Tag Management Service

API Reference

Issue 02

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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** .

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.

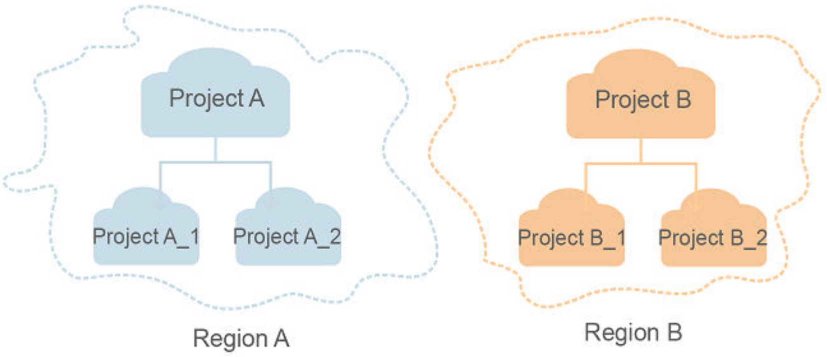
- AZ

  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 add tags to resources using the predefined tags.
Querying the Predefined Tag List	Query the predefined tag list of a specified tenant.
Modifying Predefined Tags	Modify predefined tags.

3 Calling

3.1 Making an API Request

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

Request URI

A request URI is in the following format:

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

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

Table 3-1 URI parameter description

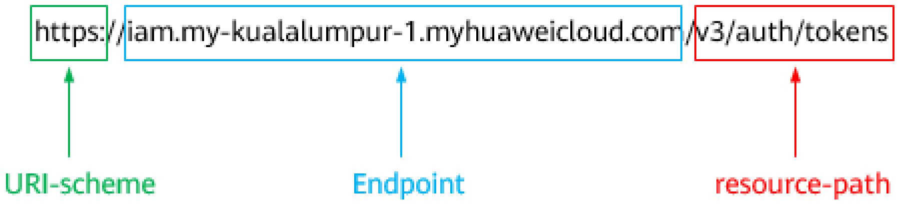
Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from **Regions and Endpoints**. For example, the endpoint of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

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. It is a response to the API for **obtaining a user token** (This is the only API that does not require authentication). After the request is processed, the value of **X-Subject-Token** in the response header is the token value.	No This field is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZIhvcNAQcCo...ggg1BBIINPXsidG9rZ

NOTE

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

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

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

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

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

```

POST https://iam.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 .

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**.

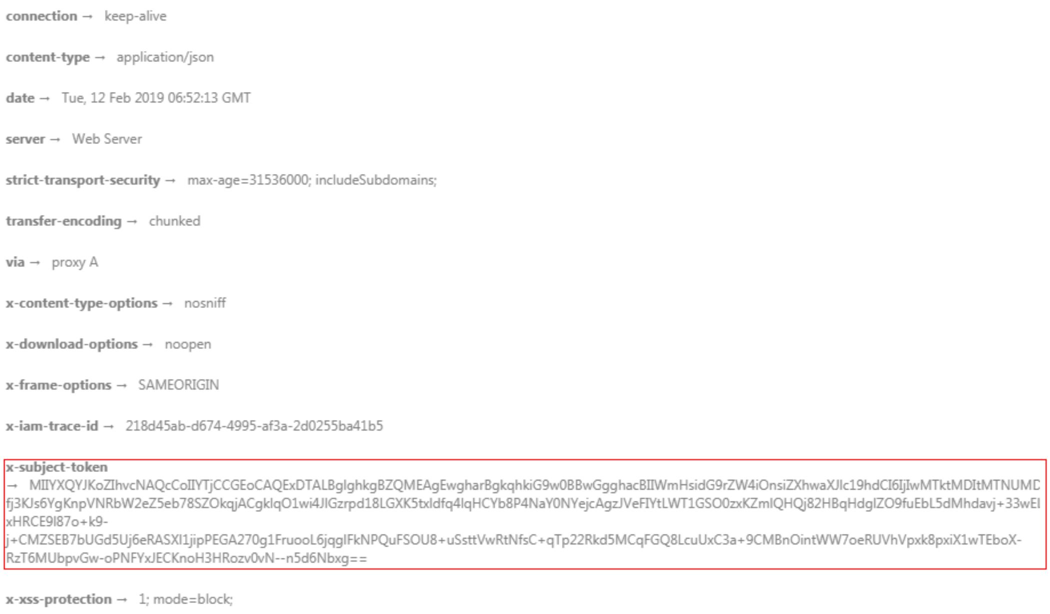
For example, if status code **201** is returned for calling the API used to **obtain a user token**, the request is successful.

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.

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
→ MIIYXQYJKoZIhvcNAQcCoIIYTjCCGEoCAQExDTALBglghkgBZQMEAgEwgharBgkqhkiG9w0BBwGgghacBIIWmHsidG9rZW4iOnsiZXhwaXJlc19hdCI6IjIwMTktMDItMTNUMD
fj3KJs6YgKnpVNRbW2eZ5eb78SZOkqjACgklqO1wi4JIGzrpd18LGXK5txldfq4lqHCYb8P4NaY0NYejcAgzJVeFIYtLWT1GSO0zxKZmIQHQj82HBqHdglZO9fuEbL5dMhdavj+33wEl
xHRCE9I87o+k9-
j+CMZSEB7bUGd5Uj6eRASXl1jipPEGA270g1FruooL6jqglFkNPQuFSOU8+uSsttVwRtNfsC+qTp22Rkd5MCqFGQ8LcuUxC3a+9CMBnOintWW7oeRUVhVpxk8pxiX1wTEboX-
RzT6MUbpvGw-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 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.

Domain-level tokens are required for invoking TMS APIs. For details, see **Obtaining the Domain-Level Token**.

Response

- Parameter description

Table 4-1 Parameters in the response

Name	Type	Description
versions	Array	Specifies all API versions. 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. 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. Possible statuses are as follows: ● **CURRENT**: indicates that the version is the primary version. ● **SUPPORTED**: indicates that the version is an old version, but it is still supported. ● **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

```
{
    "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

Name	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. For details, see **Table 4-6**.

- **version** field data structure

Table 4-6 version field data structure description

Name	Type	Description
id	String	Specifies the version ID, for example, v1.0.
links	List<Link>	Specifies the API URL. 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. Possible values are as follows: ● **CURRENT**: indicates that the version is the primary version. ● **SUPPORTED**: indicates that the version is an old version, but it is still supported. ● **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 data structure

Table 4-7 Links field data structure description

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

- Example response

```
{
  "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 in the request

Name	Mandatory	Type	Description
action	Yes	String	Specifies the operation identifier. This parameter value is case sensitive and can be **create** or **delete**.

Name	Mandatory	Type	Description
tags	Yes	Array of objects	Specifies the tag list. For details, see **Table 4-9**.

- **tags** field description

Table 4-9 Parameter description

Name	Mandatory	Type	Description
key	Yes	String	Specifies the key. A tag key can contain up to 36 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
value	Yes	String	Specifies the value. A tag value can contain up to 43 characters and can be an empty string. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed.

- Example request

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

Response

- Parameter description

  None

- Example response

  None

Status Codes

See **Status Codes**.

Error Codes

See **Error Codes**.

4.2.2 Querying the Predefined Tag List

Function

This API is used to query the predefined tag list.

URI

GET /v1.0/predefine_tags

Request

- Parameter description

Table 4-10 Parameters in the request

Name	Mandatory	Type	Description
key	No	String	Specifies the key. 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. 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. 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). The query starts from the next piece of data indexed by this parameter. **NOTE** 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. The parameter value is case sensitive and can be **update_time**, **key**, or **value**. Its default value is **update_time**. You can choose only one of the three values and based on the value of **order_method** to sort the remaining two default fields. For example: ● If **order_field** is set to **update_time**, both **key** and **value** are sorted in the ascending order. ● If **order_field** is set to **key**, **update_time** is sorted in the descending order, and **value** is sorted in the ascending order. ● If **order_field** is set to **value**, **update_time** is sorted in the descending order, and **key** is sorted in the ascending order. ● 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. The method can be (case sensitive): ● **asc**: ascending order ● **desc**: descending order Only one of the preceding sorting methods can be selected. 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 in the response

Name	Type	Description
tags	Array of objects	Specifies the tag list. 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. It indicates the location of the last query record.

- **tags** field description

Table 4-12 Parameter description

Name	Type	Description
key	String	Specifies the key. A tag key can contain up to 36 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.

Name	Type	Description
value	String	Specifies the value. A tag value can contain up to 43 characters and can be an empty string. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed.
update_time	String	Specifies the update time, which must be the UTC time, for example, 2016-12-09T00:00:00Z.

- Example response

```
{
    "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 in the request

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

- **old_tag** field description

Table 4-14 Parameter description

Name	Mandatory	Type	Description
key	Yes	String	Specifies the key. A tag key can contain up to 36 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
value	Yes	String	Specifies the value. A tag value can contain up to 43 characters and can be an empty string. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed.

- **new_tag** field description

Table 4-15 Parameter description

Name	Mandatory	Type	Description
key	Yes	String	Specifies the key. A tag key can contain up to 36 characters. Only letters, digits, hyphens (-), and underscores (_) are allowed.
value	Yes	String	Specifies the value. A tag value can contain up to 43 characters and can be an empty string. Only letters, digits, periods (.), hyphens (-), and underscores (_) are allowed.

- Example request

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

Response

- Parameter description

  None

- Example response

  None

Status Codes

See **Status Codes**.

Error Codes

See **Error Codes**.

5 Permissions Policies and Supported Actions

5.1 Permissions Policies and Supported Actions

This section describes fine-grained permissions management for your TMS. If your account does not need individual IAM users, then you may skip over 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 by 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.
- Related actions: Actions on which a specific action depends to take effect. When assigning permissions for the action to a user, you also need to assign permissions for the related actions.
- IAM or enterprise projects: 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. "√" indicates that the action supports the project and "×" indicates that the action does not support the project.

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	√	x
Creating predefined tags	POST /v1.0/ predefine_tags/action	tms:predefineTags :create	√	x
Deleting predefined tags	POST /v1.0/ predefine_tags/action	tms:predefineTags :delete	√	x
Modifying predefined tags	PUT /v1.0/ predefine_tags/action	tms:predefineTags :update	√	x
Querying resource tags	GET /v1.0/tags	tms:resourceTags:list	√	x
Creating tags	POST /v1.0/ {resource_type}/ {resource_id}/tags/ action	tms:resourceTags:create	√	x
Deleting resource tags	POST /v1.0/ {resource_type}/ {resource_id}/tags/ action	tms:resourceTags: delete	√	x

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
500	TMS. 0001	System error.	System error.	Contact technical support.
400	TMS. 0002	Bad request.	Invalid request from the client.	Enter valid parameters.

Status Code	Error Code	Error Message	Description	Solution
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.
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.
400	TMS. 0014	**Values** is empty.	**Values** is invalid.	Enter a valid **Values** value.

Status Code	Error Code	Error Message	Description	Solution
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**.
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": "65382450e8f64ac0870cd180d14e684b",
            "is_domain": false,
            "parent_id": "65382450e8f64ac0870cd180d14e684b",
            "name": "project_name",
            "description": "",
            "links": {
                "next": null,
                "previous": null,
                "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
            },
            "id": "a4a5d4098fb4474fa22cd05f897d6b99",
            "enabled": true
        }
    ],
    "links": {
        "next": null,
        "previous": null,
        "self": "https://www.example.com/v3/projects"
    }
}
```

Obtain a Project ID from the Console

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

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

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

A.4 Obtaining the Domain-Level Token

```
POST https://iam.my-kualalumpur-1.cloudalphai4.tmone.com.my/v3/auth/tokens
```

```
Content-Type: application/json

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

B Change History

Release On	Description
2022-11-30	This issue is the second official release, which incorporates the following changes: ● Added **Permissions Policies and Supported Actions**. ● Added **TMS API Actions**.
2020-08-31	This issue is the first official release.