# Tag Management Service

# API Reference

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# Contents

# 1 Before You Start

## 1.1 Overview

Welcome to *Tag Management Service API Reference*. Tags are used to identify cloud resources. When you have many cloud resources of the same type, you can use tags to classify cloud resources by dimension (for example, use, owner, or environment). Tag Management Service (TMS) is a visualized service for fast and unified cross-region tagging and categorization of cloud services.

This document describes how to use application programming interfaces (APIs) to perform operations on tags, such as creating or deleting predefined tags, and querying or modify predefined tags. For details about all supported operations, see **API Overview**.

If you plan to access TMS through an API, ensure that you are familiar with TMS concepts. For details, see section "Service Overview" in the *Tag Management Service User Guide*.

## 1.2 API Calling

TMS 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 TMS endpoint, see **Regions and Endpoints**.

## 1.4 Notes and Constraints

- The number of tags that you can create is determined by your quota. To view or increase the quota, see section "Modifying Resource Quotas" in the *Tag Management Service 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.

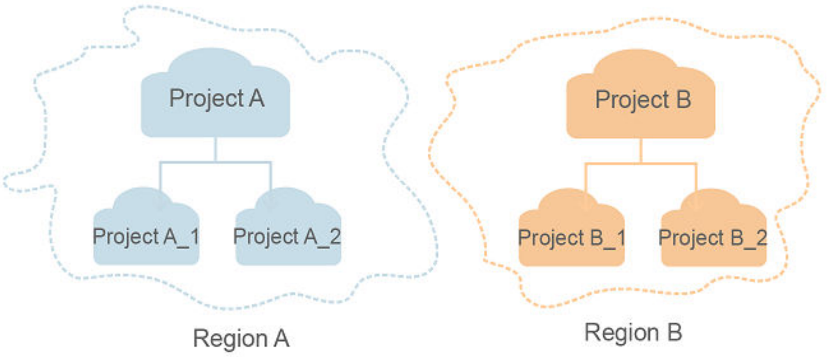
- AZ

  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



- Enterprise project

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

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

# 2 API Overview

You can use TMS APIs to create, delete, query, or modify predefined tags, or query the version information.

**Table 2-1** API description

| API | Description |
|---|---|
| **Querying the API Versions** | Query the TMS API versions. |
| **Querying Details About a Specified TMS API Version** | Query details about a specified TMS API version. |
| **Creating or Deleting Predefined Tags** | Create or delete predefined tags. You can use predefined tags to tag resources. |
| **Querying Predefined Tags** | Query the predefined tag list of a specified tenant. |
| **Modifying Predefined Tags** | Modify predefined tags. |

# 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

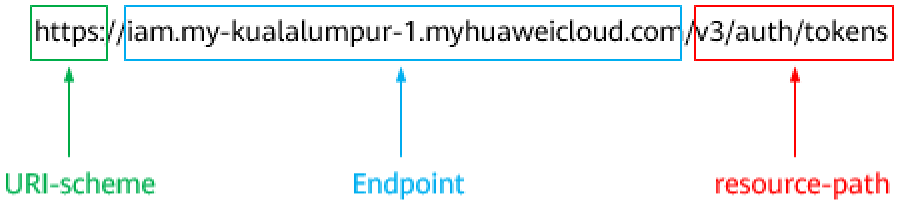
| Parameter | Description |
|---|---|
| URI-scheme | Protocol used to transmit requests. All APIs use HTTPS. |
| Endpoint | Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from **Regions and Endpoints**.<br>For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

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

For example, to obtain an IAM token in the **AP-Kuala Lumpur-OP6** region, obtain the endpoint of IAM (**iam.my-kualalumpur-1.myhuaweicloud.com**) for this region and the **resource-path** (**/v3/auth/tokens**) in the URI of the API used to **obtain a user token**. Then, construct the URI as follows:

```
https://iam.my-kualalumpur-1.myhuaweicloud.com/v3/auth/tokens
```

**Figure 3-1** Example URI


https://iam.my-kualalumpur-1.myhuaweicloud.com/v3/auth/tokens
URI-scheme
Endpoint
resource-path

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. |

| Method | Description |
|---|---|
| PATCH | Requests the server to update partial content of a specified resource.<br>If the resource does not exist, a new resource will be created. |

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

```
POST https://iam.my-kualalumpur-1.myhuaweicloud.com/v3/auth/tokens
```

## Request Header

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

Common request header fields are as follows.

**Table 3-3** Common request header fields

| Parameter | Description | Mandatory | Example Value |
|---|---|---|---|
| Host | Specifies the server domain name and port number of the resources being requested. The value can be obtained from the URL of the service API. The value is in the format of *Hostname:Port number*. If the port number is not specified, the default port is used. The default port number for **https** is **443**. | No<br>This field is mandatory for AK/SK authentication. | code.test.com<br>or<br>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 |

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

NOTE

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

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

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

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

## (Optional) Request Body

This part is optional. The body of a request is often sent in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The request body transfers content except the request header.

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

In the case of the API used to **obtain a user token**, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace *username*, *domainname*, *$ADMIN_PASS* (login password), and *xxxxxxxxxxxxxxxxxx* (project name) with the actual values. Obtain a project name from **Regions and Endpoints**.

NOTE

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

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

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

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

## Token Authentication

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.

A cloud service can be deployed as either a project-level service or global service.

- For a project-level service, you need to obtain a project-level token. When you call the API, set **auth.scope** in the request body to **project**.
- For a global service, you need to obtain a global token. When you call the API, set **auth.scope** in the request body to **domain**.

TMS is a global service. When you call the API, set **auth.scope** in the request body to **domain**. For details about how to obtain the user token, see **Obtaining a User Token**.

```
{
   "auth": {
      "identity": {
         "methods": [
            "password"
         ],
         "password": {
            "user": {
               "name": "username",   // IAM user name
               "password": "********",  // IAM user password
               "domain": {
                  "name": "domainname"  // Name of the account to which the IAM user belongs
               }
            }
         }
      },
      "scope": {
         "domain": {
            "name": "xxxxxxxx"    // Tenant name
         }
      }
   }
}
```

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

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

## AK/SK Authentication

NOTE

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

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

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

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

NOTE

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

## 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

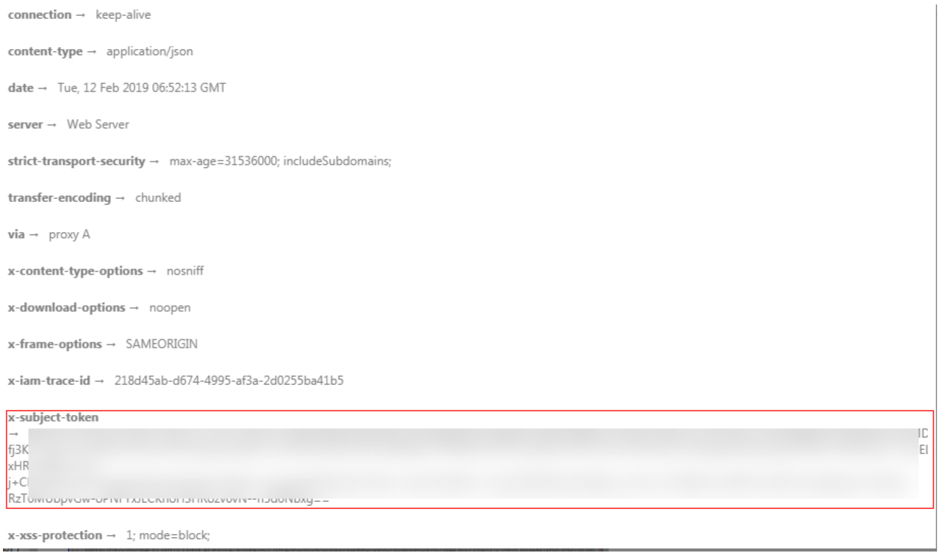
Similar to a request, a response also has a header, for example, **Content-Type**.

**Figure 3-2** shows the response header fields for the API used to **obtain a user token**. The **X-Subject-Token** header field is the desired user token. This token can then be used to authenticate the calling of other APIs.

NOTE

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

**Figure 3-2** Header fields of the response to the request for 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
→ [redacted]

x-xss-protection → 1; mode=block;
```

## (Optional) Response Body

The body of a response is often returned in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The response body transfers content except the response header.

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

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

# 4 API Description

## 4.1 Querying the API Version

### 4.1.1 Querying the API Versions

#### Function

This API is used to query the versions of all TMS APIs.

#### URI

GET /

#### Request

Example request

```
GET https://{TMS endpoint}/
```

NOTE

Obtain the regions and endpoints from the enterprise administrator.

#### Response

- Parameter description

**Table 4-1** Parameters in the response

| Name | Type | Description |
|---|---|---|
| versions | Array | Specifies all API versions.<br>For details, see **Table 4-2**. |

- **versions** field description

**Table 4-2** Parameter description

| Name | Type | Description |
|---|---|---|
| id | String | Specifies the version ID, for example, v1.0. |
| links | List<Link> | Specifies the API URL.<br>For details, see **Table 4-3**. |
| version | String | If the APIs of this version support microversions, set this parameter to the supported latest microversion. If not, leave this parameter blank. |
| status | String | Specifies the version status.<br>Possible statuses are as follows:<br>● **CURRENT**: indicates that the version is the primary version.<br>● **SUPPORTED**: indicates that the version is an old version, but it is still supported.<br>● **DEPRECATED**: indicates a deprecated version which may be deleted later. |
| updated | String | Specifies the version release time, which must be the UTC time. For example, the release time of TMS 1.0 is 2016-12-09T00:00:00Z. |
| min_version | String | If the APIs of this version support microversions, set this parameter to the supported earliest microversion. If not, leave this parameter blank. |

- **Links** field description

**Table 4-3** Parameter description

| Name | Type | Description |
|---|---|---|
| href | String | Specifies the API URL. |
| rel | String | self |

- Example response

  **Status code: 200**

  Successful operation

```
{
    "versions": [
        {
            "id": "v1.0",
            "links": [
                {
                    "rel": "self",
                    "href": "https://API URL/v1.0"
                }
            ],
            "version": "",
            "status": "CURRENT",
            "updated": "2016-12-09T00:00:00Z",
            "min_version": ""
        }
    ]
}
```

## Status Codes

See **Status Codes**.

## Error Codes

See **Error Codes**.

# 4.1.2 Querying Details About a Specified TMS API Version

## Function

This API is used to query the details of a specified TMS API version.

## URI

GET /{api_version}

## Request

- Parameter description

**Table 4-4** Parameters in the request

| Parameter | Mandatory | Type | Description |
|---|---|---|---|
| api_version | Yes | String | Specifies the API version. |

- Example request

```
GET https://{TMS endpoint}/v1.0
```

## Response

- Parameter description

**Table 4-5** Parameters in the response

| Name | Type | Description |
|---|---|---|
| version | object | Specifies the version of a specified API.<br>For details, see **Table 4-6**. |

- **version** field description

**Table 4-6** Parameter description

| Name | Type | Description |
|---|---|---|
| id | String | Specifies the version ID, for example, v1.0. |
| links | List<Link> | Specifies the API URL.<br>For details, see **Table 4-7**. |
| version | String | If the APIs of this version support microversions, set this parameter to the supported latest microversion. If not, leave this parameter blank. |
| status | String | Specifies the version status.<br>Possible values are as follows:<br>● **CURRENT**: indicates that the version is the primary version.<br>● **SUPPORTED**: indicates that the version is an old version, but it is still supported.<br>● **DEPRECATED**: indicates a deprecated version which may be deleted later. |
| updated | String | Specifies the version release time, which must be the UTC time. For example, the release time of TMS 1.0 is 2016-12-09T00:00:00Z. |
| min_version | String | If the APIs of this version support microversions, set this parameter to the supported earliest microversion. If not, leave this parameter blank. |

- **Links** field description

**Table 4-7** Parameter description

| Name | Type | Description |
|---|---|---|
| href | String | Specifies the API URL. |
| rel | String | self |

- Example response

  **Status code: 200**

  Successful operation

```
{
    "version": {
        "id": "v1.0",
        "links": [
            {
                "rel": "self",
               "href": "https://API URL/v1.0"
            }
        ],
        "version": "",
        "status": "CURRENT",
        "updated": "2016-12-09T00:00:00Z",
        "min_version": ""
    }
}
```

## Status Codes

See **Status Codes**.

## Error Codes

See **Error Codes**.

# 4.2 Predefined Tag Operations

## 4.2.1 Creating or Deleting Predefined Tags

### Function

This API is used to create or delete predefined tags. You can add tags to resources using the predefined tags.

This API supports idempotency and batch processing.

> **NOTE**
>
> Idempotent operations refer to invoking the same API for multiple times by using the same parameters, which have the same impact on the system.

### URI

POST /v1.0/predefine_tags/action

### Request

- Parameter description

**Table 4-8** Parameters

| Name | Mandatory | Type | Description |
|---|---|---|---|
| action | Yes | String | Specifies the action identifier.<br>The value is case sensitive and can be **create** or **delete**. |
| tags | Yes | Array of objects | Specifies the tags.<br>For details, see **Table 4-9**. |

- **tags** field description

**Table 4-9** Fields

| Name | Mandatory | Type | Description |
|---|---|---|---|
| key | Yes | String | Specifies the key.<br>A tag key can contain up to 36 characters. Only A-Z, a-z, 0-9, hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |
| value | Yes | String | Specifies the value.<br>A tag value can contain up to 43 characters and can be an empty string. Only A-Z, a-z, 0-9, periods (.), hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |

- Example request

```
POST https://{TMS endpoint}/v1.0/predefine_tags/action
{
    "action": "create",
    "tags": [
        {
            "key": "ENV1",
            "value": "DEV1"
        },
        {
            "key": "ENV2",
            "value": "DEV2"
        }
    ]
}
```

## Example Response

**Status code: 200**

Successful operation

## Status Codes

See **Status Codes**.

## Error Codes

See **Error Codes**.

# 4.2.2 Querying Predefined Tags

## Function

This API is used to query predefined tags.

## URI

GET /v1.0/predefine_tags

## Request

- Parameter description

**Table 4-10** Parameters

| Name | Mandatory | Type | Description |
|---|---|---|---|
| key | No | String | Specifies the key.<br>Supports fuzzy search and is case insensitive. If this parameter value contains non-URL-safe characters, it must be URL encoded. |
| value | No | String | Specifies the value.<br>Supports fuzzy search and is case insensitive. If this parameter value contains non-URL-safe characters, it must be URL encoded. |
| limit | No | Integer | Specifies the number of query records.<br>The value ranges from **1** to **1000**. If no value is specified, the value is **10** by default. If the value is set to **0**, the number of query records is not limited. |

| Name | Mandatory | Type | Description |
|---|---|---|---|
| marker | No | String | Specifies the paging location identifier (index).<br>The query starts from the next piece of data indexed by this parameter.<br>**NOTE**<br>When querying the data on the first page, you do not need to specify this parameter. When querying the data on subsequent pages, set this parameter to the value in the response body returned by querying data of the previous page. When the returned **tags** is an empty list, the last page has been queried. |
| order_field | No | String | Specifies the field for sorting.<br>The parameter value is case sensitive and can be **update_time**, **key**, or **value**.<br>Its default value is **update_time**.<br>You can choose only one of the three values and based on the value of **order_method** to sort the remaining two default fields.<br>For example:<br>● If **order_field** is set to **update_time**, both **key** and **value** are sorted in the ascending order.<br>● If **order_field** is set to **key**, **update_time** is sorted in the descending order, and **value** is sorted in the ascending order.<br>● If **order_field** is set to **value**, **update_time** is sorted in the descending order, and **key** is sorted in the ascending order.<br>● If **order_field** is not specified, its default value **update_time** is taken. In this case, **key** and **value** are sorted in the ascending order. |

| Name | Mandatory | Type | Description |
|---|---|---|---|
| order_method | No | String | Specifies the sorting method of the **order_field** field.<br>The method can be (case sensitive):<br>● **asc**: ascending order<br>● **desc**: descending order<br>Only one of the preceding sorting methods can be selected.<br>If this parameter is not specified, the default value is **desc**. |

- Example request

```
GET https://{TMS endpoint}/v1.0/predefine_tags?
key=ENV&value=DEV&limit=10&marker=9&order_field=key&order_method=asc
```

## Response

- Parameter description

**Table 4-11** Parameters

| Name | Type | Description |
|---|---|---|
| tags | Array of objects | Specifies the tags.<br>For details, see **Table 4-12**. |
| total_count | Integer | Specifies the total number of tags that meet the filtering criteria, which is not affected by pagination. |
| marker | String | Specifies the paging location identifier.<br>It indicates the location of the last query record. |

- **tags** field description

**Table 4-12** Fields

| Name | Type | Description |
|---|---|---|
| key | String | Specifies the key.<br>A tag key can contain up to 36 characters. Only A-Z, a-z, 0-9, hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |

| Name | Type | Description |
|---|---|---|
| value | String | Specifies the value.<br>A tag value can contain up to 43 characters and can be an empty string. Only A-Z, a-z, 0-9, periods (.), hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |
| update_time | String | Specifies the update time, which must be the UTC time, for example, **2016-12-09T00:00:00Z**. |

- Example response

  **Status code: 200**

  Successful operation

```
{
   "marker": "12",
   "total_count": 13,
   "tags": [
      {
         "key": "ENV1",
         "value": "DEV1",
         "update_time": "2017-04-12T14:22:34Z"
      },
      {
         "key": "ENV2",
         "value": "DEV2",
         "update_time": "2017-04-12T14:22:34Z"
      }
   ]
}
```

## Status Codes

See **Status Codes**.

## Error Codes

See **Error Codes**.

# 4.2.3 Modifying Predefined Tags

## Function

This API is used for modifying predefined tags.

## URI

PUT /v1.0/predefine_tags

## Request

- Parameter description

**Table 4-13** Parameters

| Name | Mandatory | Type | Description |
|---|---|---|---|
| old_tag | Yes | Object | Specifies the tag to be modified.<br>For details, see **Table 4-14**. |
| new_tag | Yes | Object | Specifies the tag that has been modified.<br>For details, see **Table 4-15**. |

- **old_tag** field description

**Table 4-14** Fields

| Name | Mandatory | Type | Description |
|---|---|---|---|
| key | Yes | String | Specifies the key.<br>A tag key can contain up to 36 characters. Only A-Z, a-z, 0-9, hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |
| value | Yes | String | Specifies the value.<br>A tag value can contain up to 43 characters and can be an empty string. Only A-Z, a-z, 0-9, periods (.), hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |

- **new_tag** field description

**Table 4-15** Fields

| Name | Mandatory | Type | Description |
|---|---|---|---|
| key | Yes | String | Specifies the key.<br>A tag key can contain up to 36 characters. Only A-Z, a-z, 0-9, hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |

| Name | Mandatory | Type | Description |
|---|---|---|---|
| value | Yes | String | Specifies the value.<br>A tag value can contain up to 43 characters and can be an empty string. Only A-Z, a-z, 0-9, periods (.), hyphens (-), underscores (_), and Unicode characters (\u4E00-\u9FFF) are allowed. |

- Example request

```
PUT https://{TMS endpoint}/v1.0/predefined_tags
{
   "new_tag": {
      "key": "ENV1",
      "value": "DEV1"
   },
   "old_tag": {
      "key": "ENV2",
      "value": "DEV2"
   }
}
```

## Example Response

**Status code: 200**

Successful operation

## Status Codes

See **Status Codes**.

## Error Codes

See **Error Codes**.

# 4.3 Querying Services Supported by TMS

## 4.3.1 Querying Services Supported by TMS

### Function

You can use this API to query services supported by TMS.

### URI

GET /v1.0/tms/providers

**Table 4-16** Query parameters

| Parameter | Mandatory | Type | Description |
|---|---|---|---|
| locale | No | String | Specifies the display language. |
| limit | No | Integer | The maximum queries supported. The value 10 is used by default if this parameter is not set. The value range is 1 to 200. |
| offset | No | Integer | Specifies the index position, which starts from the next data record specified by **offset**. The value must be a number and cannot be negative. The default value is **0**. |
| provider | No | String | Specifies the cloud service name. |

## Request

**Table 4-17** Header parameters

| Parameter | Mandatory | Type | Description |
|---|---|---|---|
| X-Auth-Token | Yes | String | Specifies the user token. TMS is a global service. So you need to set **scope** to **domain** when calling an IAM API to obtain a user token. The value of **X-Subject-Token** in the response header is the user token. |

## Response

**Status code: 200**

**Table 4-18** Body parameters

| Parameter | Type | Description |
|---|---|---|
| providers | Array of **ProviderResponseBody** objects | Specifies the cloud services |

| Parameter | Type | Description |
|---|---|---|
| total_count | Integer | Specifies the total cloud services supported. |

**Table 4-19** ProviderResponseBody

| Parameter | Type | Description |
|---|---|---|
| provider | String | Specifies the cloud service name. |
| provider_i18n_display_name | String | Specifies the display name of the resource. You can set the language by setting the **locale** parameter. |
| resource_types | Array of **ResourceTypeBody** objects | Specifies the resource type. |

**Table 4-20** ResourceTypeBody

| Parameter | Type | Description |
|---|---|---|
| resource_type | String | Specifies the resource type. |
| resource_type_i18n_display_name | String | Specifies the display name of the resource type. You can set the language by setting the **locale** parameter. |
| regions | Array of strings | Specifies the supported regions. |
| global | Boolean | Specifies whether the resource is a global resource. |

## Example Request

Querying supported services by TMS

```
GET https://{Endpoint}/v1.0/tms/providers?locale=en-us&limit=200
```

## Example Response

**Status code: 200**

Successful operation

```
{
  "providers" : [ {
    "provider" : "evs",
    "provider_i18n_display_name" : "Elastic Volume Service",
    "resource_types" : {
      "resource_type_i18n_display_name" : "EVS-Disk",
      "global" : false,
      "resource_type" : "disk",
      "regions" : [ "regionId1" ]
    }
  } ],
  "total_count" : 1
}
```

## Status Codes

See **Status Codes**.

## Error Codes

See **Error Codes**.

# 5 Permissions Policies and Supported Actions

## 5.1 Introduction

You can use Identity and Access Management (IAM) to perform fine-grained permissions management for your TMS resources. If your account does not need individual IAM users, you can skip this section.

By default, new IAM users do not have permissions assigned. You need to add a user to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

You can grant users permissions using roles and policies. Roles are a type of coarse-grained authorization mechanism that defines permissions related to user responsibilities. Policies define API-based permissions for operations on specific resources under certain conditions, allowing for more fine-grained, secure access control of cloud resources.

**NOTE**

Policy-based authorization is useful if you want to allow or deny the access to an API.

An account has all of the permissions required to call all APIs, but IAM users must be assigned the required permissions. The permissions required for calling an API are determined by the actions supported by the API. Only users who have been granted permissions allowing the actions can call the API successfully. For example, if an IAM user wants to query predefined tags using an API, the user must have been granted permissions that allow the **tms:predefineTags:list** action.

### Supported Actions

Operations supported by a fine-grained policy are specific to APIs. The following are common concepts related to policies:

- Permissions: Statements in a policy that allow or deny certain operations.
- APIs: REST APIs that can be called by a user who has been granted specific permissions.

- Actions: Specific operations that are allowed or denied.
- Dependencies: actions which a specific action depends on. When allowing an action for a user, you also need to allow any existing action dependencies for that user.
- IAM or enterprise projects: Type of projects for which an action will take effect. Policies that contain actions supporting both IAM and enterprise projects can be used and take effect in both IAM and Enterprise Management. Policies that only contain actions for IAM projects can be used and only take effect for IAM. Administrators can check whether an action supports IAM projects or enterprise projects in the action list.

## 5.2 TMS API Actions

**Table 5-1** API actions

| Permission | API | Action | IAM Project | Enterprise Project |
|---|---|---|---|---|
| Querying predefined tags | GET /v1.0/predefine_tags | tms:predefineTags:list | Supported | Not supported |
| Creating predefined tags | POST /v1.0/predefine_tags/action | tms:predefineTags:create | Supported | Not supported |
| Deleting predefined tags | POST /v1.0/predefine_tags/action | tms:predefineTags:delete | Supported | Not supported |
| Modifying a predefined tag | PUT /v1.0/predefine_tags | tms:predefineTags:update | Supported | Not supported |

# A Appendix

## A.1 Status Codes

- Normal

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

- 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 | Access to the requested page is denied. |
| 404 Not Found | The server cannot find the requested page. |
| 405 Method Not Allowed | You are not allowed to use the method specified in the request. |
| 406 Not Acceptable | The response generated by the server cannot be accepted by the client. |

| Returned Value | Description |
|---|---|
| 407 Proxy Authentication Required | You must use the proxy server for authentication so that the request can be processed. |
| 408 Request Timeout | The request timed out. |
| 409 Conflict | The request could not be processed due to a conflict. |
| 500 Internal Server Error | Failed to complete the request because of a service error. |
| 501 Not Implemented | Failed to complete the request because the server does not support the requested function. |
| 502 Bad Gateway | Failed to complete the request because the request is invalid. |
| 503 Service Unavailable | Failed to complete the request. The service is unavailable. |
| 504 Gateway Timeout | A gateway timeout error occurred. |

# A.2 Error Codes

## Function Description

If the returned status code of a TMS API is **400**, the customized error information will also be returned. This section describes the meaning of each TMS error code.

## Response Format

```
STATUS CODE 400
    {
      "error_code": "TMS.0009",
      "error_msg": "Key is invalid."
    }
```

## Error Code Description

| Status Code | Error Code | Error Message | Description | Solution |
|---|---|---|---|---|
| 403 | TMS.2030 | You do not have the required permission to perform this operation. The required permission is: *xxx*. | Required permissions are not granted. | Grant required permissions. |
| 400 | TMS.2009 | **Projects** is empty. | The **Projects** parameter is empty. | Specify **Projects**. |
| 400 | TMS.2017 | Invalid element in **projects**. | Invalid **projects** element | Enter a valid **projects** value. |
| 400 | APIGW.0106 | Orchestration error. | There is orchestration error. | Check whether the frontend and backend parameters are properly set for the API. |
| 400 | TMS.5027 | Invalid **resource type**. | Invalid resource type | Enter a valid resource type. |
| 400 | TMS.2011 | **Project_id** is invalid. | Invalid project ID | Enter a valid project ID. |
| 500 | TMS.0001 | System error. | System error. | Contact technical support. |
| 400 | TMS.0002 | Bad request. | Invalid request from the client. | Enter valid parameters. |
| 401 | TMS.0003 | The user is unauthorized. | Authentication fails or the valid authentication information is not provided. | Check whether the username or password for obtaining the token is correct. |
| 403 | TMS.0004 | You do not have permissions to perform the operation. | The authentication information is incorrect or the service invoker does not have sufficient permissions. | Check whether the username, password, or the user permissions for obtaining the token are correct. |

| Status Code | Error Code | Error Message | Description | Solution |
|---|---|---|---|---|
| 404 | TMS.0005 | The resources requested cannot be found. | The requested resource cannot be found. | Enter a valid resource ID. |
| 403 | TMS.0006 | The request is **Too much**, try again later. | The numbers of requests are too many. | Reduce the number of concurrent requests or try again later. |
| 400 | TMS.0007 | **Limit** is invalid. | **Limit** is invalid. | Enter a valid **Limit** value. |
| 400 | TMS.0008 | **Marker** is invalid. | **Marker** is invalid. | Enter a valid **Marker** value. |
| 400 | TMS.0009 | **Key** is invalid. | **Key** is invalid. | Enter a valid **Key** value. |
| 400 | TMS.0010 | **Value** is invalid. | **Value** is invalid. | Enter a valid **Value** value. |
| 400 | TMS.0011 | **Action** is invalid. | **Action** is invalid. | Enter a valid **Action** value. |
| 400 | TMS.0012 | **Tags** is empty. | **Tags** is left blank. | Specify **Tags**. |
| 400 | TMS.0013 | Empty element in **Tags**. | **Tags** is invalid. | Enter a valid **Tags** value. |
| 409 | TMS.0014 | **Values** is empty. | **Values** is invalid. | Enter a valid **Values** value. |
| 400 | TMS.0016 | **Values** is too much. | The maximum number of values for **Values** has been exceeded. | Enter no more than 10 values. |
| 400 | TMS.0017 | **Offset** is invalid. | **Offset** is invalid. | Enter a valid **Offset** value. |
| 504 | TMS.0018 | Query Time Out. | Query timed out. | Try again later. |
| 400 | TMS.1001 | The number of predefine tag exceeds the upper limit. | The number of predefined tags exceeds the quota. | Enter no more than 500 predefined tags. |
| 400 | TMS.1002 | **Old_tag** cannot be found. | **Old_tag** cannot be found. | Specify **Old_tag**. |

| Status Code | Error Code | Error Message | Description | Solution |
|---|---|---|---|---|
| 400 | TMS.1003 | **New_tag** already exists. | **New_tag** already exists. | Enter another value for **New-tag**. |
| 400 | TMS.1004 | **Old_tag** is empty. | **Old_tag** is left blank. | Specify **Old_tag**. |
| 400 | TMS.1005 | Invalid key in **Old_tag.** | The key in **Old_tag** is invalid. | Enter a valid key in **Old_tag**. |
| 400 | TMS.1006 | Invalid value in **Old_tag**. | The value in **Old_tag** is invalid. | Enter a valid value in **Old_tag**. |
| 400 | TMS.1007 | **New_tag** is empty. | **New_tag** is left blank. | Specify **New_tag**. |
| 400 | TMS.1008 | Invalid key in **New_tag.** | The key in **New_tag** is invalid. | Enter a valid key in **New_tag**. |
| 400 | TMS.1009 | Invalid value in **New_tag**. | The value in **New_tag** is invalid. | Enter a valid value in **New_tag**. |
| 400 | TMS.1010 | **Order_field** is invalid. | **Order_field** is invalid. | Enter a valid **Order_field** value. |
| 400 | TMS.1011 | **Order_method** is invalid. | **Order_method** is invalid. | Enter a valid **Order_method** value. |

# A.3 Obtaining a Project ID

## Scenarios

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

- **Obtain the Project ID by Calling an API**
- **Obtain the Project ID from the Console**

## Obtain the Project ID by Calling an API

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

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

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

```
{
    "projects": [
        {
            "domain_id": "65ewtrgaggshhk1223245sghjlse684b",
            "is_domain": false,
            "parent_id": "65ewtrgaggshhk1223245sghjlse684b",
            "name": "project_name",
            "description": "",
            "links": {
                "next": null,
                "previous": null,
                "self": "https://www.example.com/v3/projects/a4adasfjljaaaakla12334jklga9sasfg"
            },
            "id": "a4adasfjljaaaakla12334jklga9sasfg",
            "enabled": true
        }
    ],
    "links": {
        "next": null,
        "previous": null,
        "self": "https://www.example.com/v3/projects"
    }
}
```

## Obtain a Project ID from the Console

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

1. Log in to the management console.
2. Click the username and select **My Credentials** from the drop-down list.

   On the **My Credentials** page, view the project ID (value in the **Project ID** column).

# B Change History

| Release On | Description |
|---|---|
| 2022-11-30 | This issue is the second official release, which incorporates the following changes:<br>- Added **Introduction**.<br>- Added **TMS API Actions**. |
| 2020-08-31 | This issue is the first official release. |