Key Management Service

API Reference（Paris）

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1 Before You Start

1.1 Overview

Key Management Service (KMS) is a secure, reliable, and easy-to-use service for managing your keys on the cloud. It helps you easily create, manage, and protect keys.

You can use the APIs described in this document to perform operations on keys, such as creating, querying, and deleting keys. For details about all supported operations, see **API Overview**.

Before calling KMS APIs, ensure that you have understood the concepts related to KMS. For more information, see section "Overview" in the *Key Management Service User Guide*.

1.2 API Calling

1.3 Endpoints

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

1.4 Constraints

- The number of keys that you can create is determined by your quota. If you want to query the quota or increase the quota, choose **Resources** > **My Quotas** on the top navigation menu of the console homepage. The page of **Service Quota** is displayed.
- For more constraints, see the descriptions of specific APIs.

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 and should not be used to perform routine management. For security purposes, create IAM users under the account and grant them permissions for routine management.

- User

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

  The account name, username, and password will be required for API authentication.

- Region

  Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified as universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides services of the same type only or for specific tenants.

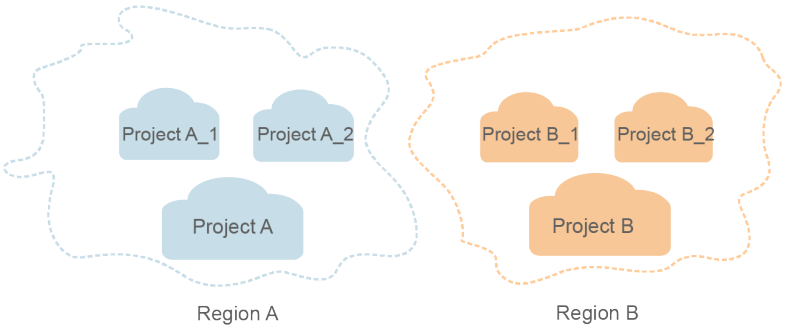
- Availability Zone (AZ)

  An AZ comprises one or multiple physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Compute, 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 support cross-AZ high-availability systems.

- Project

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

Figure 1-1 Project isolation model



2 Calling APIs

2.1 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.

- **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 "Parameter name=Parameter value". 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:

- **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:

- **Content-Type**: specifies the request body type or format. This field is mandatory and its default value is **application/json**. Other values of this field will be provided for specific APIs if any.
- **X-Auth-Token**: specifies a user token only for token-based API authentication. The user token is a response to the API used to obtain a user token. This API is the only one that does not require authentication.

  NOTE

  In addition to supporting token-based authentication, APIs also support authentication using access key ID/secret access key (AK/SK). During AK/SK-based authentication, an SDK is used to sign the request, and the **Authorization** (signature information) and **X-Sdk-Date** (time when the request is sent) header fields are automatically added to the request.

  For more information, see **AK/SK-based 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
```

Request Body

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. Set ***username*** to the name of a user, ***domainname*** to the name of the account that the user belongs to, ********* to the user's login password, and ***xxxxxxxxxxxxxxxxxx*** to the project name, such as **eu-west-0**. You can learn more information about projects from **Regions and Endpoints**. Check the value of the **Region** column.

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": "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.

2.2 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. This method is recommended because it provides higher security 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.

The token can be obtained by calling the required API. For more information, see Obtaining a User Token. A project-level token is required for calling this API, that is, **auth.scope** must be set to **project** in the request body. Example:

```
{
   "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://{{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 use the signing SDK to sign requests. For details about how to sign requests and use the signing SDK, see **API Signature Guide**.

NOTICE

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

2.3 Returned Values

Status Code

After sending a request, you will receive a response containing the 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 response. For more information, see **Status Code**.

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

Response Header

A response header corresponds to a request header, for example, **Content-Type**.

Figure 2-1 shows the response header for the API of obtaining a user token, in which **x-subject-token** is the desired user token. Then, you can use the token to authenticate the calling of other APIs.

Figure 2-1 Header of the response to the request for obtaining a user token

(Optional) Response Body

A response body is generally returned in a structured format, corresponding to the **Content-Type** in the response header, and is used to transfer content other than the response header.

The following shows part of the response body for the API to obtain a user token. For the sake of space, only part of the content is displayed here.

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

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

```
{
    "error": {
        "message": "The request you have made requires authentication.",
        "title": "Unauthorized"
    }
}
```

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

3 API Overview

You can use all the functions of by calling its APIs.

Key Management APIs

API	Description
Creating a CMK	Creates a CMK.
Enabling a CMK	Enables a CMK. Only an enabled CMK can be used.
Disabling a CMK	Disables a CMK. A disabled CMK cannot be used.
Scheduling the Deletion of a CMK	Schedules the deletion of a specific key. The deletion can be scheduled 7 to 1096 days in advance. After a key is deleted, the data encrypted using the key cannot be decrypted.
Canceling the Scheduled Deletion of a CMK	Cancels a scheduled deletion of a key. Once the deletion is cancelled, the key can be used.
Querying the List of CMKs	Queries the list of all CMKs.
Querying the Information About a CMK	Queries details of a specified key.
Creating a Random Number	Generates a 512-bit random number.
Creating a DEK	Creates a DEK. A returned result includes the plaintext and the ciphertext of a DEK.
Creating a Plaintext-Free DEK	Creates a plaintext-free DEK, that is, the returned result of this API includes only the ciphertext of the DEK.
Encrypting a DEK	Uses a specified CMK to encrypt a DEK.
Decrypting a DEK	Uses a specified CMK to decrypt a DEK.

API	Description
Querying the Number of Instances	Obtains the number of created CMKs, excluding the default master keys.
Querying the Quota of a User	Queries the total quota of CMKs available and the usage information, excluding the default master keys.
Changing the Alias of a CMK	Changes the alias of a CMK.
Changing the Description of a CMK	Changes the description of a CMK.
Obtaining CMK Import Parameters	Obtains necessary parameters to import a key, including an import token and an encryption public key.
Importing CMK Material	Imports the key material of a specified key.
Deleting CMK Material	Deletes the key material of a specified key.
Enabling Rotation for a CMK	Enables the rotation of a CMK. Default master keys and imported keys do not support the rotation function.
Changing the Rotation Interval for a CMK	Changes the rotation interval for a CMK.
Disabling Rotation for a CMK	Disables the rotation of a CMK.
Querying the Rotation Status of a CMK	Queries the rotation status of a CMK.

4 APIs

4.1 Creating a CMK

Function

This API is used to create customer master keys (CMKs) used to encrypt data encryption keys (DEKs).

NOTE

Default Master Keys are created by services integrated with KMS. Names of Default Master Keys end with **/default**. Therefore, in naming your CMKs, do not choose those ending with **/default**.

URI

- URI format

  POST /v1.0/{project_id}/kms/create-key
- Parameter description

Table 4-1 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-2 Request parameters

Parameter	Mandatory	Type	Description
key_alias	Yes	String	Alias of a non-default master key (The alias's length ranges from 1 to 255 characters and matches the regular expression **^[a-zA-Z0-9:/_-]{1,255}$**. In addition, it must be different from the alias of a Default Master Key created by the system.)
key_description	No	String	CMK description (The value ranges from 0 to 255 characters.)
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-3 Response parameters

Parameter	Mandatory	Type	Description
key_info	Yes	Array of objects	Information about keys. For details, see **Table 4-4**.

Table 4-4 key_info field description

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
domain_id	Yes	String	User domain ID

Examples

The following example describes how to create a CMK with an alias of **test**.

- Example request

```
{
    "key_alias": "test"
}
```

- Example response

```
{
    "key_info": {
```



```
        "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
        "domain_id": "b168fe00ff56492495a7d22974df2d0b"
    }
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-5 lists the normal status code returned by the response.

Table 4-5 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.2 Enabling a CMK

Function

This API allows you to enable a CMK. Only an enabled CMK can be used.

NOTE

Only a disabled CMK can be enabled.

URI

- URI format

  POST /v1.0/{project_id}/kms/enable-key
- Parameter description

Table 4-6 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-7 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-8 Response parameters

Parameter	Mandatory	Type	Description
key_info	Yes	Array of objects	Information about keys. For details, see **Table 4-9**.

Table 4-9 key_info field description

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
key_state	Yes	String	CMK status: • **2** indicates that the CMK is enabled. • **3** indicates that the CMK is disabled. • **4** indicates that the CMK is scheduled for deletion.

Examples

The following example describes how to enable a CMK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
   "key_info": {
      "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
      "key_state": "2"
   }
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-10 lists the normal status code returned by the response.

Table 4-10 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.3 Disabling a CMK

Function

This API allows you to disable a CMK. A disabled CMK cannot be used.

NOTE

Only an enabled CMK can be disabled.

URI

- URI format

  POST /v1.0/{project_id}/kms/disable-key

- Parameter description

Table 4-11 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-12 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-13 Response parameters

Parameter	Mandatory	Type	Description
key_info	Yes	Array of objects	Information about keys. For details, see **Table 4-14**.

Table 4-14 key_info field description

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID

Parameter	Mandatory	Type	Description
key_state	Yes	String	CMK status: • **2** indicates that the CMK is enabled. • **3** indicates that the CMK is disabled. • **4** indicates that the CMK is scheduled for deletion.

Examples

The following example describes how to disable a CMK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
    "key_info": {
        "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
        "key_state": "3"
    }
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-15 lists the normal status code returned by the response.

Table 4-15 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.4 Scheduling the Deletion of a CMK

Function

This API enables you to schedule the deletion of a CMK. A CMK can be scheduled to be deleted after 7 to 1096 days.

URI

- URI format

  POST /v1.0/{project_id}/kms/schedule-key-deletion

- Parameter description

  Table 4-16 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-17 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
pending_days	Yes	String	Number of days after which a CMK is scheduled to be deleted (The value ranges from **7** to **1096**.)
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-18 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
key_state	Yes	String	CMK status: • **2** indicates that the CMK is enabled. • **3** indicates that the CMK is disabled. • **4** indicates that the CMK is scheduled for deletion.

Examples

The following example describes how to schedule deletion of a CMK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
   "pending_days": "7"
}
```

- Example response

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
   "key_state": "4"
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-19 lists the normal status code returned by the response.

Table 4-19 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.5 Canceling the Scheduled Deletion of a CMK

Function

This API enables you to cancel the scheduled deletion of a CMK.

NOTE

You can cancel the scheduled deletion for a CMK only when the CMK's status is **Scheduled deletion**.

URI

- URI format

  POST /v1.0/{project_id}/kms/cancel-key-deletion
- Parameter description

  Table 4-20 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-21 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-22 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
key_state	Yes	String	CMK status: • **2** indicates that the CMK is enabled. • **3** indicates that the CMK is disabled. • **4** indicates that the CMK is scheduled for deletion.

Examples

The following example describes how to cancel the scheduled deletion of a CMK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "key_state": "3"
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-23 lists the normal status code returned by the response.

Table 4-23 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.6 Querying the List of CMKs

Function

This API allows you to query the list of all CMKs.

URI

- URI format
  POST /v1.0/{project_id}/kms/list-keys
- Parameter description

  Table 4-24 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-25 Request parameters

Parameter	Mandatory	Type	Description
limit	No	String	This parameter specifies the number of entries returned. If the specified number is smaller than the actual number of existing entries, **true** will be returned for the response parameter **truncated**, indicating that the query results will be displayed in separate pages. The value is within the range of the maximum number of CMKs, for example, **100**.
marker	No	String	This parameter marks the starting location in a pagination query. If the **truncated** value is **true**, you can send consecutive requests to obtain more record entries. The **marker** value must be set to the **next_marker** value in the response, for example, **10**.

Parameter	Mandatory	Type	Description
key_state	No	String	State of a CMK that matches the regular expression **^[1-5]{1}$**. The following values are enumerated: • **1** indicates that the CMK is waiting to be activated. • **2** indicates that the CMK is enabled. • **3** indicates that the CMK is disabled. • **4** indicates that the CMK is scheduled for deletion.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-26 Response parameters

Parameter	Mandatory	Type	Description
keys	Yes	Array of strings	List of CMK IDs
key_details	Yes	Array of objects	Key details list. For details, see **Table 4-31**.
next_marker	Yes	String	This parameter indicates the **marker** value required for obtaining the next page of query results. If the **truncated** value is **false**, the **next_marker** parameter is left blank.
total	Yes	Integer	Total number of keys.
truncated	Yes	String	This parameter indicates whether there are more results displayed in another page. • If the value is **true**, there are more results. • If the value is **false**, the current page is the last page.

Examples

The following shows an example when **limit** is set to **2** and **marker** is set to **1**.

- Example request

```
{
   "limit": "2",
   "marker": "1"
}
```

- Example response

```
{
   "keys": [
      "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
      "2e258389-bb1e-4568-a1d5-e1f50adf70ea"
   ],
   "key_details": [
      {
      "key_id":"0d0466b0-e727-4d9c-b35d-f84bb474a37f",
      "domain_id":"00074811d5c27c4f8d48bb91e4a1dcfd",
      "key_alias":"caseuirpr",
      "realm":"aaaa",
      "key_description":"123",
      "creation_date":"1502799822000",
      "scheduled_deletion_date":"",
      "key_state":"2",
      "default_key_flag":"0",
      "key_type":"1",
      "expiration_time":"1501578672000",
      "origin":"kms"
},
      {
      "key_id":"2e258389-bb1e-4568-a1d5-e1f50adf70ea",
      "domain_id":"00074811d5c27c4f8d48bb91e4a1dcfd",
      "key_alias":"casehvniz",
      "realm":"aaaa",
      "key_description":"234",
      "creation_date":"1502799820000",
      "scheduled_deletion_date":"",
      "key_state":"2",
      "default_key_flag":"0",
      "key_type":"1",
      "expiration_time":"1501578673000",
      "origin":"kms"
}
    ],
   "next_marker": "",
   "truncated": "false",
   "total":2
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-27 lists the normal status code returned by the response.

Table 4-27 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.7 Querying the Information About a CMK

Function

This API allows you to query the details about a CMK.

URI

- URI format
  POST /v1.0/{project_id}/kms/describe-key
- Parameter description

  Table 4-28 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-29 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-30 Response parameters

Parameter	Mandatory	Type	Description
key_info	Yes	Array of objects	Information about keys. For details, see **Table 4-31**.

Table 4-31 key_info field description

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
domain_id	Yes	String	User domain ID
key_alias	Yes	String	Alias of a CMK
realm	Yes	String	Region where a CMK resides
key_description	Yes	String	Description of a CMK
creation_date	Yes	String	Time when a key is created. The value is a timestamp expressed in the number of seconds since 00:00:00 UTC on January 1, 1970.
scheduled_deletion_date	Yes	String	Time when a key will be deleted as scheduled. The value is a timestamp expressed in the number of seconds since 00:00:00 UTC on January 1, 1970.
key_state	Yes	String	State of a CMK: • **1** indicates that the CMK is waiting to be activated. • **2** indicates that the CMK is enabled. • **3** indicates that the CMK is disabled. • **4** indicates that the CMK is scheduled for deletion.
default_key_flag	Yes	String	Identification of a Master Key. The value **1** indicates a Default Master Key, and the value **0** indicates a CMK.
key_type	Yes	String	Type of a CMK

Parameter	Mandatory	Type	Description
origin	Yes	String	Origin of a CMK. The default value is **kms**. The following values are enumerated: **kms** indicates that the CMK material is generated by KMS.

Examples

The following example describes how to query the information of a CMK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
   "key_info": {
      "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
      "domain_id": "b168fe00ff56492495a7d22974df2d0b",
      "key_alias": "kms_test",
      "realm": "aaa",
      "key_description": "",
      "creation_date": "1472442386000",
      "scheduled_deletion_date": "",
      "key_state": "2",
      "default_key_flag": "0",
      "key_type": "1",
      "expiration_time":"1501578672000",
      "origin":"kms"
      ,
   }
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-32 lists the normal status code returned by the response.

Table 4-32 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.8 Creating a Random Number

Function

This API generates a 512-bit random number.

URI

- URI format
  POST /v1.0/{project_id}/kms/gen-random
- Parameter description

  Table 4-33 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-34 Request parameters

Parameter	Mandatory	Type	Description
random_data_length	Yes	String	Number of bits of a random number. The value is **512**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-35 Response parameters

Parameter	Mandatory	Type	Description
random_data	Yes	String	Random numbers are expressed in hexadecimal format. Two characters indicate one byte. Length of a random number must be consistent with the **random_data_length** value entered by a user.

Examples

The following example describes how to create a random number with the length of **512** bits.

- Example request

```
{
   "random_data_length": "512"
}
```

- Example response

```
{
   "random_data":
"5791C223E87124AB9FC29B5A8AC60BE4B98D168F47A58BB2A88833E40D6ED32D57E2AAB5410492EB25096873F9CE3D45E0D22F820A5AB4EEADC33A1A6AE780F1"
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-36 lists the normal status code returned by the response.

Table 4-36 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.9 Creating a DEK

Function

This API allows you to create a DEK. A returned result includes the plaintext and the ciphertext of a DEK.

URI

- URI format

  POST /v1.0/{project_id}/kms/create-datakey

- Parameter description

  Table 4-37 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-38 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-f]{8}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
encryption_context	No	Object	Key-value pairs with a maximum length of 8192 characters. This parameter is used to record resource context information, excluding sensitive information, to ensure data integrity. If this parameter is specified during encryption, it is also required for decryption. Example: {"Key1":"Value1","Key2":"Value2"}
datakey_length	Yes	String	Number of bits of a key. The value is **512**.

Parameter	Mandatory	Type	Description
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-39 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
plain_text	Yes	String	The plaintext of a DEK is expressed in hexadecimal format, and two characters indicate one byte.
cipher_text	Yes	String	The ciphertext of a DEK is expressed in hexadecimal format, and two characters indicate one byte.

Examples

The following example describes how to create a DEK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f** and length is **512** bits.

- Example request

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "datakey_length": "512"
}
```

- Example response

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "plain_text":
"8151014275E426C72EE7D44267EF11590DCE0089E19863BA8CC832187B156A72A5A17F17B5EF0D525872C59ECEB72948AF85E18427F8BE0D46545C979306C08D",
    "cipher_text":
"020098009EEAFCE122CAA5927D2E020086F9548BA1675FDB022E4ECC01B96F2189CF4B85E78357E73E1CEB518DAF7A4960E7C7DE8885ED3FB2F1471ABF400119CC1B20BD3C4A9B80AF590EFD0AEDABFDBB0E2B689DA7B6C9E7D3C5645FCD9274802586BE63779471F9156F2CDF07CD8412FFBE9230643034363662302D653732372D346439632D623335642D663834626234373461333766000000000045B05321483BD9F9561865EE7DFE9BE267A42EB104E98C16589CE46940B18E52"
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
```



```
  }
}
```

Status Codes

Table 4-40 lists the normal status code returned by the response.

Table 4-40 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.10 Creating a Plaintext-Free DEK

Function

This API allows you to create a plaintext-free DEK, that is, the returned result of this API includes only the ciphertext of the DEK.

URI

- URI format

  POST /v1.0/{project_id}/kms/create-datakey-without-plaintext
- Parameter description

  Table 4-41 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-42 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f

Parameter	Mandatory	Type	Description
encryption_context	No	Object	Key-value pairs with a maximum length of 8192 characters. This parameter is used to record resource context information, excluding sensitive information, to ensure data integrity. If this parameter is specified during encryption, it is also required for decryption. Example: {"Key1":"Value1","Key2":"Value2"}
datakey_length	Yes	String	Number of bits of a key. The value is **512**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-43 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
cipher_text	Yes	String	The ciphertext of a DEK is expressed in hexadecimal format, and two characters indicate one byte.

Examples

The following example describes how to create a plaintext free DEK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "datakey_length": "512"
}
```

- Example response

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "cipher_text":
```


"020098005CDC28E29EC3230AA42E8985FBABA095037D6474C64519C9B564AB28B15739C88E7E887500D1094973C2DC16353DB7ED3946C73339517AB1E983D521F9E9D700DC5D9C42F557EBF3F608E3CBBEE0BC68136EE7D2A49117E00332BAC4AE4ED805EB6068FA900C5A8019BFE2C2651BE3E130643034363662302D653732372D346439632D623335642D663834626234373461333766000000000F160727EBDB83400C21D80D713B49D3A2C37F24AE160E7BB3DAC025ADC0C45E3"
}

or

{
"error": {
"error_code": "KMS.XXXX",
"error_msg": "XXX"
}
}

Status Codes

Table 4-44 lists the normal status code returned by the response.

Table 4-44 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.11 Encrypting a DEK

Function

This API enables you to encrypt a DEK using a specified CMK.

URI

- URI format
  POST /v1.0/{project_id}/kms/encrypt-datakey
- Parameter description

Table 4-45 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-46 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
encryption_context	No	Object	Key-value pairs with a maximum length of 8192 characters. This parameter is used to record resource context information, excluding sensitive information, to ensure data integrity. If this parameter is specified during encryption, it is also required for decryption. Example: {"Key1":"Value1","Key2":"Value2"}
plain_text	Yes	String	Hexadecimal character string concatenated from plaintext of a DEK and the plaintext digest (32-byte character string generated using SHA256) For details, see **Examples**.
datakey_plain_length	Yes	String	Number of bytes of a DEK in plaintext. The value is **64**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-47 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID

Parameter	Mandatory	Type	Description
cipher_text	Yes	String	The ciphertext of a DEK is expressed in hexadecimal format, and two characters indicate one byte.
datakey_length	Yes	String	Number of bytes in the length of a DEK

Examples

In the following example, the 512-bit plaintext DEK (**7549d9aea901767bf3c0b3e14b10722eaf6f59053bbd82045d04e075e809a0fe6ccab48f8e5efe74e4b18ff0512525e527b10331100f357bf42125d8d5ced94f**) generated from the customer master key whose key ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f** can be obtained through the API in **Creating a DEK**.

The digest of the plaintext DEK is **fbc8ac72b0785ca7fe33eb6776ce3990b11e32b299d9c0a9ee0305fb9540f797**. The method for calculating the digest is as follows:

```
//Digest calculation
public static byte[] sha256(byte[] cmkData) {
    byte[] digest = new byte[0];
   try {
       MessageDigest md = MessageDigest.getInstance("SHA-256");
        md.update(cmkData);
       digest = md.digest();
    } catch (Exception e) {
       System.out.println("calculate digest failure, exception is " + e.toString());
   }
    return digest;
}
//Convert the obtained digest into a hexadecimal character string.
public static String bytesToHexString(byte[] digest) {
       ...
}
```

The value of **plain_text** (a hexadecimal character string concatenated from plaintext of the DEK and the plaintext digest) is **7549d9aea901767bf3c0b3e14b10722eaf6f59053bbd82045d04e075e809a0fe6ccab48f8e5efe74e4b18ff0512525e527b10331100f357bf42125d8d5ced94ffbc8ac72b0785ca7fe33eb6776ce3990b11e32b299d9c0a9ee0305fb9540f797**.

- Example request

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "plain_text":
"7549d9aea901767bf3c0b3e14b10722eaf6f59053bbd82045d04e075e809a0fe6ccab48f8e5efe74e4b18ff
0512525e527b10331100f357bf42125d8d5ced94f
fbc8ac72b0785ca7fe33eb6776ce3990b11e32b299d9c0a9ee0305fb9540f797",
    "datakey_plain_length": "64"
}
```

- Example response

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "cipher_text":
"020098005273E14E6E8E95F5463BECDC27E80AF820B9FC086CB47861899149F67CF07DAFF2810B7D2
7BDF19AB7632488E0926A48DB2FC85BEA905119411B46244C5E6B8036C60A0B0B4842FFE6994518E89
```



```
C19B1C1D688D9043BCD6053EA7BA0652642CE59F2543C80669139F4F71ABB9BD9A243306430343636
62302D653732372D346439632D623335642D663834626234373461333766000000000D34457984F9730
D57F228C210FD22CA6017913964B21D4ECE45D81092BB9112E",
   "datakey_length": "64"
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-48 lists the normal status code returned by the response.

Table 4-48 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.12 Decrypting a DEK

Function

This API enables you to decrypt a DEK using a specified CMK.

NOTE

Data encryption results are used for decryption.

URI

- URI format

  POST /v1.0/{project_id}/kms/decrypt-datakey
- Parameter description

Table 4-49 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-50 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
encryption_context	No	Object	Key-value pairs with a maximum length of 8192 characters. This parameter is used to record resource context information, excluding sensitive information, to ensure data integrity. If this parameter is specified during encryption, it is also required for decryption. Example: {"Key1":"Value1","Key2":"Value2"}
cipher_text	Yes	String	This parameter indicates the hexadecimal character string of the DEK ciphertext and the metadata. The value is the **cipher_text** value in the encryption result of a DEK.
datakey_cipher_length	Yes	String	Number of bytes of a key. The value is **64**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-51 Response parameters

Parameter	Mandatory	Type	Description
data_key	Yes	String	Hexadecimal character string of the plaintext of a DEK

Parameter	Mandatory	Type	Description
datakey_length	Yes	String	Number of bytes in the length of the plaintext of a DEK
datakey_dgst	Yes	String	Hexadecimal character string corresponding to the SHA-256 hash value of the plaintext of a DEK

Examples

The following is an example about how to use a CMK (ID: **0d0466b0-e727-4d9c-b35d-f84bb474a37f**) to decrypt a DEK (ciphertext: **020098005273E14E6E8E95F5463BECDC27E80AF820B9FC086CB47861899149F67CF07DAFF2810B7D27BDF19AB7632488E0926A48DB2FC85BEA905119411B46244C5E6B8036C60A0B0B4842FFE6994518E89C19B1C1D688D9043BCD6053EA7BA0652642CE59F2543C80669139F4F71ABB9BD9A24330643034363662302D653732372D346439632D623335642D66383462623437346133376600000000D34457984F9730D57F228C210FD22CA6017913964B21D4ECE45D81092BB9112E**; length: **64** bits).

- Example request

```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "datakey_cipher_length": "64",
    "cipher_text": 
"020098005273E14E6E8E95F5463BECDC27E80AF820B9FC086CB47861899149F67CF07DAFF2810B7D2
7BDF19AB7632488E0926A48DB2FC85BEA905119411B46244C5E6B8036C60A0B0B4842FFE6994518E89
C19B1C1D688D9043BCD6053EA7BA0652642CE59F2543C80669139F4F71ABB9BD9A243306430343636
62302D653732372D346439632D623335642D66383462623437346133376600000000D34457984F9730
D57F228C210FD22CA6017913964B21D4ECE45D81092BB9112E"
}
```

- Example response

```
{
    "data_key": 
"00000000000000000000000000000000000000000000000000000000000000000000000000000000000000
000000000000000000000000000000000000000000",
    "datakey_length": "64",
    "datakey_dgst": "F5A5FD42D16A20302798EF6ED309979B43003D2320D9F0E8EA9831A92759FB4B"
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-52 lists the normal status code returned by the response.

Table 4-52 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.13 Querying the Number of Instances

Function

This API is used to query the number of instances, that is, the number of CMKs created.

NOTE

Default Master Keys are automatically created by services and are not included in this query.

URI

- URI format

  GET /v1.0/{project_id}/kms/user-instances
- Parameter description

Table 4-53 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

None

Responses

Table 4-54 Response parameters

Parameter	Mandatory	Type	Description
instance_num	Yes	Integer	Number of non-default CMKs

Examples

- Example request

  None

- Example response

```
{
    "instance_num": 15
}
```

  or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-55 lists the normal status code returned by the response.

Table 4-55 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.14 Querying the Quota of a User

Function

This API is used to query the quota of a user, that is, the allocated total number of CMKs that can be created by a user and the number of CMKs that has been created by the user.

NOTE

The quota does not include Default Master Keys.

URI

- URI format

  GET /v1.0/{project_id}/kms/user-quotas

- Parameter description

Table 4-56 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

None

Responses

Table 4-57 Response parameters

Parameter	Mandatory	Type	Description
quotas	Yes	Object	Quota list. For details, see **Table 4-58**.

Table 4-58 quotas field description

Parameter	Mandatory	Type	Description
resources	Yes	Array of objects	Resource quota list. For details, see **Table 4-59**.

Table 4-59 resources field description

Parameter	Mandatory	Type	Description
type	Yes	String	Quota type. Enumerated values: • **CMK** indicates a Customer Master Key. • **grant_per_CMK** indicates the number of grants that can be created on a CMK.
used	Yes	Integer	Used quota
quota	Yes	Integer	Total quota

Examples

- Example request

  None

- Example response

```
{
   "quotas": {
      "resources": [
         {
            "type": "CMK",
            "used": 15,
            "quota": 20
         },
         {
            "type": "grant_per_CMK",
            "used": 15,
            "quota": 100
         }

      ]
   }
}
```

  or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-60 lists the normal status code returned by the response.

Table 4-60 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.15 Changing the Alias of a CMK

Function

This API enables you to change the alias of a CMK.

NOTE

- A Default Master Key (the alias suffix of which is **/default**) does not allow alias changes.
- A CMK in **Scheduled deletion** status does not allow alias changes.

URI

- URI format
  POST /v1.0/{project_id}/kms/update-key-alias
- Parameter description

  Table 4-61 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-62 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
key_alias	Yes	String	Alias of a CMK whose length is 1 to 255 characters and which matches the regular expression **^[a-zA-Z0-9:/_-]{1,255}$**. Suffix of the alias cannot be **/default**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-63 Response parameters

Parameter	Mandatory	Type	Description
key_info	Yes	Array of objects	Information about keys. For details, see **Table 4-64**.

Table 4-64 key_info field description

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
key_alias	Yes	String	Alias of a CMK

Examples

The following is an example about how to modify a CMK whose alias ID is **bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e** and alias is **test**.

- Example request

```
{
   "key_alias": "test",
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e"
}
```

- Example response

```
{
   "key_info": {
      "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
      "key_alias": "test"
    }
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-65 lists the normal status code returned by the response.

Table 4-65 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.16 Changing the Description of a CMK

Function

This API enables you to change the description of a CMK.

NOTE

- A Default Master Key (the alias suffix of which is **/default**) does not allow alias changes.
- A CMK in **Scheduled deletion** status does not allow description changes.

URI

- URI format

  POST /v1.0/{project_id}/kms/update-key-description
- Parameter description

  Table 4-66 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-67 Request parameters

Parameter	Type	Mandatory	Description
key_id	String	Yes	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
key_description	String	Yes	CMK description (The value ranges from 0 to 255 characters.)
sequence	String	No	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-68 Response parameters

Parameter	Mandatory	Type	Description
key_info	Yes	Array of objects	Information about keys. For details, see **Table 4-69**.

Table 4-69 key_info field description

Parameter	Type	Mandatory	Description
key_id	String	Yes	CMK ID
key_description	String	Yes	Description of a CMK

Examples

The following is an example about how to modify a CMK whose alias ID is **bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e** and description is **test**.

- Example request

```
{
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
   "key_description": "test"
}
```

- Example response

```
{
   "key_info": {
      "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
      "key_description": "test"
    }
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-70 lists the normal status code returned by the response.

Table 4-70 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.17 Creating a Grant

Function

This API enables you to create a grant to grant permissions on a CMK to a user so that the user can perform operations on the CMK.

NOTE

A Default Master Key (the alias suffix of which is **/default**) does not allow permission granting.

URI

- URI format

  POST /v1.0/{project_id}/kms/create-grant
- Parameter description

  Table 4-71 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-72 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f

Parameter	Mandatory	Type	Description
grantee_principal	Yes	String	Indicates the ID of the authorized user. The value is between 1 to 64 bytes and meets the regular expression **"^[a-zA-Z0-9]{1,64}$"**. Example: 0d0466b00d0466b00d0466b00d0466b0
operations	Yes	Array of strings	Permissions that can be granted Values: **create-datakey**, **create-datakey-without-plaintext**, **encrypt-datakey**, **decrypt-datakey**, **describe-key**, **create-grant**, **retire-grant** **create-grant** cannot be the only value.
name	No	String	Name of a grant which can be 1 to 255 characters in length and matches the regular expression **^[a-zA-Z0-9:/_-]{1,255}$**
retiring_principal	No	String	Indicates the ID of the retiring user. The value is between 1 to 64 bytes and meets the regular expression **"^[a-zA-Z0-9]{1,64}$"**. Example: 0d0466b00d0466b00d0466b00d0466b0
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-73 Response parameters

Parameter	Mandatory	Type	Description
grant_id	Yes	String	64-byte ID of a grant

Examples

The following example shows how to grant the **describe-key**, **create-datakey**, and **encrypt-datakey** permissions of CMK (ID: **bb6a3d22-dc93-47ac-**

b5bd-88df7ad35f1e) to the user whose ID is **13gg44z4g2sglzk0egw0u726zoyzvrs8**. The authorization name is **my_grant**, and the user (ID: **13gg44z4g2sglzk0egw0u726zoyzvrs8**) can retire a grant.

- Example request

```
{
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
   "operations": [
      "describe-key",
      "create-datakey",
      "encrypt-datakey"
    ],
    "grantee_principal":"13gg44z4g2sglzk0egw0u726zoyzvrs8",
    "name":"my_grant",
    "retiring_principal":"13gg44z4g2sglzk0egw0u726zoyzvrs8"
}
```

- Example response

```
{
   "grant_id": "7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d"
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-74 lists the normal status code returned by the response.

Table 4-74 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.18 Revoking a Grant

Function

This API allows you to revoke a grant.

NOTE

Only the user who created the CMK can revoke a grant.

URI

- URI format

  POST /v1.0/{project_id}/kms/revoke-grant

- Parameter description

  Table 4-75 Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-76 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
grant_id	Yes	String	64-byte ID of a grant that meets the regular expression **^[A-Fa-f0-9]{64}$** Example: 7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to revoke a grant whose grant ID is **7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d** and the CMK ID is **bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e**.

- Example request

```
{
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
   "grant_id":"7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d"
}
```


- Example response

```
{
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-77 lists the normal status code returned by the response.

Table 4-77 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.19 Retiring a Grant

Function

This API enables users to retire a grant.

For example, user A grants operation permissions on CMK **A/key** to user B and authorizes user C to retire the grant. By doing this, users A, B, and C all can cancel the permissions. After the canceling, user B does not have permissions on CMK **A/key** anymore.

NOTICE

The following are allowed to call this API:

- The user indicated by parameter **retiring_principal**
- The user indicated by parameter **grantee_principal** when **retire-grant** has been selected

URI

- URI format

  POST /v1.0/{project_id}/kms/retire-grant

- Parameter description

Table 4-78 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-79 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
grant_id	Yes	String	64-byte ID of a grant that meets the regular expression **^[A-Fa-f0-9]{64}$** Example: 7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to retire a grant whose grant ID is **7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d** and the CMK ID is **bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e**.

- Example request

```
{
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
   "grant_id":"7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d"
}
```

- Example response

```
{
}
```


or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-80 lists the normal status code returned by the response.

Table 4-80 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.20 Querying Grants on a CMK

Function

This API enables you to query grants on a CMK.

URI

- URI format
  POST /v1.0/{project_id}/kms/list-grants
- Parameter description

  Table 4-81 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-82 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
limit	No	String	This parameter specifies the number of entries returned. If the specified number is smaller than the actual number of existing entries, **true** will be returned for the response parameter **truncated**, indicating that the query results will be displayed in separate pages. The value is within the range of the maximum number of grants, for example, **100**.
marker	No	String	This parameter marks the starting location in a pagination query. If the **truncated** value is **true**, you can send consecutive requests to obtain more record entries. The **marker** value must be set to the **next_marker** value in the response, for example, **10**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-83 Response parameters

Parameter	Mandatory	Type	Description
grants	Yes	Array of objects	Grant list. For details, see **Table 4-84**.

Parameter	Mandatory	Type	Description
next_marker	Yes	String	This parameter indicates the **marker** value required for obtaining the next page of query results. If the **truncated** value is **false**, the **next_marker** parameter is left blank.
truncated	Yes	String	This parameter indicates whether there are more results displayed in another page. • If the value is **true**, there are more results. • If the value is **false**, the current page is the last page.
total	Yes	Integer	This parameter indicates the total number of grants.

Table 4-84 grants field description

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
grant_id	Yes	String	64-byte ID of a grant that meets the regular expression **^[A-Fa-f0-9]{64}$** Example: 7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d
grantee_principal	Yes	String	Indicates the ID of the authorized user. The value is between 1 to 64 bytes and meets the regular expression **"^[a-zA-Z0-9]{1,64}$"**. Example: 0d0466b00d0466b00d0466b00d0466b0

Parameter	Mandatory	Type	Description
operations	Yes	Array of strings	Permissions that can be granted. Values: **create-datakey**, **create-datakey-without-plaintext**, **encrypt-datakey**, **decrypt-datakey**, **describe-key**, **create-grant**, **retire-grant** **create-grant** cannot be the only value.
issuing_principal	Yes	String	Indicates the ID of the user who created the grant. The value is between 1 to 64 bytes and meets the regular expression **"^[a-zA-Z0-9]{1,64}$"**. Example: 0d0466b00d0466b00d0466b00d0466b0
creation_date	Yes	String	Creation time. The value is a timestamp expressed in the number of seconds since 00:00:00 UTC on January 1, 1970. Example: 1497341531000
name	No	String	Name of a grant which can be 1 to 255 characters in length and matches the regular expression **^[a-zA-Z0-9:/_-]{1,255}$**
retiring_principal	No	String	Indicates the ID of the retiring user. The value is between 1 to 64 bytes and meets the regular expression **"^[a-zA-Z0-9]{1,64}$"**. Example: 0d0466b00d0466b00d0466b00d0466b0

Examples

The following example describes how to query the grant list of a CMK whose ID is **0d0466b0-e727-4d9c-b35d-f84bb474a37f**.

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
   "limit": "",
   "marker": ""
}
```

- Example response

```
{
   "grants": [
    {"key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
```



```
    "grant_id": "7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d",
    "operations":
    ["describe-key","create-datakey", "encrypt-datakey"],
    "grantee_principal":"13gg44z4g2sglzk0egw0u726zoyzvrs8",
    "retiring_principal":"13gg44z4g2sglzk0egw0u726zoyzvrs8",
    "issuing_principal":"e4hkeeea506ex3wgnzyhi656n8hx8xa3",
    "name":"my_grant",
    "creation_date":"1497341531000",
    }],
  "next_marker": "",
  "truncated": "false",
  "total":1
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-85 lists the normal status code returned by the response.

Table 4-85 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.21 Querying Grants That Can Be Retired

Function

This API enables you to query grants that can be retired.

URI

- URI format

  POST /v1.0/{project_id}/kms/list-retirable-grants
- Parameter description

  Table 4-86 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-87 Request parameters

Parameter	Mandatory	Type	Description
limit	No	String	This parameter specifies the number of entries returned. If the specified number is smaller than the actual number of existing entries, **true** will be returned for the response parameter **truncated**, indicating that the query results will be displayed in separate pages. The value is within the range of the maximum number of grants, for example, **100**.
marker	No	String	This parameter marks the starting location in a pagination query. If the **truncated** value is **true**, you can send consecutive requests to obtain more record entries. The **marker** value must be set to the **next_marker** value in the response, for example, **10**.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-88 Response parameters

Parameter	Mandatory	Type	Description
grants	Yes	Array of objects	Grant list. For details, see **Table 4-84**.
next_marker	Yes	String	This parameter indicates the **marker** value required for obtaining the next page of query results. If the **truncated** value is **false**, the **next_marker** parameter is left blank.

Parameter	Mandatory	Type	Description
truncated	Yes	String	This parameter indicates whether there are more results displayed in another page. • If the value is **true**, there are more results. • If the value is **false**, the current page is the last page.
total	Yes	Integer	This parameter indicates the total number of grants.

Examples

The following example describes how to query the list of grants that can be retired.

- Example request

```
{
   "limit": "",
   "marker": ""
}
```

- Example response

```
{
   "grants": [
    {"key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
     "grant_id": "7c9a3286af4fcca5f0a385ad13e1d21a50e27b6dbcab50f37f30f93b8939827d",
     "operations":
     ["describe-key","create-datakey", "encrypt-datakey"],
     "grantee_principal":"13gg44z4g2sglzk0egw0u726zoyzvrs8",
     "retiring_principal":"13gg44z4g2sglzk0egw0u726zoyzvrs8",
     "issuing_principal":"e4hkeeea506ex3wgnzyhi656n8hx8xa3",
     "name":"my_grant",
     "creation_date":"1497341531000"
     }],
   "next_marker": "",
   "truncated": "false",
   "total":1
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-89 lists the normal status code returned by the response.

Table 4-89 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.22 Encrypting Data

Function

This API enables you to encrypt data using a specified CMK.

URI

- URI format
  POST /v1.0/{project_id}/kms/encrypt-data
- Parameter description

  Table 4-90 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-91 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f

Parameter	Mandatory	Type	Description
encryption_context	No	Object	Key-value pairs with a maximum length of 8192 characters. This parameter is used to record resource context information, excluding sensitive information, to ensure data integrity. If this parameter is specified during encryption, it is also required for decryption. Example: {"Key1":"Value1","Key2":"Value2"}
plain_text	Yes	String	Plaintext data which is 1 to 4096 bytes in length and matches the regular expression **^.{1,4096}$**. After being converted into a byte array, it is still 1 to 4096 bytes in length.
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-92 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
cipher_text	Yes	String	Ciphertext data in Base64 format

Examples

The following example describes how to use a CMK (ID: **0d0466b0-e727-4d9c-b35d-f84bb474a37f**) to encrypt data (plaintext: **12345678**).

- Example request
```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
    "plain_text": "12345678"
}
```
- Example response
```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
```



```
  "cipher_text": "AgDoAG7EsEc2OHpQxz4gDFDH54CqwaelpTdEl
+RFPjbKn5klPTvOywYIeZX60kPbFsYOpXJwkL32HUM50MY22Eb1fOSpZK7WJpYjx66EWOkJvO
+Ey3r1dLdNAjrZrYzQlxRwNS05CaNKoX5rr3NoDnmv+UNobaiS25muLLiqOt6UrStaWow9AUyOHSzl
+BrX2Vu0whv74djK
+3COO6cXT2CBO6WajTJsOgYdxMfv24KWSKw0TqvHe8XDKASQGKdgfI74hzI1YWJlNjlmLWFlMTAtNDRjZ
C1iYzg3LTFiZGExZGUzYjdkNwAAAACdcfNpLXwDUPH3023MvZK8RPHe129k6VdNIi3zNb0eFQ=="
}
```


or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-93 lists the normal status code returned by the response.

Table 4-93 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.23 Decrypting Data

Function

This API enables you to decrypt data.

URI

- URI format
  POST /v1.0/{project_id}/kms/decrypt-data
- Parameter description

  Table 4-94 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-95 Request parameters

Parameter	Mandatory	Type	Description
cipher_text	Yes	String	Ciphertext of encrypted data. The value is the **cipher_text** value in the data encryption result that matches the regular expression **^[0-9a-zA-Z+/=]{188,5648}$**.
encryption_context	No	Object	Key-value pairs with a maximum length of 8192 characters. This parameter is used to record resource context information, excluding sensitive information, to ensure data integrity. If this parameter is specified during encryption, it is also required for decryption. Example: {"Key1":"Value1","Key2":"Value2"}
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-96 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	CMK ID
plain_text	Yes	String	Plaintext

Examples

The following example describes how to decrypt data (ciphertext: **AgDoAG7EsEc2OHpQxz4gDFDH54CqwaelpTdEl+RFPjbKn5klPTvOywYIeZX60kPbFsYOpXJwkL32HUM50MY22Eb1fOSpZK7WJpYjx66EWOkJvO+Ey3r1dLdNAjrZrYzQlxRwNS05CaNKoX5rr3NoDnmv+UNobaiS25muLLiqOt6UrStaWow9AUyOHSzl+BrX2Vu0whv74djK**

+3COO6cXT2CBO6WajTJsOgYdxMfv24KWSKw0TqvHe8XDKASQGKdgfI74hzI1YWJlNjlmLWFlMTAtNDRjZC1iYzg3LTFiZGExZGUzYjdkNwAAAACdcfNpLXwDUPH3023MvZK8RPHe129k6VdNIi3zNb0eFQ==).

- Example request

```
{
    "cipher_text": "AgDoAG7EsEc2OHpQxz4gDFDH54CqwaelpTdEl
+RFPjbKn5klPTvOywYIeZX60kPbFsYOpXJwkL32HUM50MY22Eb1fOSpZK7WJpYjx66EWOkJvO
+Ey3r1dLdNAjrZrYzQlxRwNS05CaNKoX5rr3NoDnmv+UNobaiS25muLLiqOt6UrStaWow9AUyOHSzl
+BrX2Vu0whv74djK
+3COO6cXT2CBO6WajTJsOgYdxMfv24KWSKw0TqvHe8XDKASQGKdgfI74hzI1YWJlNjlmLWFlMTAtNDRjZC1iYzg3LTFiZGExZGUzYjdkNwAAAACdcfNpLXwDUPH3023MvZK8RPHe129k6VdNIi3zNb0eFQ=="
}
```

- Example response

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
   "plain_text": "12345678"
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-97 lists the normal status code returned by the response.

Table 4-97 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.24 Obtaining CMK Import Parameters

Function

This API enables you to obtain necessary parameters to import a CMK, including a CMK import token and a CMK encryption public key.

NOTE

The returned public key type is RSA_2048 by default.

URI

- URI format

  POST /v1.0/{project_id}/kms/get-parameters-for-import

- Parameter description

  Table 4-98 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-99 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
wrapping_algorithm	Yes	String	Encryption algorithm for CMK material. The following values are enumerated: • RSAES_PKCS1_V1_5 • RSAES_OAEP_SHA_1 • RSAES_OAEP_SHA_256
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-100 Response parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	ID of a CMK in Base64 format
import_token	Yes	String	CMK import token

Parameter	Mandatory	Type	Description
expiration_time	Yes	String	Expiration time of the import parameter. The value is a timestamp expressed in the number of seconds since 00:00:00 UTC on January 1, 1970.
public_key	Yes	String	Public key (in Base64 format) used to encrypt CMK material

Examples

The following example describes how to obtain the imported parameter of a CMK (ID: **bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e**; encryption algorithm: **RSAES_OAEP_SHA_1**).

- Example request

```
{
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",
    "wrapping_algorithm":"RSAES_OAEP_SHA_1"
}
```

- Example response

```
{
   "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",

"import_token":"AACIBjY2ZTQxYjBmLTY3ZWItNDU4Ny04OTIxLWVhZTVhZjg5NDZmYQAAuihvPN7Hly3
uhp7cWw4cfuwDIem9mGwaIl7/HTx10+8ENsRR4FB7DCR+zG1s7UIZMAZRLx7LD1lkXY
+rfN5ibDOOHZkoIiVSh+9u7xtC5m/
mNpIFeyqumxHei2I8CNdsNuJtjLV5bDU3tQrIkj72HCWpC0k9yf1ZSvi3yCwD4wyULXBsYwUa76bTK85MIZ
NGGtqfOyV6w74MT6m70gLhog8r7oWe6Gbof58uyYfFMbc
+s0OpkzMjvlvl1HApyOTijled26VgbgoGbPm9QvgjxC7mQEJpzQeg1/uNiziAG0YKo7wuD2mojwMBnr
+XGJrrFgmdO0pUaK+53KtDr8dtpGrVfJ+0zvebA45c4A4VfvaQQDCI5nJvB2Zz3LM4oiullVt
+0xrwDJYn9KRNZto2/zsGzrc/iBVASKE2UpIH7IikALJuDNrla8MVP5lzxdE0I
+905U2O7HLOsIwlDKMXx3CFao+4qLTb2O+Mq6xMQUwR2pwLcQA1cw
+BypJe4XE3z4fqFejO6VzjX5yd5pDVQ19eAzr9RgvSCi/luyefFUci
+aX7xB4jx5MNwej3aePsOC9afsXBulhFyGgS/dZoPQ9kyG5TE2ELqAN6obERYoiZcyvq8RW9w/
uItLS99nGjwVe3U1yW4P6ColV+u7ygWxXm/Zs
+QTJHUDwl2ysbrebnN9PLNJSpHbBmuLJiMX02xtDAIt1meB2hGLqw+Mj/
n1jF5rnt5eXrNiG94pHZEvbp2BEDawJrRpaGj15C984WVw8ja/ZrTYfWklcNKW84cLvJXl9vxsuUp3/
ZYKh32M/ORUT46o6KtB/
xEltkaDJiSBBK4utuxQ8wO5UXW6FRkmAuV2naxhF6Obk7kEKYnuj4jxWAODtL9GcoNwq04ylSXj/
ZzaYbqXo1O34fjyz3QG5ZChXGgg52+wPj2LBDjUvlriuARg7cATgdqq9c6aifrGQAj0QgVp9Gv/
8c7PRzjzfH2vRwOZqpLSuCD5sIWFSgc/RLxf1YNtNx98Jo
+PjRTWbyuZNiH2xOrpG0oKyk1giFITqOTuQ6UL768HgVJPRP4CgkgF7v65QpYaYgPvkJvwOb7j2VMr5Voy
kTipt7R2Xvh2LMy6wBW+HA0rw8V7ebc8/
KaH3CkGTdYL2MIfbOlxjyNplUeBKu8zYshFWfp7BUQsflAFMQyp2FhO7PGMygvqY0LLzDphVvBjpFCO4V
qHZ/iOSDzL8vuEA
+OX8XLhZp9Kb7JPIJflfEz2lx3K8YvOJeRxUfOgvvBhpKu7KUDvnarW1R9rDX4adD4EC3mgP42SumAMYvF
BKb6BgOkGAlTgHgLrKKsDw4DW56ANua30ZjeKJ1ZVftnyU0UJ34jsY0uJPi6QujBHqUzFbCp019Jx8Mi
+LtkN3e8Sl+4pvIfj7t+t9Xu03oDhD0J65qhHlpNP/NFrvP3KLmXFyXTWpGeczXxZvDp7Wmu5TnDSozN/
AbzBuyWASYZpLvgsf1xwevMmM1Gw/UX/
WVPQdN5lzWjhT1Dcy4ar8OozYtQeQ2ItSH1UaPJx0hW3BA1GYjW42+Vjy0VSLkliK/n6lN9KwTTTGAbW
+BvftImzGnfFM7fTCMJ3Jnx9nTn6+fbnhoXXfGHjOgPZ208VEIlG5YHS+HN/
JYyAkkj8G2+bSZmKfX9VMbYRGNTPrrghjAEY/Hh8V+/
ZhUSR3pPnblhr30SePGYgQPUGmnoTRHulCHRFOMcvu9nQ1P855DNpoE7fYi
+7N9xu1wFTB3DHtgUW8yuwtt
+q6LJZQMuGfmJLhBBf05FKlSxpR49IaJ0uQc7fsVYCpECL2aH8ueBqVGvQtEebWG6q0XTIrhqmaPtlQx9rVP
8oevPZ99yfB+8TZCT0B9WNqCotxijWqH3eyePY0Hb/AAXB34GjH1gni4NjwEI6LVX
+jSGb2ATy4Bd6ckonhGO9uwvW3WaPX214+GZvPdmv0pN60XfQ9B4Il/
RLIek6h6+2WEmB4i8qsvjgWfDD7DEhq6YN1Q/44NqUdDjrVCozBxXyDOab5tdsWCvfGXruGa/
wq7I1kH7K76s7TeL0a3pc0H5zt8qU/UT7uoLv0G7H+vVulGmqcl5pbsHYxTqNtSu2w9OBQ6PC8g+MCS/
```

fnXIcAhS7Lmvy8TFK4x0N+MhZqVbozVW37apCXFg6m1I9N0Sa4=",
"expiration_time":1501578672,

"public_key":"MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAnJQqE9GorZ16XMlOQngJfU0SgkMKJpL9W+byIebeKgmDt2I6oVSPckk9y3JiaGjXKYlepawob9b61IRR97Bcr4Sf2p3J6J3gpiYGp1Ai3495rYF+FSZAxW+VDOzbN3vig6SVxcP1PXtaKzQbtNfnlIh+rvSMJpVI3MFHh5lWjEn8L/XpprLy1FqHSSvgB99qwiPw1ZGTL5XGSrIpCV3/ah8u+5VGoIUJZTtiZk6OQDkFH9fxwIahYvLI8/yjrWFLtJuApr7aIrhRN0iDBINxddNh8M0A9sIFoS3D5RNKITjIKIMl/GVz+mHaPjK+91M/b7JrNvinFCMQDGrb/1qoGQIDAQAB"
}

or

{
"error": {
"error_code": "KMS.XXXX",
"error_msg": "XXX"
}
}

Status Codes

Table 4-101 lists the normal status code returned by the response.

Table 4-101 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.25 Importing CMK Material

Function

This API allows you to import CMK material.

URI

- URI format
  POST /v1.0/{project_id}/kms/import-key-material
- Parameter description

Table 4-102 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-103 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
import_token	Yes	String	CMK import token in Base64 format that matches the regular expression **^[0-9a-zA-Z+/=]{200,6144}$**
encrypted_key_material	Yes	String	Encrypted CMK material in Base64 format that matches the regular expression ^[0-9a-zA-Z+/=]{344,360}$
expiration_time	No	String	Expiration time of the key material. The value is a timestamp expressed in the number of seconds since 00:00:00 UTC on January 1, 1970. KMS will delete the key material within 24 hours after the expiration. Example: 1550291833
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to import the CMK material and the import-token to the CMK whose ID is **bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e**, and set the expiration time of the CMK material to **1521578672**.

- Example request

```
{
    "key_id": "bb6a3d22-dc93-47ac-b5bd-88df7ad35f1e",

"import_token":"AACIBjY2ZTQxYjBmLTY3ZWItNDU4Ny04OTIxLWVhZTVhZjg5NDZmYQAAuihvPN7Hly3uhp7cWw4cfuwDIem9mGwaIl7/HTx10+8ENsRR4FB7DCR+zG1s7UIZMAZRLx7LD1lkXY+rfN5ibDOOHZkoIiVSh+9u7xtC5m/mNpIFeyqumxHei2I8CNdsNuJtjLV5bDU3tQrIkj72HCWpC0k9yf1ZSvi3yCwD4wyULXBsYwUa76bTK85MIZ
```


NGGtqfOyV6w74MT6m70gLhog8r7oWe6Gbof58uyYfFMbc
+s0OpkzMjvlvl1HApyOTijled26VgbgoGbPm9QvgjxC7mQEJpzQeg1/uNiziAG0YKo7wuD2mojwMBnr
+XGJrrFgmdO0pUaK+53KtDr8dtpGrVfJ+0zvebA45c4A4VfvaQQDCI5nJvB2Zz3LM4oiullVt
+0xrwDJYn9KRNZto2/zsGzrc/iBVASKE2UpIH7IikALJuDNrla8MVP5lzxdE0I
+905U2O7HLOsIwlDKMXx3CFao+4qLTb2O+Mq6xMQUwR2pwLcQA1cw
+BypJe4XE3z4fqFejO6VzjX5yd5pDVQ19eAzr9RgvSCi/IuyefFUci
+aX7xB4jx5MNwej3aePsOC9afsXBulhFyGgS/dZoPQ9kyG5TE2ELqAN6obERYoiZcyvq8RW9w/
uItLS99nGjwVe3U1yW4P6ColV+u7ygWxXm/Zs
+QTJHUDwl2ysbrebnN9PLNJSpHbBmuLJiMX02xtDAIt1meB2hGLqw+Mj/
n1jF5rnt5eXrNiG94pHZEvbp2BEDawJrRpaGj15C984WVw8ja/ZrTYfWklcNKW84cLvJXl9vxsuUp3/
ZYKh32M/ORUT46o6KtB/
xEltkaDJiSBBK4utuxQ8wO5UXW6FRkmAuV2naxhF6Obk7kEKYnuj4jxWAODtL9GcoNwq04ylSXj/
ZzaYbqXo1O34fjyz3QG5ZChXGgg52+wPj2LBDjUvlriuARg7cATgdqq9c6aifrGQAj0QgVp9Gv/
8c7PRzjzfH2vRwOZqpLSuCD5sIWFSgc/RLxf1YNtNx98Jo
+PjRTWbyuZNiH2xOrpG0oKyk1giFITqOTuQ6UL768HgVJPRP4CgkgF7v65QpYaYgPvkJvwOb7j2VMr5Voy
kTipt7R2Xvh2LMy6wBW+HA0rw8V7ebc8/
KaH3CkGTdYL2MIfbOlxjyNplUeBKu8zYshFWfp7BUQsflAFMQyp2FhO7PGMygvqY0LLzDphVvBjpFCO4V
qHZ/iOSDzL8vuEA
+OX8XLhZp9Kb7JPIJflfEz2lx3K8YvOJeRxUfOgvvBhpKu7KUDvnarW1R9rDX4adD4EC3mgP42SumAMYvF
BKb6BgOkGAlTgHgLrKKsDw4DW56ANua30ZjeKJ1ZVftnyU0UJ34jsY0uJPi6QujBHqUzFbCp019Jx8Mi
+LtkN3e8Sl+4pvIfj7t+t9Xu03oDhD0J65qhHlpNP/NFrvP3KLmXFyXTWpGeczXxZvDp7Wmu5TnDSozN/
AbzBuyWASYZpLvgsf1xwevMmM1Gw/UX/
WVPQdN5lzWjhT1Dcy4ar8OozYtQeQ2ItSH1UaPJx0hW3BA1GYjW42+Vjy0VSLkliK/n6lN9KwTTTGAbW
+BvftImzGnfFM7fTCMJ3Jnx9nTn6+fbnhoXXfGHjOgPZ208VEIlG5YHS+HN/
JYyAkkj8G2+bSZmKfX9VMbYRGNTPrrghjAEY/Hh8V+/
ZhUSR3pPnblhr30SePGYgQPUGmnoTRHulCHRFOMcvu9nQ1P855DNpoE7fYi
+7N9xu1wFTB3DHtgUW8yuwtt
+q6LJZQMuGfmJLhBBf05FKlSxpR49IaJ0uQc7fsVYCpECL2aH8ueBqVGvQtEebWG6q0XTIrhqmaPtlQx9rVP
8oevPZ99yfB+8TZCT0B9WNqCotxijWqH3eyePY0Hb/AAXB34GjH1gni4NjwEI6LVX
+jSGb2ATy4Bd6ckonhGO9uwvW3WaPX214+GZvPdmv0pN60XfQ9B4Il/
RLIek6h6+2WEmB4i8qsvjgWfDD7DEhq6YN1Q/44NqUdDjrVCozBxXyDOab5tdsWCvfGXruGa/
wq7I1kH7K76s7TeL0a3pc0H5zt8qU/UT7uoLv0G7H+vVulGmqcl5pbsHYxTqNtSu2w9OBQ6PC8g+MCS/
fnXIcAhS7Lmvy8TFK4x0N+MhZqVbozVW37apCXFg6m1I9N0Sa4=",
"encrypted_key_material":"K+ixymtl90e
+B5Rdan89KjDslBIoOexrIwzkYHGz3odS7FDXDkogqbWwwJg5wQ6zjUbEvsR/+Fi
+A0SSkhhqtijivOKHu4Z86RWjOCBdrr9es+ZhJ0zYBNMN+7Rf2fd9vxbb873Q7VBkJRyH1hi3Wh
+kLmDW4rpWZm4+YGCtWylz7ZKbV1KBlhSNLDtZzT4nxUra0p7Die4HgUUxSjZTOr/0s71yF6o2eysreIzIl
+GbpCft0WpRsxN2Ng++ntgOcwOf2zOC9o/tjraxeAvgGw
+Dwt4cjF4znnFf0LPQ2YvpNUo248LjAGxdFvzUABNzfYSj3RZ0K3wQCNAcXU3HYw==",
"expiration_time":1521578672
}

- Example response

```
{
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-104 lists the normal status code returned by the response.

Table 4-104 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.26 Deleting CMK Material

Function

This API allows you to delete CMK material.

URI

- URI format
  POST /v1.0/{project_id}/kms/delete-imported-key-material
- Parameter description

  Table 4-105 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-106 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to delete the material of a CMK (ID: **0d0466b0-e727-4d9c-b35d-f84bb474a37f**).

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-107 lists the normal status code returned by the response.

Table 4-107 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.27 Enabling Rotation for a CMK

Function

This API allows you to enable rotation for a CMK.

NOTE

- The default rotation interval is 365 days.
- CMKs created using imported key materials and Default Master Keys do not support rotation.

URI

- URI format

  POST /v1.0/{project_id}/kms/enable-key-rotation

- Parameter description

Table 4-108 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-109 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	string	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to enable rotation for a CMK (ID: **0d0466b0-e727-4d9c-b35d-f84bb474a37f**).

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-110 lists the normal status code returned by the response.

Table 4-110 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.28 Changing the Rotation Interval for a CMK

Function

This API enables you to change the rotation interval for a CMK.

URI

- URI format

  POST /v1.0/{project_id}/kms/update-key-rotation-interval
- Parameter description

  Table 4-111 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-112 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
rotation_interval	Yes	Integer	Rotation interval. The value is an integer ranging from **30** to **365**. Set the interval based on how often a CMK is used. If it is frequently used, set a short interval; otherwise, set a long one.

Parameter	Mandatory	Type	Description
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to change the rotation interval to **30** for a CMK (ID: **0d0466b0-e727-4d9c-b35d-f84bb474a37f**).

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f",
   "rotation_interval":30
}
```

- Example response

```
{
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-113 lists the normal status code returned by the response.

Table 4-113 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.29 Disabling Rotation for a CMK

Function

This API allows you to disable rotation for a CMK.

URI

- URI format
  POST /v1.0/{project_id}/kms/disable-key-rotation
- Parameter description

  Table 4-114 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-115 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

None

Examples

The following example describes how to disable rotation for a CMK (ID: **0d0466b0-e727-4d9c-b35d-f84bb474a37f**).

- Example request

```
{
   "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
}
```

or

```
{
   "error": {
      "error_code": "KMS.XXXX",
      "error_msg": "XXX"
   }
}
```

Status Codes

Table 4-116 lists the normal status code returned by the response.

Table 4-116 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

4.30 Querying the Rotation Status of a CMK

Function

This API enables you to query the rotation status of a CMK.

URI

- URI format

  POST /v1.0/{project_id}/kms/get-key-rotation-status

- Parameter description

Table 4-117 Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID

Requests

Table 4-118 Request parameters

Parameter	Mandatory	Type	Description
key_id	Yes	String	36-byte ID of a CMK that matches the regular expression **^[0-9a-z]{8}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{4}-[0-9a-z]{12}$** Example: 0d0466b0-e727-4d9c-b35d-f84bb474a37f
sequence	No	String	36-byte serial number of a request message Example: 919c82d4-8046-4722-9094-35c3c6524cff

Responses

Table 4-119 Response parameters

Parameter	Mandatory	Type	Description
key_rotation_enabled	Yes	String	Key rotation status. The default value is **false**, indicating that key rotation is disabled.
rotation_interval	Yes	Integer	Rotation interval. The value is an integer ranging from **30** to **365**. Set the interval based on how often a CMK is used. If it is frequently used, set a short interval; otherwise, set a long one.
last_rotation_time	Yes	String	Last key rotation time. The value is a timestamp expressed in the number of seconds since 00:00:00 UTC on January 1, 1970.
number_of_rotations	Yes	String	Number of key rotations

Examples

- Example request


```
{
    "key_id": "0d0466b0-e727-4d9c-b35d-f84bb474a37f"
}
```

- Example response

```
{
    "key_rotation_enabled": true,
    "rotation_interval": 30,
    "last_rotation_time": "1501578672000",
    "number_of_rotations": 3
}
```

or

```
{
    "error": {
        "error_code": "KMS.XXXX",
        "error_msg": "XXX"
    }
}
```

Status Codes

Table 4-120 lists the normal status code returned by the response.

Table 4-120 Status codes

Status Code	Status	Description
200	OK	Request processed successfully.

Exception status code. For details, see **Status Codes**.

A Appendix

A.1 Status Codes

Status Code	Status	Description
200	OK	Request processed successfully.
400	Bad Request	The request parameter is incorrect.
403	Forbidden	The server understood the request, but is refusing to fulfill it.
404	Not Found	The requested resource does not exist or not found.
500	Internal Server Error	Internal service error.

A.2 Error Code

Status Code	Error Code	Error Message	Description	Measure
400	KMS.0201	Invalid request URL.	Invalid request URL.	Enter a valid URL.
400	KMS.0202	Invalid JSON format of the request message.	Invalid JSON format of the request message.	Enter a valid message.
400	KMS.0203	Request message too long.	Request message too long.	Enter a valid message.

Status Code	Error Code	Error Message	Description	Measure
400	KMS.0204	Parameters missing in the request message.	Parameters missing in the request message.	Enter a valid message.
400	KMS.0205	Invalid key ID.	Invalid key ID.	Enter a valid key ID.
400	KMS.0206	Invalid sequence number.	Invalid sequence number.	Enter a valid sequence number.
400	KMS.0208	Invalid value of value encryption_context.	Invalid value of value encryption_context.	Enter a valid value of encryption_context.
400	KMS.0209	The key has been disabled.	The key has been disabled.	Enable the key.
400	KMS.0210	The key is in Scheduled deletion state and cannot be used.	The key is in **Pending deletion** state and cannot be used.	Enable the key.
400	KMS.0211	Cannot perform this operation on Default Master Keys.	Cannot perform this operation on default master keys.	Perform this operation on a common CMK.
400	KMS.0415	Invalid matches.	Invalid matches.	Enter a valid parameter.
400	KMS.1101	Invalid key_alias.	Invalid key_alias.	Enter a valid parameter.
400	KMS.1102	Invalid realm.	Invalid realm.	Enter a valid parameter.
400	KMS.1103	Invalid key_description.	Invalid key_description.	Enter a valid parameter.
400	KMS.1104	Duplicate key aliases.	Duplicate key aliases.	Use another alias.
400	KMS.1105	Too many keys.	Too many keys.	Increase key quota or delete unnecessary keys.

Status Code	Error Code	Error Message	Description	Measure
400	KMS.1201	The key is not disabled.	The key is not disabled.	Disable the key.
400	KMS.1301	The key is not enabled.	The key is not enabled.	Enable the key.
400	KMS.1401	Set the pending deletion period between 7 to 1096 days.	Set the pending deletion period between 7 to 1096 days.	Enter a valid parameter.
400	KMS.1402	The key is already in Pending deletion state.	The key is already in **Pending deletion** state.	No further operation required.
400	KMS.1501	The key is not in Pending deletion state.	The key is not in **Pending deletion** state.	Schedule deletion the key.
400	KMS.1601	Invalid limit.	Invalid limit.	Enter a valid parameter.
400	KMS.1602	marker must be greater than or equals 0.	**marker** must be greater than or equals 0.	Enter a valid parameter.
400	KMS.1801	random_data_length must be 512 bits.	random_data_length must be 512 bits.	Enter a valid parameter.
400	KMS.1901	datakey_length must be in the range 8 bits to 8,192 bits.	datakey_length must be in the range 8 bits to 8,192 bits.	Enter a valid parameter.
400	KMS.2001	datakey_length must be 512 bits.	datakey_length must be 512 bits.	Enter a valid parameter.
400	KMS.2101	Invalid plain_text.	Invalid plain_text.	Enter a valid parameter.
400	KMS.2102	datakey_plain_length must be 64 bytes.	datakey_plain_length must be 64 bytes.	Enter a valid parameter.

Status Code	Error Code	Error Message	Description	Measure
400	KMS.2103	Failed to verify the DEK hash.	Failed to verify the DEK hash.	Check whether the DEK is valid.
400	KMS.2201	Invalid cipher_text.	invalid cipher_text.	Enter a valid parameter.
400	KMS.2202	datakey_cipher_length must be 64 bytes.	datakey_cipher_length must be 64 bytes.	Enter a valid parameter.
400	KMS.2203	Failed to verify the DEK hash.	Failed to verify the DEK hash.	Check whether the DEK is valid.
403	KMS.0301	Invalid or null X-Auth-Token.	Invalid or null X-Auth-Token.	Obtain the token again and ensure the token string is complete.
403	KMS.0302	Invalid X-Auth-Token.	Invalid X-Auth-Token.	Obtain the token again and ensure the token string is complete.
403	KMS.0303	X-Auth-Token expired.	X-Auth-Token expired.	Obtain the token again and ensure the token string is complete.
403	KMS.0305	Invalid X-Auth-Token project name.	Invalid X-Auth-Token project name.	Obtain the token again and ensure the token string is complete.
403	KMS.0306	No access permissions.	The user has no permission to access the key.	Contact the KMS administrator to grant required permissions.
403	KMS.0307	No access permissions.	No access permissions.	Contact the administrator to grant required permissions.
500	KMS.0101	KMS error.	KMS error.	Try again.
500	KMS.0102	Abnormal KMS I/O.	Abnormal KMS I/O.	Try again.

A.3 Obtaining a Project ID

1. Obtain the token.

   For details, see **Token-based Authentication**.

2. Obtain the 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 the value of **X-Auth-Token** to the token obtained in the preceding step.

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

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

A.4 API Permissions

A.4.1 Encryption Key Management

API	API Function	Permission
POST /v1.0/{project_id}/kms/create-key	Creates a CMK.	kms:cmk:create
POST /v1.0/{project_id}/kms/enable-key	Enables a CMK.	kms:cmk:enable
POST /v1.0/{project_id}/kms/disable-key	Disables a CMK.	kms:cmk:disable
POST /v1.0/{project_id}/kms/schedule-key-deletion	Schedules the deletion of a CMK.	kms:cmk:update
POST /v1.0/{project_id}/kms/cancel-key-deletion	Cancels the scheduled deletion of a CMK.	kms:cmk:update
POST /v1.0/{project_id}/kms/list-keys	Queries the list of CMKs.	kms:cmk:list

API	API Function	Permission
POST /v1.0/{project_id}/kms/describe-key	Queries the CMK information.	kms:cmk:get
POST /v1.0/{project_id}/kms/gen-random	Generates a random number.	kms:cmk:generate
POST /v1.0/{project_id}/kms/create-datakey	Creates a DEK.	kms:dek:create
POST /v1.0/{project_id}/kms/create-datakey-without-plaintext	Creates a plaintext-free DEK.	kms:dek:create
POST /v1.0/{project_id}/kms/encrypt-datakey	Encrypts a DEK.	kms:dek:crypto
POST /v1.0/{project_id}/kms/decrypt-datakey	Decrypts a DEK.	kms:dek:crypto
GET /v1.0/{project_id}/kms/user-instances	Queries the number of instances.	kms:cmk:getInstance
GET /v1.0/{project_id}/kms/user-quotas	Queries the user quota.	kms:cmk:getQuota
POST /v1.0/{project_id}/kms/update-key-alias	Modifies the CMK alias.	kms:cmk:update
POST /v1.0/{project_id}/kms/update-key-description	Modifies the description of a CMK.	kms:cmk:update
POST /v1.0/{project_id}/kms/get-parameters-for-import	Obtains parameters for importing a key.	kms:cmk:getMaterial
POST /v1.0/{project_id}/kms/import-key-material	Imports key material.	kms:cmk:importMaterial
POST /v1.0/{project_id}/kms/delete-imported-key-material	Deletes key material.	kms:cmk:deleteMaterial
POST /v1.0/{project_id}/kms/enable-key-rotation	Enables key rotation.	kms:cmk:enableRotation
POST /v1.0/{project_id}/kms/update-key-rotation-interval	Modifies the rotation interval.	kms:cmk:updateRotation
POST /v1.0/{project_id}/kms/disable-key-rotation	Disables key rotation.	kms:cmk:disableRotation
POST /v1.0/{project_id}/kms/get-key-rotation-status	Queries the key rotation status.	kms:cmk:getRotation

B Change History

Release Date	Description
2021-07-30	This is the third official release. Modified the error code format in the "Error Codes" section.
2019-11-21	This is the second official release. ● Added the section "Obtaining CMK Import Parameters". ● Added the section "Importing CMK Material". ● Added the section "Deleting CMK Material". ● Added the section "Enabling Rotation for a CMK". ● Added the section "Changing the Rotation Interval for a CMK". ● Added the section "Disabling Rotation for a CMK". ● Added the section "Querying the Rotation Status of a CMK".
2019-04-04	This is the first official release.

