}
```

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

5.10.6 Deleting a Tag of a BMS (Native OpenStack API)

Function

This API is used to delete a tag of a BMS.

You are required to use the HTTP header **X-OpenStack-Nova-API-Version: 2.26** to specify the micro version on the client.

Constraints

- The tag contains a maximum of 80 characters.
- If a tag contains non-URL-safe characters, perform URL encoding.

NOTE

- Tag **__type_baremetal** is used to identify a BMS. You are not advised to delete this tag. Otherwise, the BMS will be displayed only on the ECS console.
- After deleting the **__type_baremetal** tag, you can add it again by following the instructions in [Adding a Tag to a BMS \(Native OpenStack API\)](#). After the tag is added, the BMS will be displayed on the BMS console.

URI

DELETE /v2.1/{project_id}/servers/{server_id}/tags/{tag}

[Table 5-76](#) lists the parameters.

Table 5-76 Parameter description

Parameter	Mandatory	Description
project_id	Yes	Specifies the project ID. For details about how to obtain the project ID, see Obtaining a Project ID .
server_id	Yes	Specifies the BMS ID. You can obtain the BMS ID from the BMS console or using the Querying BMSs (Native OpenStack API) API.
tag	Yes	Specifies the tag information. Constraints: • A tag can contain a maximum of 80 characters. If a tag contains non-URL-safe characters, perform URL encoding. • If no key is specified, all tags of the BMS are deleted.

Request Message

- Request parameters
None

- Example request

```
DELETE https://{ECS Endpoint}/v2.1/bbf1946d374b44a0a2a95533562ba954/servers/  
53206ed0-56de-4d6b-b7ee-ffc62ca26f43/tags/{tag}
```

Response Message

N/A

Returned Values

Normal values

Returned Values	Description
204	The server has processed the request but did not return any content.

For details about other returned values, see [Status Codes](#).

Error Codes

See [Error Codes](#).

6 Public Parameters

6.1 Status Codes

- Normal

Returned Value	Description
200 OK	The server has successfully processed the request.
201 Created	The request is successful and a resource is created on the server.
202 Accepted	The request has been accepted, but the processing has been delayed.
204 No Content	The server has processed the request but did not return any content.

- 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 could not find the requested page.
405 Method Not Allowed	You are not allowed to use the method specified in the request.
406 Not Acceptable	The response generated by the server could not be accepted by the client.

Returned Value	Description
407 Proxy Authentication Required	You must 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 an internal 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 server has received an invalid response.
503 Service Unavailable	Failed to complete the request because the service is unavailable.
504 Gateway Timeout	A gateway timeout error occurred.

6.2 Error Codes

Context

- An error code returned by an API does not correspond to one error message. The following table lists only common error messages.
- Most BMS APIs are asynchronous. Some error codes are displayed in the returned messages for task viewing requests. HTTP status codes may not be accurate.
- The BMS service is strongly dependent on other services, such as network and storage. When error messages are provided for the BMS-depended services, contact technical support for troubleshooting.

Error Code Description

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0001	Request error.	Fail to parse request, reason: %s.	Check the request body according to the returned error message.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0002	BMS has not been launched.	The BMS service is unavailable.	Select a region where the BMS service is available.
400	BMS.0003	Request error.	Create BareMetal Server error, request is null.	Check the request body according to the returned error message.
400	BMS.0004	Insufficient permission.	Role check fail, reason: %s.	See the returned error message or contact technical support.
400	BMS.0005	Insufficient permission.	Role check fail, reason: You do not have permission or your balance is insufficient.	See the returned error message or contact technical support.
400	BMS.0008	Failed to query a flavor.	Fail to query flavor [%s], reason: %s.	See the returned error message or contact technical support.
400	BMS.0006	Failed to create the task.	Fail to operate baremetal server.	See the returned error message or contact technical support.
400	BMS.0009	Failed to query flavor attributes.	Fail to query flavor extra specs[%s], reason: %s.	See the returned error message or contact technical support.
400	BMS.0010	Failed to query an image.	Fail to query image [%s], reason: %s.	See the returned error message or contact technical support.
400	BMS.0011	The images do not support BMS.	The selected images cannot be used to apply for BMSs, %s.	See the returned error message or contact technical support.
400	BMS.0012	Insufficient IP addresses in the selected subnet.	The number of IP addresses in the selected subnet[%s] is insufficient.	Check whether the IP addresses of the subnet are used up.
400	BMS.0013	Failed to query the port.	Fail to query ports by subnet [%s], reason: %s.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0014	IP address conflict.	The specified IP address conflicts with an existing IP address in subnet[%s].	Modify the NIC IP address.
400	BMS.0015	Failed to query the NIC.	Fail to query subnet, reason: %s.	See the returned error message or contact technical support.
400	BMS.0017	The EIP quota is insufficient.	The number[%d] of EIPs has reached the maximum[%d] allowed. Apply for a higher quota and try again.	Apply for a higher EIP quota.
400	BMS.0218	Failed to create the order.	Fail to create order, reason: %s.	See the returned error message or contact technical support.
400	BMS.0018	Invalid request parameters.	Request parameter is invalid.	Modify the request parameters based on the returned error message.
400	BMS.0019	Invalid NIC parameters.	publicip parameter is illegal, reason: %s.	See the returned error message or contact technical support.
400	BMS.0021	The flavor is invalid for creating the BMS. Select another flavor.	Flavor parameter is illegal, reason: %s.	Select a valid flavor.
400	BMS.0022	Invalid request parameters.	Request parameter is invalid.	Modify the request parameters based on the returned error message.
400	BMS.0023	Failed to query the quota.	Fail to query limits, reason: %s	See the returned error message or contact technical support.
400	BMS.0025	The number of BMSs exceeds the quota.	The number of cloud servers has reached the maximum allowed.	Apply for a higher quota.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0026	The number of BMS CPUs exceeds the quota.	The number of CPU cores used by all cloud servers has reached the maximum allowed.	Apply for a higher quota.
400	BMS.0027	The BMS memory exceeds the quota.	The memory space used by all cloud servers has reached the maximum allowed.	Apply for a higher quota.
400	BMS.0028	The number of BMSs and that of CPUs exceed the quotas.	The number of CPU cores used by all cloud servers and that of cloud servers have reached the maximum allowed.	Apply for a higher quota.
400	BMS.0029	The number of BMSs and the memory exceed the quotas.	The memory space used by all cloud servers and the number of cloud servers have reached the maximum allowed.	Apply for a higher quota.
400	BMS.0030	The BMS memory and the number of CPUs exceed the quotas.	The memory space and number of CPU cores used by all cloud servers have reached the maximum allowed.	Apply for a higher quota.
400	BMS.0031	The number of BMSs, the number of CPUs, and the memory exceed the quotas.	The number of cloud servers, the memory space used by all cloud servers, and the number of CPU cores used by all cloud servers have reached the maximum allowed.	Apply for a higher quota.
400	BMS.0032	Contact the administrator or to apply for a BMS.	Token check fail.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
403	BMS.0033	You do not have operation rights. Contact the administrator.	Fail to check roles, reason: %s.	See the returned error message or contact technical support.
400	BMS.0034	Currently, BMSs cannot be automatically provisioned.	Not support create Bare Metal Server.	This operation is not supported.
400	BMS.0047	Invalid system disk.	Root volume is illegal, reason: %s.	See the returned error message or contact technical support.
400	BMS.0049	Failed to query key_name .	Query keypair fail, reason is: %s.	See the returned error message or contact technical support.
400	BMS.0102	This image does not support volume attaching.	The image does not support attach volume.	Contact technical support.
400	BMS.0103	The disk does not exist.	Attach volume %s fail, volume info is null.	Check whether the disk information is correct.
400	BMS.0104	The data volume cannot be attached to the mount point of the system volume.	Attach volume %s fail, data volume cannot attach in root volume device.	Select another mount point.
400	BMS.0105	The mount point is invalid.	Attach volume %s fail, device is illegal.	Check whether the mount point is valid.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0106	The AZ of data disks is different from that of the BMS.	Attach volume %s fail, volume's az is not equal with server's az.	Ensure that the AZ of data disks is the same as that of the BMS.
400	BMS.0108	The system disk does not match the BMS.	Attach volume %s fail, root volume does not match the VM, do not change image.	Attach a matching system disk to the BMS.
400	BMS.0111	Failed to verify the password injection method.	Password injection method verification failed.	See the returned error message or contact technical support.
400	BMS.1001	This operation can be performed only when the BMS is in running or stopped.	Volume can only be attached when server %s stopped or active.	Try again later or contact technical support.
400	BMS.1002	The number of data disks that can be attached to the BMS exceeds the quota.	Attach volume fail, server %s attachment num over limit.	Contact technical support.
400	BMS.1003	The disk status is invalid.	Attach shareable volume %s fail, volume status is %s, not available or inuse.	Check whether the disk is in attached or other unavailable status.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.1004	The number of shared data disks that can be attached to the BMS exceeds the quota.	Attach shareable volume %s fail, volume status is %s, not available or inuse.	Contact technical support.
400	BMS.1006	The running status of the BMS cannot be obtained.	Server %s info is null or its status or its metadata is null.	Try again later or contact technical support.
400	BMS.1007	Failed to call the API.	Calling interface failed	See the returned error message or contact technical support.
400	BMS.1008	The disk type does not match the BMS.	The server[%s] is not HANA server, volume[%s] does not match the server.	Check whether the disk type matches the BMS or contact the technical support.
400	BMS.1009	The data disk has been attached to the BMS.	Attach shareable volume %s fail, volume status is %s, the volume has been attached to the server.	Select another data disk.
400	BMS.1011	The data disk is being attached.	Attach shareable volume %s fail, volume status is %s, not available or inuse.	Do not repeatedly attach the data disk.
400	BMS.3001	Failed to query the security group or subnet.	Query security group failed: %s. or Query vpcId for subnet failed: %s.	See the returned error message or contact technical support.
400	BMS.3011	System error.	Decoded token is null.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS. 3025	The EVS disk type is incorrect.	Not support create shareable data volumes.	See the returned error message or contact technical support.
400	BMS. 3035	No matching disk is found for the BMS.	Attach volume fail: the bmsid [%s] in volume metadata is not the same with bmsid [%s] in url.	Ensure that the disk matches the BMS or contact technical support.
400	BMS. 3039	Failed to verify password complexity.	The password is illegal, reason: %s.	See the password rules.
400	BMS. 0246	Failed to query the VPC.	The vpcId[%s] is invalid or not-existing.	See the returned error message or contact technical support.
400	BMS. 0201	The parameters for creating the BMS are incorrectly configured.	Fail to check the baremetal server params, reason: %s.	See the returned error message or contact technical support.
400	BMS. 0202	The data disk type is invalid.	All volumes must be in same type.	See the returned error message or contact technical support.
400	BMS. 0203	Parameter Volume is invalid.	Volume is illegal, %s.	See the returned error message or contact technical support.
400	BMS. 0204	The number of data disks exceeds the upper limit.	The number of data volumes is illegal. The number is %d, but maximum number allow is %d.	See the returned error message or contact technical support.
400	BMS. 0205	The BMS quantity is invalid.	The number of baremetal servers is out of range for one quest.	Change the BMS quantity.
400	BMS. 0206	Invalid name.	The length of baremetal server name[%s] is %s.	Change the name as required.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0207	No IP address can be specified when BMSs are created in a batch.	VPC is illegal, reason: %s.	See the returned error message or contact technical support.
400	BMS.0208	Failed to query the AZ.	Fail to get RegionInfo by tenant [%s], reason: %s.	See the returned error message or contact technical support.
400	BMS.0210	The length of the injected data exceeds the upper limit.	The size of userdata [%d] is over quota limits [%d].	Modify the injected data.
400	BMS.0211	Invalid key.	The image platform is [%s], support publicKey, reason: the publicKey is illegal, null is not allowed.	Select a valid key.
400	BMS.0114	The disk to be detached is not in the disk list of the BMS.	Volume %s is not in server %s attach volume list.	Check whether the disk exists.
400	BMS.0212	The system is overloaded.	System is overloaded, please try again later.	Try again later.
400	BMS.0213	Insufficient permission.	OBTAZ role verify fail: not allowed role.	See the returned error message or contact technical support.
400	BMS.0214	Failed to query the NIC.	Query subnet[%s] failed: response is null.	See the returned error message or contact technical support.
400	BMS.0215	Failed to create the order.	The response of inquiry order info is null or invalid.	See the returned error message or contact technical support.
400	BMS.0216	Failed to submit the order.	Submit order[%s] failed: %s.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0217	Failed to verify metadata.	Create server fail, reason: metaData is illegal.	See the returned error message or contact technical support.
400	BMS.0222	The primary NIC cannot be deleted.	primary port can not be deleted.	See the returned error message or contact technical support.
400	BMS.0223	Currently, only SCSI disks are supported.	Only SCSI disks are supported.	Select the SCSI disk type.
400	BMS.0039	The BMS has been shut down.	Server is stopped, not allow to stop.	Do not stop the BMS again.
400	BMS.0040	The BMS does not exist.	The server does not exist.	See the returned error message or contact technical support.
400	BMS.0035	The BMS is being powered on and no other operations are allowed.	Server is powering on, not allow to %s.	See the returned error message or contact technical support.
400	BMS.0036	The BMS is being powered off and no other operations are allowed.	Server is powering off, not allow to %s.	See the returned error message or contact technical support.
400	BMS.0038	The BMS is running and cannot be started.	Server is running, not allow to start.	See the returned error message or contact technical support.
400	BMS.0037	The BMS is being restarted and no other operations are allowed.	Server is rebooting, not allow to %s.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
403	BMS.0288	You do not have permissions to perform this operation.	Policy doesn't allow %s to be performed.	See the returned error message or contact technical support.
400	BMS.0290	The disk is not a shared disk and cannot be attached to multiple BMSs.	Batch attach volume type must be sharable.	Select a shared disk.
400	BMS.0071	If an EIP has been specified for creating the BMS, no other EIP can be created for the BMS.	Using an existing EIP and creating a new EIP can't be used at the same time.	See the returned error message or contact technical support.
400	BMS.0072	An EIP cannot be used to create multiple BMSs.	An existing EIP cannot be assigned to the ECSs created in batches.	See the returned error message or contact technical support.
400	BMS.0073	The bandwidth parameter is empty.	Bandwidth info in eip is null.	See the returned error message or contact technical support.
400	BMS.0074	The EIP extension parameter is unavailable.	Parameter exetendparam or chargingMode is null.	See the returned error message or contact technical support.
400	BMS.0075	The bandwidth ID is empty.	Bandwidth info in eip is null.	See the returned error message or contact technical support.
400	BMS.0077	Invalid bandwidth size.	PublicIp parameter is illegal, reason: %s.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.0078	EIP quota is insufficient.	Shared bandwidth has been bound to %d EIPs, quota is %d.	See the returned error message or contact technical support.
400	BMS.0079	The EIP bandwidth type is unavailable.	Specifies the bandwidth of the shared type and the id cannot be empty.	See the returned error message or contact technical support.
400	BMS.0080	The subnet status is unavailable.	Check subnet status failed.	Check whether the subnet exists or whether it is in ACTIVE state.
400	BMS.0297	The submitted EVS disk order has not been paid. The EVS disk cannot be attached to or detached from the BMS.	Fail to attach volume[%s]: volume is locked.	See the returned error message or contact technical support.
400	BMS.0054	Failed to verify the capacity.	Check capacity fail, the number of capacity is: [%d], and req num is: [%d].	The capacity is insufficient. Contact technical support.
400	BMS.0055	Failed to query the quota.	Query capacity fail, Flavor id is [%s], reason: [%s].	See the returned error message or contact technical support.
400	BMS.3037	Insufficient resources or failed to start the BMS.	Insufficient resources or failed to start the BMS.	Contact technical support.
400	BMS.3004	Failed to create the BMS due to an internal system error.	Failed to create the BMS due to an internal system error.	Contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS.3005	Failed to create the port.	Failed to create the port.	Contact technical support.
400	BMS.3033	Failed to create the system disk.	Failed to create the system disk.	Contact technical support.
400	BMS.3029	Failed to create the system disk. The disk status is abnormal.	Failed to create the system disk. The disk status is abnormal.	Contact technical support.
400	BMS.3006	Failed to assign the EIP.	Failed to assign the floating IP address.	Contact technical support.
400	BMS.3021	Failed to create the data disk.	Failed to create the data disk.	Contact technical support.
400	BMS.3019	Failed to attach the data disk.	Failed to attach the data disk.	Contact technical support.
400	BMS.3038	Failed to assign an EIP.	Failed to assign the EIP.	Contact technical support.
400	BMS.0315	Disks cannot be attached to a BMS using this flavor.	Disks cannot be attached to a BMS using this flavor[%s].	See the returned error message or contact technical support.
400	BMS.0360	The disk has been frozen and cannot be operated for the BMS.	This operation cannot be performed because EVS Disk %s is frozen.	See the returned error message or contact technical support.
400	BMS.3026	The password does not meet requirements.	Password does not meet the requirements of the rule.	See the returned error message or contact technical support.

HTTP Status Code	Returned Value	Description	Error Message	Handling Measure
400	BMS. 3027	Invalid VPC parameters.	VPC parameter is illegal.	See the returned error message or contact technical support.
400	BMS. 3028	Disk quota is abnormal.	cinder quota check fail.	See the returned error message or contact technical support.
400	Common. 0018	tenant_id in the token is different from that in the URL.	tenantId in token is not the same with in URL.	Check whether the tenant token is correct.
400	BMS. 0111	Password or key pair is not specified, or both specified.	none or multiple passwords specified, please specify one.	The password and key pair cannot be specified at the same time. Select one of them based on the login mode.
400	BMS. 0395	Windows BMSs do not support remote login.	The server[%s] is windows system and can not support remote login.	See the returned error message or contact technical support.

6.3 Task Responses

6.3.1 Task ID Response

Normal Response

Table 6-1 Normal BMS response

Parameter	Type	Description
job_id	String	Specifies the task ID after a task command is issued. The task ID can be used to query the execution status of the task. For details about how to query the task execution status based on job_id , see Querying Task Statuses .

Abnormal Response

Table 6-2 Abnormal response

Parameter	Type	Description
error	Dictionary data structure	Specifies the error returned when a task submission encounters an exception. For details, see error data structure .

Table 6-3 error data structure

Parameter	Type	Description
message	String	Specifies the error message.
code	String	Specifies the error code.

Example Response

- Normal response

```
{  "job_id": "70a599e0-31e7-49b7-b260-868f441e862b"}
```
- Abnormal response

```
{  "error": {"message": "", "code": XXX}}
```

6.3.2 Order ID Response

Normal Response

Table 6-4 Normal response

Parameter	Type	Description
order_id	String	Specifies the order ID returned after an order is submitted. You can query the order processing progress based on the ID.
job_id	String	Specifies the task ID returned after a task command is issued. The task ID can be used to query the execution status of the task. For details about how to query the task execution status based on job_id , see Querying Task Statuses .

Abnormal Response

Table 6-5 Abnormal response

Parameter	Type	Description
error	Dictionary data structure [1]	Specifies the error returned when a task submission encounters an exception. For details, see error data structure .

Table 6-6 error data structure

Parameter	Type	Description
message	String	Specifies the error message.
code	String	Specifies the error code.

Example Response

- Normal response

```
{  "order_id": "CS2009141523OQSEQ",  "job_id": "ff808081748b760c01748b7f80370003"}
```
- Abnormal response

```
{  "error": {"message": "", "code": XXX}}
```

7 Permissions Policies and Supported Actions

7.1 Introduction

- The actions and scopes of native OpenStack APIs of BMS are the same as those of ECS. For details, see "Permissions Policies and Supported Actions" in *Elastic Cloud Server API Reference*.
- When customizing a BMS user policy in IAM, add the `ecs:*:get` and `ecs:*:list` permissions. Otherwise, functions on some pages cannot work properly.
- The `vpc:ports:get` permission must be assigned to the sub-account of an enterprise project. Otherwise, the EIP and security group cannot be properly displayed on the BMS details page.

7.2 Lifecycle Management

Permissions	APIs	Actions	IAM Project	Enterprise Project
Creating a BMS	POST /v1/project_id}/baremetalservers	bms:servers:create	√	√
Querying Details About a BMS	GET /v1/{project_id}/baremetalservers/{server_id}	bms:servers:get	√	√

7.3 Status Management

Permissions	APIs	Actions	IAM Project	Enterprise Project
Changing the Name of a BMS	PUT /v1/{project_id}/baremetalservers/{server_id}	bms:servers:put	√	√

7.4 Disk Management

Permissions	APIs	Actions	Dependent Actions	IAM Project	Enterprise Project
Detaching a Disk from a BMS	DELETE /v1/{project_id}/baremetalservers/{server_id}/detachvolume/{attachment_id}	bms:servers:detachVolume	-	√	√
Attaching a Disk to a BMS	POST /v1/{project_id}/baremetalservers/{server_id}/attachvolume	bms:servers:attachVolume	evs:volumes:use	√	√

A Appendix

A.1 Obtaining a Project ID

A project ID is required for some URLs when an API is called. Therefore, you need to obtain a project ID in advance. The steps are as follows:

1. Obtain the token.

For details, see [Token-based Authentication](#).

2. Obtain a project ID.

The API for obtaining the project ID is **GET** <https://iam.eu-west-0.myhuaweicloud.com/v3/projects>.

Add **X-Auth-Token** to the request header and set its value to the token obtained in the preceding step.

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

```
{
  "links": {},
  "projects": [
    {
      "is_domain": ,
      "description": "",
      "links": {},
      "enabled": true,
      "id": "", // Project ID
      "parent_id": "",
      "domain_id": "",
      "name": ""
    },
    ...
  ]
}
```

A.2 Obtaining an Account ID

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

1. Log in to the management console.

2. Click the username in the upper right corner and select **My Credentials** from the drop-down list.
On the **My Credentials** page, view the **Account ID**.

B Change History

Released On	Description
2020-11-30	This issue is the first official release.