

Database and Application Migration UGO

UGO API Reference

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1 Before You Start

1.1 Overview

Database and Application Migration UGO, referred to as UGO, is a professional cloud service for heterogeneous database schema migration. It can automatically convert the DDL statements in source databases into statements compatible with Huawei Cloud databases such as GaussDB and RDS. With the functions of database evaluation, object migration, and automatic syntax conversion, UGO can help you evaluate your reconstruction workload in advance, improve the conversion rate, and minimize the costs of database migration.

This document describes how to use application programming interfaces (APIs) to perform operations on UGO. For details about all supported operations, see [API Types](#).

Before you plan to access UGO through an API, ensure that you are familiar with UGO concepts.

1.2 API Calling

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

1.3 Endpoints

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

[Table 1-1](#) lists regions supported by UGO APIs.

Table 1-1 Regions supported by UGO APIs

Region Name	Value	Endpoint	Protocol
AP-Singapore	ap-southeast-3	ugo.ap-southeast-3.myhuaweicloud.com	HTTPS
LA-Santiago	la-south-2	ugo.la-south-2.myhuaweicloud.com	HTTPS

1.4 Constraints

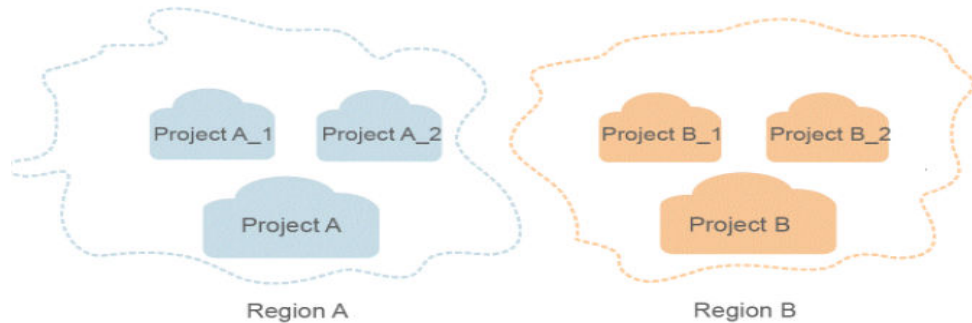
For more constraints, see API description.

1.5 Concepts

- **Account**
An account is created upon successful registration with Huawei Cloud. The account has full access permissions for all of its cloud services and resources. It can be used to reset passwords and grant permissions. The account is a payment entity and should not be used directly to perform routine management. For security purposes, create users and grant them permissions for routine management.
- **IAM User**
An IAM user is created using an account to use cloud services. Each IAM user has its own identity credentials (password and access keys)
The account name, username, and password will be required for API authentication.
- **Region**
Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions. For low network latency and quick resource access, select the nearest region. The choice of regions may also be subject to legal compliance requirements.
- **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 allow you to build highly available systems across AZs.
- **Project**
A project corresponds to a Huawei Cloud region. Default projects are defined to group and physically isolate resources (including compute, storage, and network resources) across regions. Users can be granted permissions in a default project to access all resources in the region associated with the project. If you need more refined access control, create subprojects under a default project and create resources in subprojects. Then you can assign users

the permissions required to access only the resources in the specific subprojects.

Figure 1-1 Project isolating model



- **Enterprise Project**
Enterprise projects group and manage resources across regions. Resources in enterprise projects are logically isolated from each other. An enterprise project can contain resources of multiple regions, and resources can be added to or removed from enterprise projects.
For more information about enterprise projects and how to obtain enterprise project IDs, see the [Enterprise Management User Guide](#).

2 API Types

UGO supports the following API types.

Table 2-1 API types

Type	Description
API Version Management	<ul style="list-style-type: none">• Querying API versions• Querying a specified API version
SQL Statement Conversion	Converting SQL statements between the source and target databases.
Evaluation Project	Creating an evaluation project, querying project details, and confirming the target database type.
Migration Project	Creating a migration project, querying migration projects, querying the status of a migration project, and submitting syntax conversion

3 Calling APIs

3.1 Making an API Request

This section describes the structure of a REST API, and uses the IAM API for **obtaining a user token** as an example to describe how to call an API. The obtained token is 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}

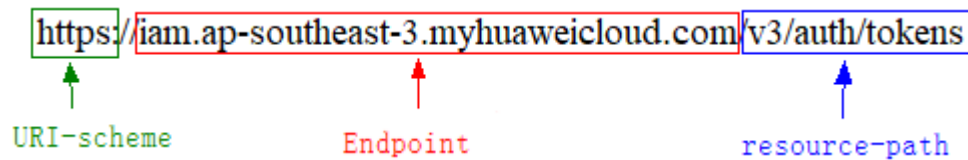
Table 3-1 Request URI

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service endpoint. Obtain the value from Regions and Endpoints . For example, the endpoint of IAM in the AP-Singapore region is iam.ap-southeast-3.myhuaweicloud.com .
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, 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.

For example, to obtain an IAM token in the **AP-Singapore** region, obtain the endpoint of IAM (**iam.ap-southeast-3.myhuaweicloud.com**) for this region and the **resource-path** (**/v3/auth/tokens**) in the URI of the API used to obtain a user token. Then, construct the URI as follows:

```
https://iam.ap-southeast-3.myhuaweicloud.com/v3/auth/tokens
```

Figure 3-1 Example URI



NOTE

To simplify the URI display in this document, each API is provided only with a resource-path and a request method. The **URI-scheme** of all APIs is **HTTPS**, and the endpoints of all APIs in the same region are identical.

Request Method

The HTTP protocol defines the following request methods that can be used to send a request to the server.

Table 3-2 Request method

Request Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add a resource or perform special operations.
DELETE	Requests the server to delete a specified resource (for example, an object).
HEAD	Requests the server resource 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://iam.ap-southeast-3.myhuaweicloud.com/v3/auth/tokens
```

Request Header

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

Table 3-3 lists common request headers.

Table 3-3 Common request headers

Name	Description	Mandatory	Example
Content-Type	MIME type of the request body.	Yes	The default value is application/json . Other values will be described in the specific APIs.
Content-Length	Length of the request body. The unit is byte.	<ul style="list-style-type: none"> Optional for POST or PUT requests. Must be left blank for GET requests. 	3495
X-Auth-Token	User token. After the request is processed, the value of X-Subject-Token in the header is the token value.	No NOTE Mandatory for token-based authentication.	MIIPAgYJKoZfegerIhvcNAQcCo...ggg1BBIINPXsidG9rZ
X-Language	Request language type.	Yes	en-us

NOTE

For details about other headers, see the HTTP protocol.

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

```
POST https://iam.ap-southeast-3.myhuaweicloud.com/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. If the request body contains full-width characters, these characters must be coded in UTF-8.

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

In the case of the API used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace *username*, *domainname*, ******* (login password), and *xxxxxxxxxx* (project ID, for example, ap-southeast-3) with the actual values. To learn how to obtain a project ID, see [Regions and Endpoints](#).

NOTE

scope specifies where a token takes effect. In the example, the token takes effect only on the resources specified by the project ID. You can set scope to an account or a project under an account. For more information about this API, see [Obtaining a User Token Through Password Authentication](#).

```
POST https://iam.ap-southeast-3.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username",
          "password": "*****",
          "domain": {
            "name": "domainname"
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "xxxxxxxxxxxxxxxxxxxxxx"
      }
    }
  }
}
```

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

3.2 Authentication

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

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

Token-based Authentication

NOTE

The validity period of a token is 24 hours. If a token is required, the system caches the token to avoid frequent calling.

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to a request to get permissions for calling the API.

Obtain a token and add **X-Auth-Token** to the request header of API calls.

When you [call an API to obtain a user token](#), set **auth.scope** in the request body to **project**.

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

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

```
POST https://iam.ap-southeast-3.myhuaweicloud.com/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

AK/SK-based Authentication

NOTE

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

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

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

In AK/SK-based authentication, you can use an AK/SK to sign requests based on the signature algorithm or using the signing SDK. For details about how to sign requests or use the signing SDK, see [AK/SK Signing and Authentication Guide](#).

 NOTE

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

3.3 Response

Status Codes

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

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

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

Response Header

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

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

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

```

connection -- keep-alive
content-type -- application/json
date -- Tue, 12 Feb 2019 06:52:13 GMT
server -- Web Server
strict-transport-security -- max-age=31536000; includeSubdomains;
transfer-encoding -- chunked
via -- proxy A
x-content-type-options -- nosniff
x-download-options -- noopen
x-frame-options -- SAMEORIGIN
x-lam-trace-id -- 218d45ab-d674-4995-af3a-2d0255ba41b5
x-subject-token
-- MIYXQYJKoZiHvcNAQcCoIYTYCCGEoCAQExDTALBglghkgBZQMEAgEwgharBgkqhkiG9w0BBwGgghacEjWmHsidG9rZW4iOmsiZXhwaXUlc19hdCI6IjwMTktMDItMTNUMC
j3Ks6YgKnpVNRbW2eZ5eb78SZ0kqACgkIqO1w4JIGzrpd18LGXKSbdldq4lqHCYb8P4NaYONYejaAgz/VefYtYLLWT1GSO0zXZmiQHqQ82HBqHdg/ZO9fuEbl5dMhdavj+33wEi
dRCE987o+k9-
i-CMZSEB7bUGdSUj6eRASXl1jipPEGA270g1FruooL6jagjFkNPQuFSOUB+uSsttVwRtnfsC+qTp22Rkd5MCqFGQ8LcuUx3a+9CM8nOintWW7oeRUJvhVpxk8pxiX1wTEboX-
RzT6MUbqvGw-cPNFYxjEcknoH3HRozv0vN--n5d6Nbsg==
x-ssr-protection -- 1; mode=block
    
```

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

```
{
  "token": {
    "expires_at": "2019-02-13T06:52:13.855000Z",
    "methods": [
      "password"
    ],
    "catalog": [
      {
        "endpoints": [
          {
            "region_id": "ap-southeast-3",
            .....

```

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

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

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

4 API

4.1 API Version Management

4.1.1 Querying API Versions

Function

This API is used to query API versions.

URI

GET /

Request Parameters

Table 4-1 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-2 Response body parameters

Parameter	Type	Description
versions	Array of Table 4-3 objects	List of detailed API version information.

Table 4-3 VersionDetails

Parameter	Type	Description
id	String	Version ID.
links	String	URL for displaying version information.
version	String	API microversion information.
status	String	Version status. Default value: CURRENT Value: <ul style="list-style-type: none"> ● CURRENT ● SUPPORTED ● DEPRECATED
updated	String	Version update time.

Example Request

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

Example Response

Status code: 200

Request succeeded.

```
{
  "versions": [ {
    "id": "v1",
    "links": "",
    "version": "",
    "status": "CURRENT",
    "updated": "2021-05-24T05:44:04Z"
  } ]
}
```

Status Codes

Status code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.1.2 Querying a Specified API Version

Function

This API is used to query a specified API version.

URI

GET /{api_version}

Table 4-4 Path parameters

Parameter	Mandatory	Type	Description
api_version	Yes	String	API version to be queried. Value: v1

Request Parameters

Table 4-5 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-6 Response body parameters

Parameter	Type	Description
id	String	Version ID.
links	String	URL for displaying version information.
version	String	API microversion information.
status	String	Version status. Default value: CURRENT Value: <ul style="list-style-type: none"> ● CURRENT ● SUPPORTED ● DEPRECATED
updated	String	Version update time.

Example Request

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

Example Response

Status code: 200

Request succeeded.

```
{  
  "id" : "v1",  
  "links" : "",  
  "version" : "",  
  "status" : "CURRENT",  
  "updated" : "2021-05-24T05:44:04Z"  
}
```

Status Codes

Status code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.2 Quota Management

4.2.1 Querying Quota

Function

This API is used to query evaluation project and migration project quota of a tenant.

URI

```
GET /v1/{project_id}/quotas
```

Table 4-7 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Request Parameters

Table 4-8 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-9 Response body parameters

Parameter	Type	Description
quotas	Array of Table 4-10 objects	Quota list.

Table 4-10 Quota

Parameter	Type	Description
project_type	String	UGO project type.
quota	Integer	Total quota.
used	Integer	Used quota.

Example Request

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/quotas
```

Example Response

Status code: 200

Request succeeded.

```
{
  "quotas": [ {
    "quota": 8,
    "used": 3,
    "project_type": "evaluation_project"
  }, {
    "quota": 8,
    "used": 1,
    "project_type": "migration_project"
  } ]
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.3 SQL Statement Conversion

4.3.1 Converting SQL Statements

Function

This API is used to convert SQL statements.

URI

POST /v1/{project_id}/sql-conversion

Table 4-11 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Request Parameters

Table 4-12 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Table 4-13 Request body parameters

Parameter	Mandatory	Type	Description
source_db_type	Yes	String	Source database type. Value: <ul style="list-style-type: none"> • ORACLE
target_db_type	Yes	String	Target database type. GaussDB Centralized has been deprecated. Value: <ul style="list-style-type: none"> • RDS for MySQL • GaussDB(for MySQL) • RDS for PostgreSQL • GaussDB Primary/Standby • GaussDB Centralized
target_db_version	Yes	String	Target database version. CAUTION This parameter must be used with target_db_type to form a valid target database type and version. Currently, the following target database types and versions are supported: GaussDB Centralized-2.0 (deprecated), GaussDB Primary/Standby-2.0, RDS for PostgreSQL-11, RDS for PostgreSQL-Enhanced Edition, RDS for MySQL-5.7, and GaussDB(for MySQL)-8.0. Value: <ul style="list-style-type: none"> • 5.7 • 8.0 • 11 • 2.0 • Enhanced Edition

Parameter	Mandatory	Type	Description
sql_statement	Yes	String	SQL statements to be converted.

Response Parameters

Status code: 200

Table 4-14 Response body parameters

Parameter	Type	Description
is_support_conversion	Boolean	Whether the SQL statements can be converted.
converted_sql_statement	String	Converted SQL statements.
unsupported_items	Array of Table 4-15 objects	Details about unsupported SQL statements.

Table 4-15 UnSupportedItem

Parameter	Type	Description
reason	String	Reasons why the SQL statements cannot be converted.
suggestion	String	Modification suggestions for unsupported statements.
line_number	Integer	Line number.
position	Integer	Position.

Example Request

Converting SQL statements (The source database is Oracle and the target database is RDS for PostgreSQL 11.)

```
POST https://{EndPoint}/v1/{project_id}/sql-conversion
```

```
{
  "source_db_type": "ORACLE",
  "target_db_type": "RDS for PostgreSQL",
  "sql_statement": "create table ugo(col1 int, col2 varchar2);",
  "target_db_version": "11"
}
```

Example Response

Status code: 200

Request succeeded.

```
{
  "converted_sql_statement" : "create table ugo(col1 NUMERIC(38), col2 VARCHAR);",
  "is_support_conversion" : true
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.4 Evaluation Project

4.4.1 Creating an Evaluation Project

Function

This API is used to create an evaluation project. An evaluation project consists of two phases: data collection and database evaluation.

URI

POST /v1/{project_id}/evaluation-projects

Table 4-16 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Request Parameters

Table 4-17 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Table 4-18 Request body parameters

Parameter	Mandatory	Type	Description
evaluation_project_name	Yes	String	Evaluation project name. The name can contain 5 to 50 characters, starts with a letter, and ends with a letter or digit. Underscores (_) and hyphens (-) are allowed. The name must be unique. Minimum length: 5 characters Maximum length: 50 characters
source_db_info	Yes	Table 4-19 object	Source database information.
schemas_info	Yes	Table 4-20 object	Schemas in the source database.
objects_type_info	Yes	Table 4-21 object	Object types in the source database.

Table 4-19 SourceDBInfo

Parameter	Mandatory	Type	Description
connection_string	Yes	String	Connection string.
user_name	Yes	String	Username.
password	Yes	String	User password.
source_db_type	Yes	String	Database type. Value: ORACLE

Parameter	Mandatory	Type	Description
source_db_version	Yes	String	Database version. CAUTION This parameter must be used with source_db_type to form a source database type and version. Currently, the following source database types and versions are supported: ORACLE-11g, ORACLE-12c, ORACLE-18c, and ORACLE-19c. Valid value: <ul style="list-style-type: none"> • 11g • 12c • 18c • 19c

Table 4-20 SchemaInfo

Parameter	Mandatory	Type	Description
is_select_all_schemas	Yes	Boolean	Whether to select all schemas.
schemas_list	No	Array of strings	Source database schemas to be evaluated. This parameter is mandatory when is_select_all_schemas is set to false .

Table 4-21 ObjectTypeInfo

Parameter	Mandatory	Type	Description
is_select_all_objects_type	Yes	Boolean	Whether to select all object types. If the value is set to true , USER is not included.
objects_type_list	No	Array of strings	Object types to be evaluated. This parameter is mandatory when is_select_all_objects_type is set to false .

Response Parameters

None.

Example Request

Creating an evaluation project named **best_UGO** to collect all schemas and supported object types (The source database is Oracle 11g.)

```
POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/evaluation-projects
```

```
{
  "evaluation_project_name": "best_UGO",
  "source_db_info": {
    "user_name": "ugo",
    "password": "Ugo@123",
    "connection_string": "100.xx.xxx.xxx:1521:ORCL",
    "source_db_type": "ORACLE",
    "source_db_version": "11g"
  },
  "schemas_info": {
    "is_select_all_schemas": true,
    "schemas_list": [ ]
  },
  "objects_type_info": {
    "is_select_all_objects_type": true,
    "objects_type_list": [ ]
  }
}
```

Example Response

None.

Status Codes

Status Code	Description
201	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.4.2 Querying Evaluation Projects

Function

This API is used to query evaluation projects.

URI

```
GET /v1/{project_id}/evaluation-projects
```

Table 4-22 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Table 4-23 Query parameters

Parameter	Mandatory	Type	Description
evaluation_project_name	No	String	Evaluation project name (fuzzy search).
evaluation_project_status	No	String	Evaluation project status. Value: <ul style="list-style-type: none"> • COMPLETED • PENDING • FAILED • STOPPED
offset	No	Integer	Offset of the pagination query. Minimum value: 0 Maximum value: 99 Default value: 0 .
limit	No	Integer	Number of items displayed per page. Minimum value: 1 Maximum value: 100 Default value: 10

Request Parameters

Table 4-24 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-25 Response body parameters

Parameter	Type	Description
total_count	Integer	Total number of evaluation projects.
evaluation_projects	Array of Table 4-26 objects	Evaluation projects on the current page.

Table 4-26 EvaluationProject

Parameter	Type	Description
evaluation_project_id	Integer	Evaluation project ID.
evaluation_project_name	String	Evaluation project name.
evaluation_project_status	String	Evaluation project status.
project_status_detail	Table 4-27 object	Details about the evaluation project status.
source_database	String	Source database type.
source_database_version	String	Source database version.
target_database	String	Target database type.
target_database_version	String	Target database version.
collect_size	Long	Size of collected SQL statements, in bytes.
resource_id	String	Resource ID.
created_time	String	Creation time.
updated_time	String	Update time.
error_reason	String	Failure cause.

Table 4-27 ProjectStatusDetail

Parameter	Type	Description
object_collection_status	String	Collection status.
object_collection_progress	String	Collection progress.
pre_migration_status	String	Evaluation status.
pre_migration_progress	String	Evaluation progress.

Example Request

Querying evaluation projects

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/evaluation-projects?offset=0&limit=2
```

Example Response

Status code: 200

Request succeeded.

```
{
  "evaluation_projects": [ {
    "evaluation_project_id": 187,
    "evaluation_project_name": "ugo_best",
    "evaluation_project_status": "PENDING",
    "project_status_detail": {
      "object_collection_status": "COMPLETED",
      "pre_migration_status": "COMPLETED"
    },
    "source_db_type": "ORACLE",
    "source_db_version": "11g",
    "target_db_version": "",
    "collect_size": 4623291,
    "resource_id": "826c916c-421d-4d9f-a68c-38bc3a9504ad",
    "created_time": "2022-06-23T03:34:39Z",
    "updated_time": "2022-06-23T03:34:39Z",
    "error_reason": ""
  }, {
    "evaluation_project_id": 129,
    "evaluation_project_name": "ugo1_best",
    "evaluation_project_status": "PENDING",
    "project_status_detail": {
      "object_collection_status": "COMPLETED",
      "pre_migration_status": "COMPLETED"
    },
    "source_db_type": "ORACLE",
    "source_db_version": "11g",
    "target_db_version": "",
    "collect_size": 2914875,
    "resource_id": "c98da3c4-7afb-4b62-85f3-c8cb5f2393ef",
    "created_time": "2022-06-21T06:58:18Z",
    "updated_time": "2022-06-21T06:58:18Z",
    "error_reason": ""
  } ],
}
```

```
"total_count" : 3
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.4.3 Querying the Status of an Evaluation Project

Function

This API is used to query the status of an evaluation project.

URI

GET /v1/{project_id}/evaluation-projects/{evaluation_project_id}/status

Table 4-28 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
evaluation_project_id	Yes	String	Evaluation project ID.

Request Parameters

Table 4-29 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-30 Response body parameters

Parameter	Type	Description
evaluation_project_id	Integer	Evaluation project ID.
evaluation_project_name	String	Evaluation project name.
evaluation_project_status	String	Evaluation project status. Value: <ul style="list-style-type: none"> • COMPLETED • WAITING • PENDING • FAILED • STOPPED
project_status_detail	Table 4-31 object	Details about the evaluation project status.
source_database_type	String	Source database type.
source_database_version	String	Source database version.
target_database_type	String	Target database type.
target_database_version	String	Target database version.

Table 4-31 ProjectStatusDetail

Parameter	Type	Description
object_collection_status	String	Collection status.
object_collection_progress	String	Collection progress.
pre_migration_status	String	Evaluation status.
pre_migration_progress	String	Evaluation progress.

Example Request

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/evaluation-projects/230/status
```

Example Response

Status code: 200

Request succeeded.

```
{
  "evaluation_project_id": 230,
  "evaluation_project_name": "best_UGO",
  "evaluation_project_status": "PENDING",
  "project_status_detail": {
    "object_collection_status": "COMPLETED",
    "pre_migration_status": "COMPLETED"
  },
  "source_db_type": "ORACLE",
  "source_db_version": "11g",
  "target_db_version": ""
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.4.4 Querying Details About an Evaluation Project

Function

This API is used to query details about an evaluation project.

URI

```
GET /v1/{project_id}/evaluation-projects/{evaluation_project_id}/detail
```

Table 4-32 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Parameter	Mandatory	Type	Description
evaluation_project_id	Yes	String	Evaluation project ID.

Request Parameters

Table 4-33 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-34 Response body parameters

Parameter	Type	Description
source_db_size	String	Database size.
source_db_schema	Long	Number of schemas in the database.
source_db_cpu	String	Number of vCPUs of the database.
source_db_character_set	String	Character set.
source_db_os	String	Database OS.
source_db_instance_num	Integer	Number of instances.
source_db_ram	String	Memory of the database.
source_db_info	Table 4-35 object	Source database information.
source_db_physical_ram	String	Physical RAM of the database.
source_db_version	String	Database version.

Parameter	Type	Description
source_db_conf	String	Database configurations.
source_db_clock	String	Time zone of the database.
evaluation_project_id	Integer	Evaluation project ID.
evaluation_project_name	String	Evaluation project name.

Table 4-35 SourceDB

Parameter	Type	Description
user_name	String	Username.
connection_string	String	Connection string.
source_db_type	String	Source database type.
service_name	String	Service name.
ip	String	IP address.
port	String	Port.

Example Request

Obtaining details of an evaluation project

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/evaluation-projects/230/detail
```

Example Response

Status code: 200

Request succeeded.

```
{
  "evaluation_project_id": 230,
  "evaluation_project_name": "best_UGO",
  "source_db_size": "0.094 TB",
  "source_db_schema": 39,
  "source_db_cpu": "2",
  "source_db_character_set": "ZHS16GBK",
  "source_db_os": "Linux x86 64-bit",
  "source_db_instance_num": 1,
  "source_db_ram": "SGA 0.99 GB, PGA 0.2 GB, AMM",
  "source_db_info": {
    "user_name": "ugo",
```

```

"connection_string" : "100.xx.xxx.xxx:1521:ORCL",
"source_db_type" : "ORACLE",
"service_name" : "orcl",
"ip" : null,
"port" : "null"
},
"source_db_phy_ram" : "7.62 GB",
"source_db_version" : "11.2.0.1.0",
"source_db_conf" : "Single Instance",
"source_db_clock" : "+00:00"
}
    
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.4.5 Confirming the Target Database Type

Function

This API is used to confirm the target database type.

URI

POST /v1/{project_id}/evaluation-projects/target-confirmation

Table 4-36 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Request Parameters

Table 4-37 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Table 4-38 Request body parameters

Parameter	Mandatory	Type	Description
evaluation_project_id	Yes	String	Evaluation project ID.
target_db_type	Yes	String	Target database type.
target_db_version	Yes	String	Target database version.

Response Parameters

Status code: 200

Table 4-39 Response body parameters

Parameter	Type	Description
evaluation_project_id	Integer	Evaluation project ID.
evaluation_project_name	String	Evaluation project name.
evaluation_project_status	String	Evaluation project status. Value: <ul style="list-style-type: none"> ● COMPLETED ● WAITING ● PENDING ● FAILED ● STOPPED
project_status_detail	Table 4-40 object	Details about the evaluation project status.
source_db_type	String	Source database type.
source_db_version	String	Source database version.
target_db_type	String	Target database type.
target_db_version	String	Target database version.

Table 4-40 ProjectStatusDetail

Parameter	Type	Description
object_collection_status	String	Collection status.
object_collection_progress	String	Collection progress.
pre_migration_status	String	Evaluation status.
pre_migration_progress	String	Evaluation progress.

Example Request

Confirming the target database type of the evaluation project (whose ID is **230**) is RDS for MySQL-5.7.

```
POST https://{Endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/evaluation-projects/target-confirmation
{
  "evaluation_project_id": 230,
  "target_db_type": "RDS for MySQL",
  "target_db_version": "5.7"
}
```

Example Response

Status code: 200

Request succeeded.

```
{
  "evaluation_project_id": "230",
  "evaluation_project_name": "best_UGO",
  "evaluation_project_status": "PENDING",
  "project_status_detail": {
    "object_collection_status": "COMPLETED",
    "pre_migration_status": "COMPLETED"
  },
  "source_db_type": "ORACLE",
  "target_db_type": "RDS for MySQL",
  "target_db_version": "5.7"
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.4.6 Deleting an Evaluation Project

Function

This API is used to delete an evaluation project.

URI

DELETE /v1/{project_id}/evaluation-projects/{evaluation_project_id}

Table 4-41 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
evaluation_project_id	Yes	String	Evaluation project ID.

Request Parameters

Table 4-42 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-43 Response body parameters

Parameter	Type	Description
evaluation_project_id	Integer	Evaluation project ID.

Example Request

Deleting an evaluation project

```
Delete https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/evaluation-projects/230
```

Example Response

Status code: 200

Request succeeded.

```
{  
  "evaluation_project_id" : 230  
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5 Migration Project

4.5.1 Creating a Migration Project

Function

This API is used to create a migration project. To create a migration project, there must be an evaluation project in the **Completed** state. A migration project includes the following phases: target database permission check, syntax conversion, verification, migration failure report download, and migration project deletion.

URI

POST /v1/{project_id}/migration-projects

Table 4-44 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Request Parameters

Table 4-45 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Table 4-46 Request body parameters

Parameter	Mandatory	Type	Description
migration_project_name	Yes	String	Migration project name. The name can contain 5 to 50 characters, starts with a letter, and ends with a letter or digit. Underscores (_) and hyphens (-) are allowed. The name must be unique. Minimum length: 5 characters Maximum length: 50 characters
evaluation_project_id	Yes	Integer	Evaluation project ID.
target_database_info	Yes	Table 4-47 object	Target database information.
open_gauss_configuration	No	Table 4-48 object	Configuration items for target database GaussDB.

Table 4-47 TargetDBInfo

Parameter	Mandatory	Type	Description
user_name	Yes	String	Username.

Parameter	Mandatory	Type	Description
password	Yes	String	User password.
service_name	Yes	String	Service name.
instance_id	Yes	String	RDS instance ID.

Table 4-48 GaussDBConfig

Parameter	Mandatory	Type	Description
permission_check_type	No	String	Permission check type. Value: <ul style="list-style-type: none"> objectowner sysadmin

Response Parameters

None.

Example Request

Create a migration project named **OPEN_API_MIGRATION** (the target database instance ID is **dxx49b0c0cc846b6a1ead4caad4cd58ein14**).

```
POST https://{EndPoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects
{
  "migration_project_name": "OPEN_API_MIGRATION",
  "evaluation_project_id": 191,
  "target_db_info": {
    "user_name": "root",
    "password": "password",
    "service_name": "ugo",
    "instance_id": "dxx49b0c0cc846b6a1ead4caad4cd58ein14"
  },
  "open_gauss_config": {
    "permission_check_type": "sysadmin"
  }
}
```

Example Response

None.

Status Codes

Status Code	Description
201	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.2 Querying Migration Projects

Function

This API is used to query migration projects. After migration projects were created, you can call this API to obtain the project IDs based on project names.

URI

GET /v1/{project_id}/migration-projects

Table 4-49 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Table 4-50 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset of the pagination query. Minimum value: 0 Maximum value: 99 Default value: 0 .
limit	No	Integer	Number of items displayed per page. Minimum value: 1 Maximum value: 100 Default value: 10

Request Parameters

Table 4-51 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-52 Response body parameters

Parameter	Type	Description
migration_projects	Array of Table 4-53 objects	Migration projects on the current page.
total_count	Integer	Total number of migration projects.

Table 4-53 MigrationProject

Parameter	Type	Description
migration_project_id	Integer	Migration project ID.
migration_project_name	String	Migration project name.
evaluation_project_id	Integer	Evaluation project ID.
evaluation_project_name	String	Evaluation project name.
migration_project_status	String	Migration project status. Value: <ul style="list-style-type: none"> • READY • NOT_READY

Parameter	Type	Description
permission_check_status	String	Target database permission check status. Valid value: <ul style="list-style-type: none">● SUCCESS● FAILED● WAITING● PENDING● IGNORE
resource_id	String	Resource ID.
created_time	String	Creation time.
updated_time	String	Update time.

Example Request

Obtaining migration projects

```
POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects?offset=0&limit=2
```

Example Response

Status code: 200

Request succeeded.

```
{
  "migration_projects": [ {
    "migration_project_id": 243,
    "migration_project_name": "OPEN_API_MIGRATION",
    "evaluation_project_id": 191,
    "evaluation_project_name": "OPEN_API_EVALUATION",
    "migration_project_status": "READY",
    "permission_check_status": "SUCCESS",
    "resource_id": "28c045f5-7941-4a2c-85d2-8587334bcacc",
    "created_time": "2022-06-20T06:38:52Z",
    "updated_time": "2022-06-20T06:38:52Z"
  }, {
    "migration_project_id": 242,
    "migration_project_name": "ugo_test",
    "evaluation_project_id": 191,
    "evaluation_project_name": "OPEN_API_EVALUATION",
    "migration_project_status": "READY",
    "permission_check_status": "SUCCESS",
    "resource_id": "19596ba7-8680-47dd-a67a-d567d7535601",
    "created_time": "2022-06-20T04:11:13Z",
    "updated_time": "2022-06-20T04:11:13Z"
  } ],
  "total_count": 8
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.3 Querying the Status of a Migration Project

Function

This API is used to query the status of a migration project.

URI

GET /v1/{project_id}/migration-projects/{migration_project_id}/status

Table 4-54 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-55 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-56 Response body parameters

Parameter	Type	Description
migration_project_id	Integer	Migration project ID.
migration_project_name	String	Migration project name.
evaluation_project_id	Integer	Evaluation project ID.
evaluation_project_name	String	Evaluation project name.
migration_project_status	String	Migration project status. Value: <ul style="list-style-type: none"> • READY • NOT_READY
permission_check_status	String	Target database permission check status. Valid value: <ul style="list-style-type: none"> • SUCCESS • FAILED • WAITING • PENDING • IGNORE
resource_id	String	Resource ID.
created_time	String	Creation time.
updated_time	String	Update time.

Example Request

Obtaining the status of a migration project

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/243/status
```

Example Response

Status code: 200

Request succeeded.

```
{
  "migration_project_id" : 243,
  "migration_project_name" : "OPEN_API_MIGRATION",
  "evaluation_project_id" : 191,
  "evaluation_project_name" : "OPEN_API_EVALUATION",
  "migration_project_status" : "READY",
  "permission_check_status" : "SUCCESS",
  "resource_id" : "28c045f5-7941-4a2c-85d2-8587334bcacc",
```

```
"created_time" : "2022-06-20T06:38:52Z",
"updated_time" : "2022-06-20T06:38:52Z"
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.4 Checking Target Database Permissions

Function

This API is used to check target database permissions.

URI

POST /v1/{project_id}/migration-projects/{migration_project_id}/permission-check

Table 4-57 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-58 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

None.

Example Request

Checking target database permissions

POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/221/permission-check

Example Response

None.

Status Codes

Status Code	Description
202	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.5 Querying Permission Check Results

Function

This API is used to query permission check results. It can be called only when the value of **permission_check_status** is **SUCCESS** or **FAILED**.

URI

GET /v1/{project_id}/migration-projects/{migration_project_id}/permission-result

Table 4-59 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Table 4-60 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset of the pagination query. Minimum value: 0 Maximum value: 99 Default value: 0 .
limit	No	Integer	Number of items displayed per page. Minimum value: 1 Maximum value: 100 Default value: 10

Request Parameters

Table 4-61 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-62 Response body parameters

Parameter	Type	Description
total_count	Integer	Total number of permission check items.
passed_permission_items	Array of Table 4-63 objects	Item that passed the permission check.
alarm_permission_items	Array of Table 4-63 objects	Item for which an alarm was generated.
failed_permission_items	Array of Table 4-63 objects	Item that failed the permission check.
passed_count	Integer	Number of items that passed the permission check.
alarm_count	Integer	Number of items for which alarms were generated.

Parameter	Type	Description
failed_count	Integer	Number of items that failed the permission check.

Table 4-63 PermissionItem

Parameter	Type	Description
permission_type	String	Permission type.
schema_name	String	Schema name.
description	String	Permission description.
status	String	Whether the item passed the permission check.
failed_reason	String	Failure cause.
failed_detail	String	Failure details.
suggest_solution	Array of strings	Handling suggestions.

Example Request

Obtaining permission check results

```
POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/permission-result?offset=0&limit=2
```

Example Response

Status code: 200

Request succeeded.

```
{
  "total_count": 119,
  "passed_permission_items": [ {
    "permission_type": "MATERIALIZED_VIEW Create Permission",
    "schema_name": "SYNTAX_MIG_SCHEMA",
    "description": "Permission to Create/Drop MATERIALIZED_VIEW",
    "status": "alarm",
    "failed_reason": "Permission not found.",
    "failed_detail": "User does not have the permission to Create/Drop/Alter TABLE",
    "suggest_solution": [ "Provide user with Create/Drop/Alter Privilege, for example:- GRANT CREATE, DROP, ALTER ON *.* TO \"\{user}\">@\" \{host}\";" ]
  }, {
    "permission_type": "SUPERUSER Privilege",
    "schema_name": "",
    "description": "Check whether user has the super user privilege",
    "status": "alarm",
    "failed_reason": "Permission not found.",
    "failed_detail": "User does not have Super User privilege",
    "suggest_solution": [ "Provide user with Super User Privilege, for example:- GRANT SUPER ON *.* TO \"\{user}\">@\" \{host}\";" ]
  } ]
}
```

```

    } ],
    "alarm_permission_items" : [ {
      "permission_type" : "MATERIALIZED_VIEW Create Permission",
      "schema_name" : "SYNTAX_MIG_SCHEMA",
      "description" : "Permission to Create/Drop MATERIALIZED_VIEW",
      "status" : "alarm",
      "failed_reason" : "Permission not found.",
      "failed_detail" : "User does not have the permission to Create/Drop/Alter TABLE",
      "suggest_solution" : [ "Provide user with Create/Drop/Alter Privilege, for example:- GRANT CREATE,
      DROP, ALTER ON *.* TO \"\{user}\@\" \{host}\";" ]
    }, {
      "permission_type" : "SUPERUSER Privilege",
      "schema_name" : "",
      "description" : "Check whether user has the super user privilege",
      "status" : "alarm",
      "failed_reason" : "Permission not found.",
      "failed_detail" : "User does not have Super User privilege",
      "suggest_solution" : [ "Provide user with Super User Privilege, for example:- GRANT SUPER ON *.* TO
      \"\{user}\@\" \{host}\";" ]
    } ],
    "passed_count" : 116,
    "alarm_count" : 3
  }

```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.6 Querying Migration Project Details

Function

This API is used to query migration project details. It can be called only when the value of **migration_project_status** is **READY**.

URI

GET /v1/{project_id}/migration-projects/{migration_project_id}/detail

Table 4-64 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .

Parameter	Mandatory	Type	Description
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-65 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-66 Response body parameters

Parameter	Type	Description
migration_project_id	Integer	Migration project ID.
migration_project_name	String	Migration project status.
evaluation_project_name	String	Evaluation project name.
source_db_info	Table 4-67 object	Source database information.
target_db_info	Table 4-67 object	Target database information.
created_time	String	Creation time.
updated_time	String	Update time.

Table 4-67 DataBase

Parameter	Type	Description
port	String	Port.
ip	String	IP address.

Parameter	Type	Description
user_name	String	Username.
service_name	String	Service name.
connection_string	String	Connection string.

Example Request

Querying migration project details

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/220/detail
```

Example Response

Status code: 200

Request succeeded.

```
{
  "migration_project_id" : 220,
  "migration_project_name" : "ugo_migration_2",
  "evaluation_project_name" : "ugo_best",
  "source_db_info" : {
    "connection_string" : "100.xx.xxx.xxx:1521:ORCL",
    "ip" : "",
    "port" : "",
    "service_name" : "",
    "user_name" : "ugo"
  },
  "target_db_info" : {
    "connection_string" : "",
    "ip" : "19x.1x8.x.96",
    "port" : "3306",
    "service_name" : "ugo",
    "user_name" : "root"
  },
  "created_time" : "2022-06-20T04:11:13Z",
  "updated_time" : "2022-06-20T04:11:13Z"
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.7 Submitting Syntax Conversion of Objects

Function

This API is used to submit syntax conversion of objects. It can be called only when the value of **migration_project_status** is **READY**.

URI

POST /v1/{project_id}/migration-projects/{migration_project_id}/syntax-conversion

Table 4-68 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-69 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

None.

Example Request

Submitting syntax conversion of objects

```
POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/217/syntax-conversion
```

Example Response

None.

Status Code

Status Code	Description
202	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.8 Querying Syntax Conversion Progress of Objects

Function

This API is used to query syntax conversion progress of objects.

URI

GET /v1/{project_id}/migration-projects/{migration_project_id}/syntax-conversion-progress

Table 4-70 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-71 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-72 Response body parameters

Parameter	Type	Description
total_objects_count	Integer	Total number of objects.
completed_objects_count	Integer	Number of objects whose syntax conversion was complete.
objects_list	Array of Table 4-73 objects	Objects to be converted.

Table 4-73 DatabaseObject

Parameter	Type	Description
object_type	String	Object type.
total_count	Long	Total number of objects of this type.
succeed_count	Long	Number of objects that were converted.
failed_count	Long	Number of objects that failed to be converted.
ignored_count	Long	Number of ignored objects.
manual_count	Long	Number of objects that need to be manually modified.
success_rate	String	Success rate.

Example Request

Querying the syntax conversion progress of objects

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/220/syntax-conversion-progress
```

Example Response

Status code: 200

Request succeeded.

```
{
  "total_objects_count" : 11,
  "completed_objects_count" : 11,
  "objects_list" : [ {
    "object_type" : "FUNCTION",
    "total_count" : 6,
    "succeed_count" : 6,
    "failed_count" : 0,
    "ignored_count" : 0,
    "manual_count" : 0,
    "success_rate" : "100.00%"
  }
]
```

```

    }, {
      "object_type": "GRANT",
      "total_count": 5,
      "succeed_count": 3,
      "failed_count": 2,
      "ignored_count": 0,
      "manual_count": 0,
      "success_rate": "60.00%"
    }
  ]
}
    
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.9 Submitting Verification

Function

This API is used to submit verification. It can be called only after syntax conversion is complete.

URI

POST /v1/{project_id}/migration-projects/{migration_project_id}/verification

Table 4-74 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-75 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

None.

Example Request

Submitting verification

```
POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/220/verification
```

Example Response

None.

Status Codes

Status Code	Description
202	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.10 Querying the Verification Progress

Function

This API is used to query the verification progress.

URI

```
GET /v1/{project_id}/migration-projects/{migration_project_id}/verification-progress
```

Table 4-76 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-77 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-78 Response body parameters

Parameter	Type	Description
total_objects_count	Integer	Total number of objects.
completed_objects_count	Integer	Number of objects that have been migrated.
objects_list	Array of Table 4-79 objects	Objects to be migrated.

Table 4-79 DatabaseObject

Parameter	Type	Description
object_type	String	Object type.
total_count	Long	Total number of objects of this type.
succeed_count	Long	Number of objects that were migrated.

Parameter	Type	Description
failed_count	Long	Number of objects that failed to be migrated.
ignored_count	Long	Number of ignored objects.
manual_count	Long	Number of objects that need to be manually modified.
success_rate	String	Success rate.

Example Request

Obtaining the migration progress.

```
POST https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/221/verification-progress
```

Example Response

Status code: 200

Request succeeded.

```
{
  "total_objects_count" : 6,
  "completed_objects_count" : 4,
  "objects_list" : [ {
    "object_type" : "FUNCTION",
    "total_count" : 4,
    "succeed_count" : 3,
    "failed_count" : 1,
    "ignored_count" : 0,
    "manual_count" : 0,
    "success_rate" : "75.00%"
  }, {
    "object_type" : "GRANT",
    "total_count" : 2,
    "succeed_count" : 0,
    "failed_count" : 0,
    "ignored_count" : 0,
    "manual_count" : 0,
    "success_rate" : "0.00%"
  } ]
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.11 Downloading a Migration Error Report

Function

This API is used to download a migration error report.

URI

GET /v1/{project_id}/migration-projects/{migration_project_id}/download-failure-report

Table 4-80 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-81 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

None.

Example Request

Downloading a migration error report.

```
GET https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/220/download-failure-report
```

Example Response

None.

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

4.5.12 Deleting a Migration Project

Function

This API is used to delete a migration project.

URI

DELETE /v1/{project_id}/migration-projects/{migration_project_id}

Table 4-82 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region. For details about how to obtain the project ID, see Obtaining a Project ID .
migration_project_id	Yes	String	Migration project ID.

Request Parameters

Table 4-83 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token obtained from IAM.

Response Parameters

Status code: 200

Table 4-84 Response body parameters

Parameter	Type	Description
migration_project_id	String	Migration project ID.

Example Request

Deleting a migration project

```
DELETE https://{endpoint}/v1/0ac6eb2c8000d2ee2fd9c006dededbe6/migration-projects/16
```

Example Response

Status code: 200

Request succeeded.

```
{  
  "migration_project_id" : "16"  
}
```

Status Codes

Status Code	Description
200	Request succeeded.

Error Codes

For details, see [Error Codes](#).

5 Permissions Policies and Supported Actions

5.1 Permissions Policies and Supported Actions

This section describes fine-grained permissions management for your UGO resources. If your account does not need individual IAM users, then you may skip over this section.

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

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

NOTE

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

An account has all the permissions required to call all APIs, but IAM users must be assigned the required permissions. The permissions required for calling an API are determined by the actions supported by the API. Only users that have been granted permissions allowing the actions can call the API successfully.

Supported Actions

UGO provides system-defined policies that can be directly used in IAM. You can also create custom policies and use them to supplement system-defined policies, implementing more refined access control. Operations supported by policies are specific to APIs. The following are common concepts related to policies:

- **Permission:** A statement in a policy that allows or denies certain operations.
- **APIs:** REST APIs that can be called by a user who has been granted specific permissions.

- Action: Specific operations that are allowed or denied.
- IAM projects or enterprise project: Scope of users a permission is granted to. Policies that contain actions for both IAM and enterprise projects can be used and take effect for both IAM and Enterprise Management. Policies that only contain actions for IAM projects can be used and only take effect for IAM. For details about the differences between IAM and enterprise projects, see [Differences Between IAM and Enterprise Management](#).

For details about the custom actions supported by UGO, see [UGO Actions](#).

5.2 UGO Actions

 NOTE

The check mark (√) and cross symbol (x) indicate that an action takes effect and does not take effect for the corresponding type of projects, respectively.

Table 5-1 Actions

Function	API	Action	IAM Project	Enterprise Project
Querying API versions	/	None.	√	√
Querying a specified API version	/api_version}	None.	√	√
Querying quotas	/v1/{project_id}/quotas	ugo:jobs: getQuotas	√	√
Converting SQL statements	/v1/{project_id}/sql-conversion	ugo:sqlStatement:convert	√	√
Creating an evaluation project	/v1/{project_id}/evaluation-projects	ugo:evaluationJob:create	√	√
Querying evaluation projects	/v1/{project_id}/evaluation-projects	ugo:evaluationJob:list	√	√
Querying the status of an evaluation project	/v1/{project_id}/evaluation-projects/{evaluation_project_id}/status	ugo:jobs: getDetails	√	√

Function	API	Action	IAM Project	Enterprise Project
Querying details about an evaluation project	/v1/{project_id}/evaluation-projects/{evaluation_project_id}/detail	ugo:jobs:getDetails	√	√
Confirming the target database type	/v1/{project_id}/evaluation-projects/target-confirmation	ugo:evaluationJob:updateEvalProject	√	√
Deleting an evaluation project	/v1/{project_id}/evaluation-projects/{evaluation_project_id}	ugo:evaluationJob:delete	√	√
Creating a migration project	/v1/{project_id}/migration-projects	ugo:migrationJob:create	√	√
Querying migration projects	/v1/{project_id}/migration-projects	ugo:migrationJob:list	√	√
Querying the status of a migration project	/v1/{project_id}/migrations/{migration_project_id}/status	ugo:jobs:getDetails	√	√
Checking target database permissions	/v1/{project_id}/migration-projects/{migration_project_id}/permission-check	ugo:migrationJob:create	√	√
Querying permission check results	/v1/{project_id}/migration-projects/{migration_project_id}/permission-result	ugo:jobs:getDetails	√	√
Querying migration project details	/v1/{project_id}/migration-projects/{migration_project_id}/detail	ugo:jobs:getDetails	√	√
Submitting syntax conversion	/v1/{project_id}/migration-projects/{migration_project_id}/syntax-conversion	ugo:migrationJob:startConvert	√	√

Function	API	Action	IAM Project	Enterprise Project
Querying the syntax conversion progress of objects	/v1/{project_id}/migration-projects/{migration_project_id}/syntax-conversion-progress	ugo:jobs:getDetails	√	√
Submitting verification	/v1/{project_id}/migration-projects/{migration_project_id}/verification	ugo:migrationJobs:startVerify	√	√
Querying the verification progress	/v1/{project_id}/migration-projects/{migration_project_id}/verification-progress	ugo:jobs:getDetails	√	√
Downloading a migration error report	/v1/{project_id}/migration-projects/{migration_project_id}/download-failure-report	ugo:jobs:getDetails	√	√
Deleting a migration project	/v1/{project_id}/migration-projects/{migration_project_id}	ugo:migrationJobs:delete	√	√

A Appendixes

A.1 Abnormal Request Results

The following table describes the abnormal parameters.

Table A-1 Abnormal parameters

Parameter	Type	Description
error_code	String	Error code returned when a task submission exception occurs.
error_msg	String	Error description returned when a task submission exception occurs

Example response:

```
{  
  "error_code": "UGO.1000",  
  "error_msg": "Parameter is empty."  
}
```

A.2 Status Codes

[Table A-2](#) describes status codes.

Table A-2 Status codes

Status Code	Message	Description
100	Continue	The client should continue with its request. This interim response is used to inform the client that the initial part of the request has been received and has not yet been rejected by the server.
101	Switching Protocols	The protocol should be switched. The protocol can only be switched to a more advanced protocol. For example, the current HTTP protocol is switched to a later version.
200	OK	Request succeeded.
201	Created	The request for creating a resource or task has been fulfilled.
202	Accepted	The request has been accepted, but the processing has not been completed.
203	Non-Authoritative Information	Unauthorized information. The request is successful.
204	NoContent	The server has successfully processed the request, but has not returned any content. The status code is returned in response to an HTTP OPTIONS request.
205	Reset Content	The server has fulfilled the request, but the requester is required to reset the content.
206	Partial Content	The server has processed certain GET requests.
300	Multiple Choices	There are multiple options for the location of the requested resource. The response contains a list of resource characteristics and addresses from which the user or user agent (such as a browser) can choose the most appropriate one.
301	Moved Permanently	The requested resource has been assigned a new permanent URI, and the new URI is contained in the response.
302	Found	The requested resource was temporarily moved.
303	See Other	The response to the request can be found under a different URI and should be retrieved using a GET or POST method.

Status Code	Message	Description
304	Not Modified	The requested resource has not been modified. In such a case, there is no need to retransmit the resource since the client still has a previously-downloaded copy.
305	Use Proxy	The requested resource must be accessed through a proxy.
306	Unused	The HTTP status code is no longer used.
400	BadRequest	Invalid request. The client should not repeat the request without modifications.
401	Unauthorized	The status code is returned after the client provides the authentication information, indicating that the authentication information is incorrect or invalid.
402	Payment Required	This status code is reserved for future use.
403	Forbidden	The request is rejected. The server understood the request, but is refusing to fulfill it. The client should not repeat the request without modifications.
404	NotFound	The requested resource cannot be found. The client should not repeat the request without modifications.
405	MethodNotAllowed	The method specified in the request is not supported for the requested resource. The client should not repeat the request without modifications.
406	Not Acceptable	The server cannot fulfill the request according to the content characteristics of the request.
407	Proxy Authentication Required	This status code is similar to 401, but indicates that the client must first authenticate itself with the proxy.
408	Request Time-out	The server timed out waiting for the request. The client may repeat the request without modifications at any later time.

Status Code	Message	Description
409	Conflict	The request could not be processed due to a conflict. This status code indicates that the resource that the client attempts to create already exists, or the request fails to be processed because of the update of the conflict request.
410	Gone	The requested resource is no longer available. The requested resource has been deleted permanently.
411	Length Required	The server refuses to process the request without a defined Content-Length.
412	Precondition Failed	The server does not meet one of the preconditions that the requester puts on the request.
413	Request Entity Too Large	The request is larger than that a server is able to process. The server may close the connection to prevent the client from continuing the request. If the server temporarily cannot process the request, the response will contain a Retry-After header field.
414	Request-URI Too Large	The URI provided was too long for the server to process.
415	Unsupported Media Type	The server is unable to process the media format in the request.
416	Requested range not satisfiable	The requested range is invalid.
417	Expectation Failed	The server fails to meet the requirements of the Expect request-header field.
422	UnprocessableEntity	The request is well-formed but is unable to be processed due to semantic errors.
429	TooManyRequests	The client has sent more requests than its rate limit is allowed within a given amount of time, or the server has received more requests than it is able to process within a given amount of time. In this case, it is advisable for the client to re-initiate requests after the time specified in the Retry-After header of the response expires.
500	InternalServerError	The server is able to receive the request, but it could not understand the request.

Status Code	Message	Description
501	Not Implemented	The server does not support the requested function.
502	Bad Gateway	The server acting as a gateway or proxy receives an invalid response from a remote server.
503	ServiceUnavailable	The requested service is invalid. The client should not repeat the request without modifications.
504	ServerTimeout	The request cannot be fulfilled within a given time. The response will reach the client only if the request carries a timeout parameter.
505	HTTP Version not supported	The server does not support the HTTP protocol version used in the request.

A.3 Error Codes

Table A-3 Error codes

Status Code	Error Codes	Description
400	UGO.90000000	Internal server error.
400	UGO.90000001	Invalid token.
400	UGO.91000001	The value of %s is invalid.
400	UGO.91000002	SQL statement too long (%s KB).
400	UGO.91000003	Only UTF-8 SQL statement can be converted.
400	UGO.91000004	This evaluation project name already exists.
400	UGO.91000005	The elements in objects_type_list are invalid: %s.
400	UGO.91000006	This migration project name already exists.
400	UGO.91000007	The account is frozen.
400	UGO.92000001	Queried version not found.
400	UGO.92000002	Evaluation project not found.
400	UGO.92000003	The evaluation project is frozen.
400	UGO.92000004	This operation is not allowed due to the project status.
400	UGO.92000005	Failed to query RDS instance information.

Status Code	Error Codes	Description
400	UGO.92000006	Failed to create a VPC endpoint.
400	UGO.92000007	Migration project not found.
400	UGO.92000008	The migration project is frozen.
400	UGO.92000009	The evaluation project is not in COMPLETED status.

A.4 Obtaining a Project ID

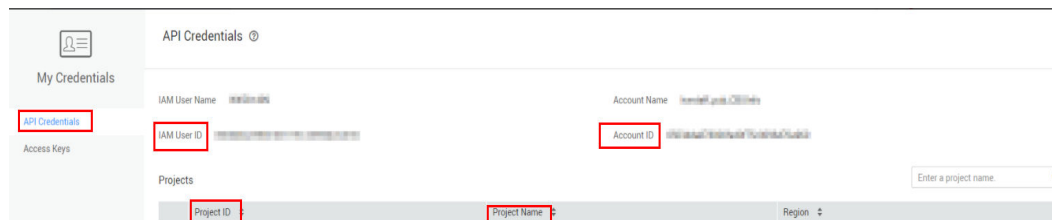
Obtaining a Project ID from the Console

When calling APIs, you need to specify the project ID in some URLs. To do so, you need to obtain the project ID first. Perform the following steps to obtain a project ID:

- Step 1** Sign up and log in to the management console.
- Step 2** Click your username in the upper right corner and select **Basic Information** from the drop-down list.
- Step 3** On the **Account Info** page, click **Manage**.

On the **API Credentials** page, view the project ID in the project list.

Figure A-1 Obtaining a project ID



----End

Obtaining a Project ID by Calling an API

A project ID can also be obtained by calling a specific API. For details, see [Querying Project Information](#).

The API used to obtain a project ID is **GET https://{Endpoint}/v3/projects/**, where *{Endpoint}* indicates the IAM endpoint. You can obtain the IAM endpoint from [Regions and Endpoints](#). For details about API authentication, see [Authentication](#).

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

```
{
  "projects": [
    {
      "domain_id": "65382450e8f64ac0870cd180d14e684b",
      "is_domain": false,

```

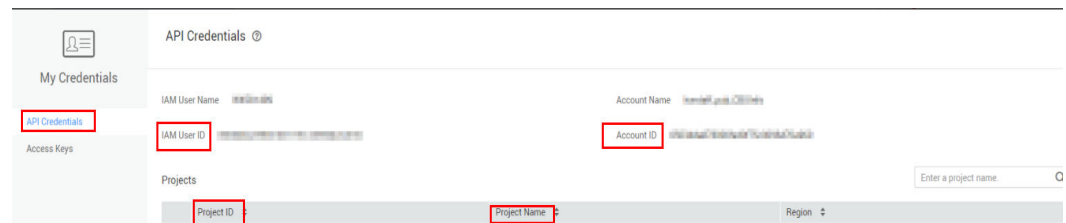
```
"parent_id": "65382450e8f64ac0870cd180d14e684b",
"name": "ap-southeast-3",
"description": "",
"links": {
  "next": null,
  "previous": null,
  "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
},
"id": "a4a5d4098fb4474fa22cd05f897d6b99",
"enabled": true
},
],
"links": {
  "next": null,
  "previous": null,
  "self": "https://www.example.com/v3/projects"
}
}
```

A.5 Obtaining an Account ID

An account ID (domain-id) is required for some URLs when an API is called. To obtain the account ID, perform the following steps:

- Step 1** Sign up and log in to the management console.
- Step 2** Click the username and choose **My Credentials** from the drop-down list.
On the **API Credentials** page, view the account ID in the project list.

Figure A-2 Obtaining the account ID



----End