Distributed Database Middleware

API Reference

Issue 01

Date 2022-08-17

HUAWEI

HUAWEI TECHNOLOGIES CO., LTD.

Trademarks and Permissions


and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Contents

1 Before You Start

1.1 Overview

Welcome to Distributed Database Middleware (DDM). This document describes functions, syntax, parameters, and examples of DDM.

If you plan to access DDM through an API, ensure that you are familiar with DDM concepts.

This document describes how to use application programming interfaces (APIs) to perform creating, querying, deleting, and updating operations.

NOTE

- This document will be updated when APIs of new functions are added, for example, adding response parameters.
- To reduce impacts caused by API changes, DDM is backward compatible with existing APIs. When using DDM, you should accept and ignore unused parameters and parameter values in JSON responses.

1.2 API Calling

DDM supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS.

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 DDM instances that you can create is determined by your quota.

- For more constraints, see API description.

1.5 Concepts

- Account

  An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity 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).

- Region

  A region is a geographic area in which cloud resources are deployed. Availability zones (AZs) in the same region can communicate with each other over an intranet, while AZs in different regions are isolated from each other. Deploying cloud resources in different regions can better suit certain user requirements or comply with local laws or regulations.

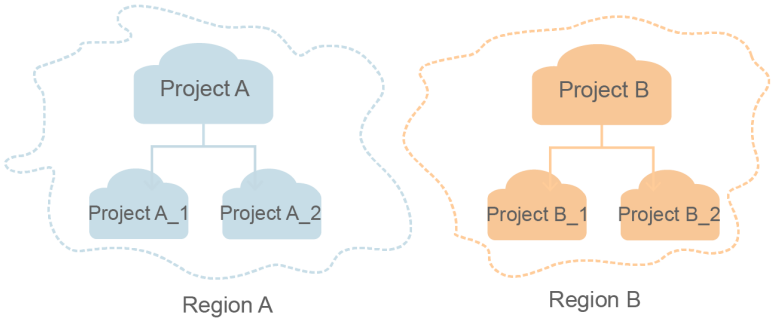
- AZ

  An AZ comprises one or more physical data centers equipped with independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Computing, network, storage, and other resources in an AZ are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow users to build cross-AZ high-availability systems.

- Project

  A project corresponds to a region. Projects group and isolate resources (including compute, storage, and network resources) across physical regions. Users can be granted permissions in a default project to access all resources in the region associated with the 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 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 the enterprise project.

2 API Overview

DDM provides REST APIs. With DDM APIs, you can use all DDM functions, including creating DDM instances and schemas.

Table 2-1 API description

Type	Subtype	Description
APIs for managing DDM instances	Creating a DDM instance	This API is used to create DDM instances. DDM runs in VPCs. Before applying for a DDM instance, ensure that a VPC is available and a subnet and security group have been configured.
	Querying DDM instances	This API is used to query DDM instances.
	Querying details of a DDM instance	This API is used to query the details about a DDM instance.
	Modifying the name of a DDM instance	This API is used to modify the name of an existing DDM instance.
	Modifying the security group of a DDM instance	This API is used to modify inbound and outbound rules of the security group of the DDM instance.
	Deleting a DDM instance	This API is used to delete a DDM instance to release all its resources.
	Restarting a DDM instance	This API is used to restart a DDM instance.
	Reloading table data	This API is used to reload table data of the required DDM instance for cross-region DR.
	Scaling out a DDM instance	This API is used to add nodes to a specified DDM instance.

Type	Subtype	Description
	Scaling in a DDM instance	This API is used to remove nodes from a specified DDM instance.
APIs for managing schemas	Creating a schema	This API is used to create a schema. Before creating a schema, ensure that there is an RDS DB instance available and that the instance is running properly and not associated with any DDM instance.
	Querying schemas of a DDM instance	This API is used to query schemas of a DDM instance.
	Querying details of a schema	This API is used to query the details about a schema.
	Deleting a schema	This API is used to delete a schema to release all its resources.
APIs for scaling out a schema	Querying available DB instances	This API is used to query DB instances that be selected for scaling out a schema
	Querying the last scaling task	This API is used to query the latest scale-out task of a schema.
	Querying the current scaling task	This API is used to query the current scaling task of a schema.
	Issuing a scale-out task	This API is used to issue a scale-out task for a schema.
	Canceling a scale-out task	This API is used to cancel a scale-out task of a schema.
	Rolling back a scale-out task	This API is used to roll back a scale-out task for a schema.
	Clearing metadata after a schema is scaled out	This API is used to clear metadata after a schema scaling task is complete.
	Retrying a scale-out task	This API is used to retry a scale-out task for a schema.
APIs for managing DDM accounts	Creating a DDM account	This API is used to create a DDM account. DDM accounts are used to connect to and manage schemas. One DDM account can be associated with multiple schemas.
	Querying DDM accounts	This API is used to query DDM accounts.

Type	Subtype	Description
	Modifying a DDM account	This API is used to modify the permissions and associated schemas of a DDM account.
	Deleting a DDM account	This API is used to delete a DDM account. This operation will also disassociate the account from schemas if any.

3 Calling APIs

3.1 Making an API Request

This section describes the structure of a REST API and how to call an API. Before calling an API, you need to obtain the user token.

Request URI

A request URI is in the following format:

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

Although a request URI is a part of a request header, most programming languages or frameworks require the request URI to be separately transmitted, rather than being conveyed in a request message.

Table 3-1 URI parameter description

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service endpoint. The endpoint varies depending on the service and service region. Obtain the value 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, each API is provided only with a resource-path and a request method. This is because the **URI-scheme** value of all APIs is **HTTPS**, and the endpoints in a region are the same. Therefore, the two parts are omitted.

Request Method

HTTP methods, which are also called operations or actions, specify the type of operations that you are requesting.

Table 3-2 HTTP methods

Method	Description
GET	Requests a server to return specified resources.
PUT	Requests a server to update specified resources.
POST	Requests the server to add a resource or perform special operations.
DELETE	Requests a server to delete specified resources, for example, an object.

For example, for 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 Headers

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.

You can also add additional fields to the request header, for example, the fields required by a specified URI and an HTTP method. **Table 3-3** lists common request header fields.

Table 3-3 Common request headers

Field	Description	Mandatory	Example
Content-Type	MIME type of the request body. You are advised to use the default value **application/json**. For APIs used to upload objects or images, the value varies depending on the flow type.	Yes	application/json
Content-Length	Length of the request body. The unit is byte.	This parameter is optional for POST requests, but must be left blank for GET requests.	3495
X-Project-Id	Project ID. Obtain the project ID by following the instructions in **Obtaining a Project ID**.	No	e9993fc787d94b6c886cbaa340f9c0f4
X-Auth-Token	User token After the request is processed, the value of **X-Subject-Token** in the header is the token value.	Yes	The following is part of an example token: MIIPAgYJKoZIhvcNAQc-Co...ggg1BBIINPXsidG9rZ

The API used to obtain a user token does not require authentication. Therefore, this API only requires adding the **Content-Type** field. The request with the added **Content-Type** header is as follows:

```
POST https://{{endpoint}}/v3/auth/tokens
Content-Type: application/json
```

(Optional) Request Body

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

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

For the API used to obtain a user token, the request parameters and parameter description can be obtained in the API request. The following provides an example request with a body included. Replace ***username***, ***domainname***, ********* (login password), and ***xxxxxxxxxxxxxxxxx*** (project name) with actual values. You can obtain the values from **Regions and Endpoints**.

NOTE

The **scope** parameter specifies where a token takes effect. You can set **scope** to an account or a project under an account. In the following example, the token takes effect only for the resources in a specified project.

```
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": "xxxxxxxxxxxxxxxxx"
            }
        }
    }
}
```

If all data required for the API request is available, you can send the request to call the API through **curl**, **Postman**, or coding. For the API of obtaining a user token, **x-subject-token** in the response header is the required user token. This token can then be used to authenticate the calling of other APIs.

Initiating Requests

You can initiate a request based on the constructed request message in one of the following ways:

- cURL

  cURL is a command-line tool used to perform URL operations and transmit information. It serves as an HTTP client that can send HTTP requests to the server and receive response messages. cURL is used for API debugging. For more information about cURL, visit **https://curl.haxx.se/**.

  NOTE

  For security purposes, run the **curl** command on the server to query information, and then clear operation records, including but not limited to records in the **~/.bash_history** and **/var/log/messages** directories (if any).

- Code

  You can call APIs using code to assemble, send, and process request messages.

- REST client

  Both Mozilla Firefox and Google Chrome provide a graphical browser plug-in, REST client, to send and process requests. For Mozilla Firefox, see **Firefox REST Client**. For Google Chrome, see **Chrome REST Client**.

3.2 Authentication

Token authentication is required to call APIs.

Authentication using tokens: General requests are authenticated using tokens.

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. Token-based authentication adds a token in a request as its header during API calling to obtain the permissions for operating APIs on IAM.

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

In **Making an API Request**, the process of calling the API used to obtain a user token is described.

After obtaining the token, add the **X-Auth-Token** header in a request 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....
```


3.3 Returned Values

Status Code

After sending a request, you will receive a response, including 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 Codes**.

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

Response Header

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

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

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

(Optional) Response Body

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

For the API used to obtain a user token, the following information is returned. The following describes part of the request body.

```
{
    "token": {
        "expires_at": "2019-02-13T06:52:13.855000Z",
```



```
        "methods": [
            "password"
        ],
        "catalog": [
            {
                "endpoints": [
                    {
                        "region_id": "az-01",
.....
```

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

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

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

4 DDM Instance Management

4.1 Querying DDM Engine

Function

This API is used to query information about DDM engine.

Constraints

None

URI

GET /v2/{project_id}/engines

Table 4-1 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region

Request Parameters

Table 4-2 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-3 Response body parameters

Parameter	Type	Description
engineGroups	Array of **EngineGroupsInfo** objects	Information of available engines
total	Integer	Number of engine versions

Table 4-4 EngineGroupsInfo

Parameter	Type	Description
id	String	Engine ID
name	String	Engine name
version	String	Engine version
supportAzs	Array of **SupportAzsInfo** objects	AZs

Table 4-5 SupportAzsInfo

Parameter	Type	Description
code	String	AZ code
name	String	AZ name
favored	Boolean	Whether the AZ supports the current engine version

Status code: 400

Table 4-6 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-7 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v2/{project_id}/engines
```

Example Response

Status code: 200

OK

```
{
  "engineGroups": [
    {
      "id": "ac68ac8d-35ab-3924-8de2-a186ff5f960e",
      "name": "ddm",
      "version": "2.4.2.9",
      "supportAzs": [
        {
          "code": "az1xahz",
          "name": "az1xahz",
          "favored": false
        },
        {
          "code": "az2xahz",
          "name": "az2xahz",
          "favored": true
        },
        {
          "code": "az3xahz",
          "name": "az3xahz",
          "favored": false
        }
      ]
    },
    {
      "id": "c790ea2d-9d51-3fa8-9304-3b065f274aa9",
      "name": "ddm",
      "version": "2.3.3.6",
      "supportAzs": [
        {
          "code": "az1xahz",
          "name": "az1xahz",
          "favored": false
        },
        {
          "code": "az2xahz",
          "name": "az2xahz",
          "favored": true
        },
        {
          "code": "az3xahz",
          "name": "az3xahz",
```



```
                "favored": false
            }
        ]
    }
  ],
  "total": 2
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.2 Querying the Quota of Classes Available in Each AZ

Function

This API is used to query the quota of available classes of DDM in each AZ.

Constraints

None

URI

```
GET /v2/{project_id}/flavors?engine_id={engine_id}
```


Table 4-8 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
engine_id	Yes	String	Engine ID, which can be obtained by calling the API for querying DDM engine information.

Request Parameters

Table 4-9 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-10 Response body parameters

Parameter	Type	Description
computeFlavorGroups	Array of **ComputeFlavorGroupsInfo** objects	Compute flavor information
volumeFlavors	Object	Storage flavor information

Table 4-11 ComputeFlavorGroupsInfo

Parameter	Type	Description
groupType	String	Compute resource architecture type. The value can be **x86** or **ARM**.

Parameter	Type	Description
computeFlavors	Array of **ComputeFlavors** objects	Details of compute flavors
total	Integer	Total number of compute flavors

Table 4-12 ComputeFlavors

Parameter	Type	Description
id	String	Flavor ID
typeCode	String	Resource type code
code	String	VM flavor types recorded in DDM
iaasCode	String	VM flavor types recorded by the IaaS layer
cpu	String	Number of CPUs
mem	String	Memory size, in GB
maxConnections	String	Maximum number of connections
serverType	String	Compute resource type, for example, KVM
architecture	String	Compute resource architecture type. The value can be **x86** or **ARM**.
azStatus	Object	AZ status
regionStatus	String	Region status
groupType	String	Compute resource architecture type. The value can be **x86** or **ARM**.
dbType	String	Database engine type
extendFields	Object	Extension field for storing AZ information

Status code: 400

Table 4-13 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-14 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v2/{project_id}/flavors?engine_id={engine_id}
```

Example Response

Status code: 200

OK

```
{
   "computeFlavorGroups": [
      {
         "groupType": "X86",
         "computeFlavors": [
            {
               "id": "eb88535e-ae5b-3b4e-95d2-77a12f65b825",
               "typeCode": "test.resource.type.ddm",
               "code": "ddm.s2.8xlarge.2",
               "iaasCode": "c3.8xlarge.2",
               "cpu": "32",
               "mem": "64",
               "maxConnections": null,
               "serverType": "KVM",
               "architecture": "X86",
               "azStatus": {
                  "az2.dc0": "unsupported",
                  "az3xahz": "normal",
                  "az2xahz": "normal",
                  "az1xahz": "normal"
               },
               "regionStatus": "normal",
               "groupType": null,
               "dbType": "DDM",
               "extendFields": {
                  "azCode": "az2.dc0,az3xahz,az2xahz,az1xahz",
                  "azDescription": "az2.dc0,az3xahz,az2xahz,az1xahz"
               }
            }
         ],
         "total": 1
      },
      {
         "groupType": "ARM",
         "computeFlavors": [
            {
               "id": "8b7efc22-0362-3778-97e1-66700d0ea388",
               "typeCode": "test.resource.type.ddm",
               "code": "ddm.kc1.3xlarge.2",
               "iaasCode": "kc1.3xlarge.2",
               "cpu": "12",
               "mem": "24",
```



```
                "maxConnections": null,
                "serverType": "KVM",
                "architecture": "ARM",
                "azStatus": {
                    "az2.dc0": "unsupported",
                    "az3xahz": "normal",
                    "az2xahz": "normal",
                    "az1xahz": "normal"
                },
                "regionStatus": "normal",
                "groupType": null,
                "dbType": "DDM",
                "extendFields": {
                    "azCode": "az2.dc0,az3xahz,az2xahz,az1xahz",
                    "azDescription": "az2.dc0,az3xahz,az2xahz,az1xahz"
                }
            }
        ],
        "total": 1
    }
  ],
  "volumeFlavors": []
}
```


Status code: 400

bad request


```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```


Status code: 500

server error


```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```


Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.3 Creating a DDM Instance

Function

This API is used to create a DDM instance.

Constraints

DDM runs in VPCs. Before creating a DDM instance, ensure that a VPC is available and a subnet and security group have been configured.

URI

POST /v1/{project_id}/instances

Table 4-15 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region

Request Parameters

Table 4-16 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-17 Request body parameters

Parameter	Mandatory	Type	Description
instance	Yes	**CreateDDMInstanceDetail** object	Instance information
extend_param	No	**CreateDDMInstanceExtendParam** object	Extended parameter

Table 4-18 Parameters for creating a DDM instance

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a DDM instance, which: • Consists of 4 to 64 characters. • Must start with a letter. • Contains only letters, digits, and hyphens (-). Minimum length: **4** Maximum length: **64**
flavor_id	Yes	String	Specification ID
node_num	Yes	Integer	Number of nodes
engine_id	Yes	String	Engine ID
enterprise_project_id	No	String	Enterprise project ID
available_zones	Yes	Array of strings	AZ code.
vpc_id	Yes	String	VPC ID
security_group_id	Yes	String	Security group ID
subnet_id	Yes	String	Subnet ID
param_group_id	No	String	Parameter template ID

Table 4-19 Additional parameters for creating a DDM instance

Parameter	Mandatory	Type	Description
charge_mode	No	String	The value can be: • The default value is **postPaid**.

Response Parameters

Status code: 200

Table 4-20 Response body parameters

Parameter	Type	Description
id	String	DDM instance ID

Status code: 400

Table 4-21 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

- Example request

```
POST https://{endpoint}/v1/{project_id}/instances

{
  "instance" : {
    "name" : "ddm-test-001",
    "flavor_id" : "8f2e696c-a9c1-30bd-af90-25522bc67606",
    "node_num" : "4",
    "engine_id" : "2325a707-0361-8be6-dd01-13474bbac437",
    "enterprise_project_id" : "0",
    "available_zones" : [ "az1xahz" ],
    "vpc_id" : "e1d886ec-cfe7-4cd4-b748-fc55a10b4172",
    "security_group_id" : "035b70ed-319b-4086-9fd7-62a2e8548b2e",
    "subnet_id" : "f942f970-1a02-4eee-8927-xxxxxxxx",
     "param_group_id" : "035b70ed-319b-4086-9fd7-xxxxxxxx"
  }
}
```

- Example request

```
POST https://{endpoint}/v1/{project_id}/instances

{
  "instance" : {
    "name" : "ddm-test-002",
    "flavor_id" : "8f2e696c-a9c1-30bd-af90-25522bc67606",
    "node_num" : 4,
    "engine_id" : "2325a707-0361-8be6-dd01-13474bbac437",
    "enterprise_project_id" : "0",
    "available_zones" : [ "az1xahz" ],
    "vpc_id" : "e1d886ec-cfe7-4cd4-b748-fc55a10b4172",
    "security_group_id" : "035b70ed-319b-4086-9fd7-62a2e8548b2e",
    "subnet_id" : "f942f970-1a02-4eee-8927-e8670ce5a882"
    "param_group_id" : "035b70ed-319b-4086-9fd7-xxxxxxxx"
  },
  "extend_param" : {
    "charge_mode" : "postPaid"
  }
}
```


Example Response

Status code: 200

OK

```
{
  "id" : "",
  "order_id" : "CS1810251738L8VVD"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.4 Querying DDM Instances

Function

This API is used to query DDM instances.

Constraints

None

URI

GET /v1/{project_id}/instances

Table 4-22 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region

Table 4-23 Query parameters

Parameter	Mandatory	Type	Description
offset	Yes	Integer	Number of records displayed on each page. The start value cannot be less than 0. Minimum value: **0**
limit	Yes	Integer	Number of records on each page. The value is greater than 0 and less than or equal to 128. Minimum value: **1** Maximum value: **128**

Request Parameters

Table 4-24 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-25 Response body parameters

Parameter	Type	Description
instances	Array of **ShowDDMInstanceResponse** objects	DDM instance information
instance_num	Integer	Number of DDM instances of a tenant
page_no	Integer	Current page number
page_size	Integer	Number of data records on the current page
total_record	Integer	Total number of data records
total_page	Integer	Total number of pages

Table 4-26 Parameters for querying DDM Instances

Parameter	Type	Description
id	String	DDM instance ID
status	String	DDM instance status
name	String	Name of the created DDM instance
created	String	Time when the schema is created
updated	String	Indicates the updated time, which is the same format as **created**.
available_zone	String	AZ name
vpc_id	String	VPC ID
subnet_id	String	Subnet ID
security_group_id	String	Security group ID
node_count	Integer	Number of nodes
access_ip	String	Address for accessing the DDM instance
access_port	String	Port for accessing the DDM instance
core_count	String	Number of CPUs
ram_capacity	String	Memory size in GB
error_msg	String	Response message. This parameter is not returned if no error occurs.
node_status	String	Node status
enterprise_project_id	String	Enterprise project ID
project_id	String	Project ID of a tenant in a region
engine_version	String	Engine version (core version)

Status code: 400

Table 4-27 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v1/{project_id}/instances?offset={offset}&limit={limit}
```

Example Response

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.5 Viewing Details of a DDM Instance

Function

This API is used to query the details about a DDM instance.

Constraints

None

URI

GET /v1/{project_id}/instances/{instance_id}

Table 4-28 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region

Parameter	Mandatory	Type	Description
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-29 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-30 Response body parameters

Parameter	Type	Description
id	String	DDM instance ID
status	String	DDM instance status
name	String	Name of the DDM instance
created	String	Time when the DDM instance is created
updated	String	Time when the DDM instance is last updated
available_zone	String	Name of the AZ where the DDM instance is located
vpc_id	String	VPC ID
subnet_id	String	Subnet ID
security_group_id	String	Security group ID
node_count	Integer	Number of nodes
access_ip	String	Address for accessing the DDM instance
access_port	String	Port for accessing the DDM instance
node_status	String	Node status

Parameter	Type	Description
core_count	String	Number of CPUs
ram_capacity	String	Memory size in GB
error_msg	String	Response message. This parameter is not returned if no error occurs.
project_id	String	Project ID
order_id	String	Order ID
enterprise_project_id	String	Enterprise project ID
engine_version	String	Engine version (core version)
nodes	Array of **GetDDMDetailfNodesInfo** objects	Node information

Table 4-31 Parameters for querying details of a DDM instance

Parameter	Type	Description
status	String	Status of the DDM instance node
port	String	Port of the DDM instance node
ip	String	IP address of the DDM instance node

Status code: 400

Table 4-32 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-33 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v1/{project_id}/instances/{instance_id}
```

Example Response

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.6 Modifying the Name of a DDM Instance

Function

This API is used to modify the name of a DDM instance.

Constraints

None

URI

PUT /v1/{project_id}/instances/{instance_id}/modify-name

Table 4-34 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-35 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-36 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a DDM instance, which: • Consists of 4 to 64 characters. • Must start with a letter. • Contains only letters, digits, and hyphens (-). Minimum length: **4** Maximum length: **64**

Response Parameters

Status code: 200

Table 4-37 Response body parameters

Parameter	Type	Description
name	String	Name of the DDM instance

Status code: 400

Table 4-38 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-39 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
PUT https://{endpoint}/v1/{project_id}/instances/{instance_id}/modify-name

{
  "name" : "DDM_test_04"
}
```

Example Response

Status code: 200

OK

```
{
  "name" : "DDM_test_04"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```


Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.7 Modifying the Security Group of a DDM Instance

Function

This API is used to modify the security group of a DDM instance.

Constraints

None

URI

PUT /v1/{project_id}/instances/{instance_id}/modify-security-group

Table 4-40 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-41 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-42 Request body parameters

Parameter	Mandatory	Type	Description
security_group_id	Yes	String	Security group ID. The default value is the original security group ID. You can change the value as required.

Response Parameters

Status code: 200

Table 4-43 Response body parameters

Parameter	Type	Description
security_group_id	String	Security group ID

Status code: 400

Table 4-44 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-45 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
PUT https://{endpoint}/v1/{project_id}/instances/{instance_id}/modify-security-group

{
  "security_group_id" : "035b70ed-319b-4086-9fd7-62a2e8548b2e"
}
```

Example Response

Status code: 200

OK

```
{
  "security_group_id" : "035b70ed-319b-4086-9fd7-62a2e8548b2e"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.8 Deleting a DDM Instance

Function

This API is used to delete a DDM instance to release all its resources.

Constraints

None

URI

DELETE /v1/{project_id}/instances/{instance_id}

Table 4-46 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID

Table 4-47 Query parameters

Parameter	Mandatory	Type	Description
delete_rds_data	No	Boolean	Whether to delete the data stored on the associated RDS DB instances. • **true**: indicates that the data stored on the associated RDS DB instances is deleted. • **false**: indicates that the data stored on the associated RDS DB instances is not deleted. This parameter is left blank by default. **NOTE** Parameter values are case-insensitive.

Request Parameters

Table 4-48 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-49 Response body parameters

Parameter	Type	Description
id	String	DDM instance ID

Status code: 400

Table 4-50 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-51 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
DELETE https://{endpoint}/v1/{project_id}/instances/{instance_id}?delete_rds_data=true
```

Example Response

Status code: 200

OK

```
{
  "id" : "9608ce63-bf66-4342-be8a-44f9b6b15d54"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.9 Restarting a DDM Instance

Function

This API is used to restart a specified DDM instance.

Constraints

None

URI

POST /v1/{project_id}/instances/{instance_id}/action

Table 4-52 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-53 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-54 Request body parameters

Parameter	Mandatory	Type	Description
restart	No	**RestarDDMInstanceInfo** object	Restart-related parameter

Table 4-55 Parameters for restarting a DDM instance

Parameter	Mandatory	Type	Description
type	No	String	Restart type. The value can be **soft** or **hard**. The default value is **soft**. This parameter only applies for DDM instances of version 1.0. For DDM 2.0, this parameter may not be available. In this case, only processes are restarted by default. • **soft**: Only processes are restarted. • **hard**: The instance VM is forcibly restarted. Possible values are as follows: • **soft** • **hard**

Response Parameters

Status code: 400

Table 4-56 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-57 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v1/{project_id}/instances/{instance_id}/action
```



```
{
  "restart" : {
    "type" : "soft"
  }
}
```

Example Response

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.10 Reloading Table Data

Function

This API is used to reload table data of a DDM instance for cross-region DR.

Constraints

None

URI

POST /v1/{project_id}/instances/{instance_id}/reload-config

Table 4-58 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-59 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 400

Table 4-60 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-61 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v1/{project_id}/instances/{instance_id}/reload-config
```

Example Response

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

4.11 Scaling Out a DDM instance

Function

This API is used to add nodes to a specified DDM instance.

Constraints

Make sure that the associated RDS DB instance is available and not undergoing other operations.

URI

```
POST /v2/{project_id}/instances/{instance_id}/action/enlarge
```

Table 4-62 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-63 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-64 Request body parameters

Parameter	Mandatory	Type	Description
flavor_id	Yes	String	Flavor ID of the VM for deploying the DDM instance that is to be scaled out
node_number	Yes	Integer	Number of nodes to be added

Response Parameters

Status code: 200

Table 4-65 Response body parameters

Parameter	Type	Description
instanceId	String	DDM instance ID
instanceName	String	DDM instance name
jobId	String	Task ID

Status code: 400

Table 4-66 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-67 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v2/{project_id}/instances/{instance_id}/action/enlarge
```

Example Response

Status code: 200

ok

```
{
    "instanceId": "0d548585363e454b9e569b0a8d15565fin09",
    "instanceName": "ddm-d5e5",
    "jobId": "f56df2d7-0bb9-4546-af82-fef2bc606b2f"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	ok
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.12 Scaling In a DDM instance

Function

This API is used to remove nodes from a specified DDM instance.

Constraints

Make sure that the associated RDS DB instance is available and not undergoing other operations.

URI

POST /v2/{project_id}/instances/{instance_id}/action/reduce

Table 4-68 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-69 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-70 Request body parameters

Parameter	Mandatory	Type	Description
node_number	Yes	Integer	Number of nodes to be removed

Response Parameters

Status code: 200

Table 4-71 Response body parameters

Parameter	Type	Description
instanceId	String	DDM instance ID
instanceName	String	DDM instance name
jobId	String	Task ID

Status code: 400

Table 4-72 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-73 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v2/{project_id}/instances/{instance_id}/action/reduce
```

Example Response

Status code: 200

ok

```
{
    "instanceId": "0d548585363e454b9e569b0a8d15565fin09",
    "instanceName": "ddm-d5e5",
    "jobId": "f56df2d7-0bb9-4546-af82-fef2bc606b2f"
}
```


Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	ok
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.13 Modifying the Read Policy of the Associated DB Instance

Function

This API is used to modify the read policy of the DB instance associated with the DDM instance.

Constraints

Make sure that the associated RDS DB instance is available and not undergoing other operations.

URI

```
PUT /v2/{project_id}/instances/{instance_id}/action/read-write-strategy
```


Table 4-74 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-75 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-76 Request body parameters

Parameter	Mandatory	Type	Description
read_weight	Yes	Map<String, String>	Read weights of the primary DB instance and its read replicas

Response Parameters

Status code: 200

Table 4-77 Response body parameters

Parameter	Type	Description
success	Boolean	Task execution result
instance_id	String	DDM instance ID

Status code: 400

Table 4-78 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-79 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v2/{project_id}/instances/{instance_id}/action/read-write-strategy

{
"read_weight":{"395298ae6fb9496d95939ed556474983in01": 60,
"38ef52c365a14b7caeb7333137900e96in01": 50}
}
```

Example Response

Status code: 200

ok

```
{
    "success": true,
    "instance_id": "46aa2a7d7e8c4b23a9193639ed4950f5in09"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	ok
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.14 Synchronizing DB Instance Data

Function

This API is used to synchronize configuration information of all DB instances that are associated with the current DDM instance.

Constraints

None

URI

POST /v1/{project_id}/instances/{instance_id}/rds/sync

Table 4-80 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-81 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-82 Response body parameters

Parameter	Type	Description
instanceId	String	DDM instance ID
jobId	String	Task ID

Status code: 400

Table 4-83 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-84 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v1/{project_id}/instances/{instance_id}/rds/sync
```

Example Response

Status code: 200

ok

```
{
    "instanceId": "c820883c241dxxxxa5d9xxxxdeb7d487in09",
    "jobId": "175f5aff-xxxx-xxxx-xxxx-d0858982bbec"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.15 Querying Nodes of a DDM Instance

Function

This API is used to query nodes of a DDM instance.

Constraints

None

URI

GET /v1/{project_id}/instances/{instance_id}/nodes

Table 4-85 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-86 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-87 Response body parameters

Parameter	Type	Description
nodes	Array of **NodeList** objects	Instance node information
total	Integer	Number of DDM instance nodes

Table 4-88 NodeList

Parameter	Type	Description
port	String	Port number of the instance node
status	String	Instance node status
node_id	String	Instance node ID

Parameter	Type	Description
ip	String	IP address of the instance node

Status code: 400

Table 4-89 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-90 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v1/{project_id}/instances/{instance_id}/nodes
```

Example Response

Status code: 200

ok

```
{
   "nodes": [
      {
         "port": "5066",
         "status": "normal",
         "node_id": "47667f9ed2a54af7ba9ca46d8d37c26fno09",
         "ip": "192.168.0.179"
      }
   ],
   "total": 1
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
```

```
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.16 Querying Details of a DDM Instance Node

Function

This API is used to query details of the specified DDM instance node.

Constraints

None

URI

```
GET /v1/{project_id}/instances/{instance_id}/nodes/{node_id}
```

Table 4-91 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID
node_id	Yes	String	Node ID

Request Parameters

Table 4-92 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-93 Response body parameters

Parameter	Type	Description
status	String	Node status
name	String	Node name
node_id	String	Node ID
private_ip	String	Private IP address of the node
floating_ip	String	Floating IP address of the node
server_id	String	VM ID
subnet_name	String	Subnet name
datavolume_id	String	Data disk ID
res_subnet_ip	String	IP address provided by the resource subnet
systemvolume_id	String	System disk ID

Status code: 400

Table 4-94 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-95 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v1/{project_id}/instances/{instance_id}/nodes/{node_id}
```

Example Response

Status code: 200

ok

```
{
    "status": "normal",
    "name": "ddm-test_node_01",
    "node_id": "47667f9ed2a54af7ba9ca46d8d37c26fno09",
    "private_ip": "192.168.0.179",
    "floating_ip": "100.64.144.132",
    "server_id": "47b059b2-df84-48b8-a281-ce7bf766a1eb",
    "subnet_name": null,
    "datavolume_id": "073050cb-c8df-4f2b-b7d3-a168d36fd5d2",
    "res_subnet_ip": "172.16.13.156",
    "systemvolume_id": "7a7211f3-aad1-4641-b387-57a8c3567268"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.17 Querying Parameters of a Specified DDM Instance

Function

This API is used to query parameters of a specified DDM instance.

Constraints

None

URI

GET /v3/{project_id}/instances/{instance_id}/configurations

Table 4-96 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-97 Request header parameters

Parameter	Mandatory	Type	Description
X-Language	No	String	Language. The value can be **zh-cn** or **en-us**. The default value is **zh-cn**.

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 4-98 Response body parameters

Parameter	Type	Description
updated	String	Time when the instance parameter is last updated
configuration_parameter	Array of **ConfigurationParameterList** objects	Information about DDM instance parameters

Table 4-99 ConfigurationParameterList

Parameter	Type	Description
name	String	Parameter name
value	String	Parameter value
need_restart	String	Whether the DDM instance needs to be restarted
read_only	String	Whether the parameter is read-only
value_range	String	Parameter value range
data_type	String	Data type of the parameter
description	String	Parameter description

Status code: 400

Table 4-100 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-101 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v3/{project_id}/instances/{instance_id}/configurations
```

Example Response

Status code: 200

ok

```
{
   "updated": "2021-04-08 07:10:43",
   "configuration_parameter": [
      {
         "name": "bind_table",
         "value": "",
         "need_restart": "0",
         "readonly": "0",
         "value_range": null,
         "datatype": "string",
         "description": 'Data association among multiple sharded tables. Based on the association, the optimizer processes JOIN operations at the MySQL layer. The format is: [{tb.col1,tb2.col2}, {tb.col2,tb3.col1},...]'
      },
      {
         "name": "character_set_server",
         "value": "gbk",
         "need_restart": "0",
         "readonly": "0",
         "value_range": "gbk|utf8|utf8mb4",
         "datatype": "string",
         "description": DDM server's character set. To store emoticons, set both this parameter and the character set on RDS to utf8mb4.
      },
      {
         "name": "collation_server",
         "value": "gbk_bin",
         "need_restart": "0",
         "readonly": "0",
```



```
            "value_range": "utf8_unicode_ci|utf8_bin|gbk_chinese_ci|gbk_bin|utf8mb4_unicode_ci|utf8mb4_bin",
            "datatype": "string",
            "description": "DDM server's collation."
        },
        {
            "name": "concurrent_execution_level",
            "value": "DATA_NODE",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "RDS_INSTANCE|DATA_NODE|PHY_TABLE",
            "datatype": "string",
            "description": "Concurrency level of scanning table shards in a logical table: DATA_NODE: indicates that database shards are scanned in parallel and table shards in each database shard are scanned in serial. RDS_INSTANCE: indicates that RDS DB instances are scanned in parallel and shards in each DB instance are scanned in serial. PHY_TABLE: indicates that all table shards are scanned in parallel."
        },
        {
            "name": "connection_idle_timeout",
            "value": "28801",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "60-86400",
            "datatype": "integer",
            "description": "Number of seconds that the server waits for activity on a connection before closing it. The default value is 28800, indicating that the server waits for 28800 seconds before closing the connection."
        },
        {
            "name": "enable_table_recycle",
            "value": "OFF",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "OFF|ON",
            "datatype": "boolean",
            "description": "Whether the table recycle bin is enabled."
        },
        {
            "name": "insert_to_load_data",
            "value": "OFF",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "OFF|ON",
            "datatype": "boolean",
            "description": "Whether the constant values are inserted by executing the LOAD DATA statement."
        },
        {
            "name": "live_transaction_timeout_on_shutdown",
            "value": "1",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "0-100",
            "datatype": "integer",
            "description": "Timeout limit of an in-transit transaction, in seconds. The default value is 1, indicating that the server waits for 1 second before closing the connection."
        },
        {
            "name": "long_query_time",
            "value": "1",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "0.01-10",
            "datatype": "float",
            "description": "Minimum duration of a query to be logged as slow, in seconds. The default value is 1, indicating that the query is considered as a slow query if its execution duration is greater than or equal to 1 second."
        },
        {
            "name": "max_allowed_packet",
            "value": "16777216",
```



```
            "need_restart": "0",
            "readonly": "0",
            "value_range": "1024-1073741824",
            "datatype": "integer",
           "description":"Maximum size of a packet or any generated intermediate string. The packet message buffer is initialized to net_buffer_length bytes, but can grow up to max_allowed_packet bytes if required. By default, this parameter is set to a small value to detect large (and possibly incorrect) packets. The value should be a multiple of 1024. The default value is 16777216."
        },
        {
            "name": "max_backend_connections",
            "value": "0",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "0-10000000",
            "datatype": "integer",
            "description": "Maximum concurrent connections from a DDM node to an RDS DB instance. When this parameter is set to 0 (default), the maximum concurrent connections from a DDM node to an RDS DB instance is: (RDS DB instance's maximum connections - 20)/Number of DDM nodes."
        },
        {
            "name": "max_connections",
            "value": "20000",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "10-40000",
            "datatype": "integer",
            "description": "Maximum number of concurrent connections allowed per DDM instance. The value is related to the class and number of associated RDS DB instances. The default value is 20000, indicating that the maximum number of concurrent connections cannot exceed 40000."
        },
        {
            "name": "min_backend_connections",
            "value": "10",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "0-10000000",
            "datatype": "integer",
            "description": "Minimum concurrent connections from a DDM node to an RDS DB instance. The default value is 10."
        },
        {
            "name": "not_from_pushdown",
            "value": "OFF",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "OFF|ON",
            "datatype": "boolean",
            "description": "Whether the SELECT statements that do not contain any FROM clauses are pushed down."
        },
        {
            "name": "seconds_behind_master",
            "value": "30",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "0-7200",
            "datatype": "integer",
            "description": "Threshold in seconds of the replication lag between a primary RDS DB instance to its read replica. The default value is 30, indicating that the time for data replication between the primary RDS DB instance and its read replica cannot exceed 30 seconds. If the time exceeds 30 seconds, the data read requests are no longer forwarded to the read replica.
        },
        {
            "name": "sql_audit",
            "value": "OFF",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "OFF|ON",
```



```
            "datatype": "boolean",
            "description": "Whether SQL audit is enabled."
        },
        {
            "name": "sql_execute_timeout",
            "value": "28800",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "100-28800",
            "datatype": "integer",
            "description": "Number of seconds to wait for a SQL statement to execute before it times out. The default value is 28800, indicating that the SQL statement times out if its execution time is greater than or equal to 28800 seconds."
        },
        {
            "name": "support_ddl_binlog_hint",
            "value": "OFF",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "OFF|ON",
            "datatype": "boolean",
            "description": " Whether a binlog hint is added to each DDL statement."
        },
        {
            "name": "transaction_policy",
            "value": "XA",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "XA|FREE|NO_DTX",
            "datatype": "string",
            "description": "Transactions supported by DDM: * XA transaction, which attempts to ensure atomicity and isolation. * FREE transaction, which is a best-effort commit transaction that allows data to be written to multiple shards, without impacting performance. FREE transactions do not ensure atomicity. * NO_DTX transaction, which is a single-shard transaction."
        },
        {
            "name": "ultimate_optimize",
            "value": "ON",
            "need_restart": "0",
            "readonly": "0",
            "value_range": "OFF|ON",
            "datatype": "boolean",
            "description": "Optimize the SQL execution plan based on parameter values."
        }
    ]
}
```


Status code: 400

bad request


```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```


Status code: 500

server error


```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```


Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

4.18 Modifying Parameters of a DDM Instance

Function

This API is used to modify parameters of a DDM instance.

Constraints

None

URI

PUT /v3/{project_id}/instances/{instance_id}/configurations

Table 4-102 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 4-103 Request header parameters

Parameter	Mandatory	Type	Description
X-Language	No	String	Language. The value can be **zh-cn** or **en-us**. The default value is **zh-cn**.

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 4-104 Request body parameters

Parameter	Mandatory	Type	Description
values	Yes	Array of **Values** objects	Parameters that are to be modified

Table 4-105 values

Parameter	Mandatory	Type	Description
bind_table	No	String	Data association among multiple sharded tables. Based on the association, the optimizer processes JOIN operations at the MySQL layer. The format is: [{tb.col1,tb2.col2}, {tb.col2,tb3.col1},...]
character_set_server	No	String	DDM server's character set. To store emoticons, set both this parameter and the character set on RDS to utf8mb4. To modify the character set, you must change the collation of the DDM server correspondingly. Possible values are as follows: • gbk • utf8 • utf8mb4

Parameter	Mandatory	Type	Description
collation_server	No	String	Collation on the DDM server. To modify the collation, you must modify the server's character set correspondingly. Possible values are as follows: ● utf8_unicode_ci ● utf8_bin ● gbk_chinese_ci ● gbk_bin ● utf8mb4_unicode_ci ● utf8mb4_bin
concurrent_execution_level	No	String	Concurrency level of scanning table shards in a logical table: **DATA_NODE**: indicates that database shards are scanned in parallel and table shards in each database shard are scanned in serial. **RDS_INSTANCE**: indicates that RDS DB instances are scanned in parallel and shards in each DB instance are scanned in serial. **PHY_TABLE**: indicates that all table shards are scanned in parallel. Possible values are as follows: ● RDS_INSTANCE ● DATA_NODE ● PHY_TABLE
connection_idle_timeout	No	String	Number of seconds the server waits for activity on a connection before closing it. The value ranges from **60** to **28800**. The default value is **28800**, indicating that the server waits for 28800 seconds before closing a connection.
enable_table_recycle	No	String	Whether enable the table recycle bin is enabled. Possible values are as follows: ● OFF ● ON

Parameter	Mandatory	Type	Description
insert_to_load_data	No	String	Whether the constant values are inserted by executing the LOAD DATA statement. Possible values are as follows: • OFF • ON
live_transaction_timeout_on_shutdown	No	String	Timeout limit of an in-transit transaction, in seconds. The value ranges from **0** to **100**. The default value is **1**, indicating that the server waits for 1 second before closing the connection.
long_query_time	No	String	Minimum duration of a query to be logged as slow, in seconds. The value ranges from **0.01** to **10**. The default value is **1**, indicating that the query is considered as a slow query if its execution duration is greater than or equal to 1 second.
max_allowed_packet	No	String	Maximum size of a packet or any generated intermediate string. The packet message buffer is initialized to **net_buffer_length** bytes, but can grow up to **max_allowed_packet** bytes if required. By default, this parameter is set to a small value to detect large (and possibly incorrect) packets. The value should be a multiple of 1024. The value range ranges from **1024** to **1073741824**. The default value is **16777216**.

Parameter	Mandatory	Type	Description
max_backend_connections	No	String	Maximum of concurrent client connections allowed per DDM instance. When this parameter is set to **0** (default), the maximum concurrent connections from a DDM node to an RDS DB instance is: (RDS DB instance's maximum connections - 20)/Number of DDM nodes. The value ranges from **0** to **10000000**.
max_connections	No	String	Maximum number of concurrent connections allowed per DDM instance. The value is related to the class and number of associated RDS DB instances. The value ranges from **10** to **40000**. The default value is **20000**, indicating that the maximum number of concurrent connections cannot exceed 40000.
min_backend_connections	No	String	Minimum of concurrent client connections allowed per DDM instance. The default value is **10**. The value ranges from **0** to **10000000**.
not_from_pushdown	No	String	Whether the SELECT statements that do not contain any FROM clauses are pushed down. Possible values are as follows: • OFF • ON

Parameter	Mandatory	Type	Description
seconds_behind_master	No	String	Threshold in seconds of the replication lag between a primary RDS DB instance to its read replica. The value ranges from **0** to **7200**. The default value is **30**, indicating that the time for data replication between the primary RDS DB instance and its read replica cannot exceed 30 seconds. If the time exceeds 30 seconds, the data read requests are no longer forwarded to the read replica.
sql_audit	No	String	Whether to enable SQL audit Possible values are as follows: • OFF • ON
sql_execute_timeout	No	String	Number of seconds to wait for a SQL statement to execute before it times out. The value ranges from **100** to **28800**. The default value is 28800, indicating that the SQL statement times out if its execution time is greater than or equal to 28800 seconds.
support_ddl_binlog_hint	No	String	Whether a binlog hint is added to each DDL statement. Possible values are as follows: • OFF • ON

Parameter	Mandatory	Type	Description
transaction_policy	No	String	**XA**: * XA transaction, which attempts to ensure atomicity and isolation. **FREE**: * FREE transaction, which is a best-effort commit transaction that allows data to be written to multiple shards, without impacting performance. FREE transactions do not ensure atomicity. **NO_DTX**: * NO_DTX transaction, which is a single-shard transaction. Possible values are as follows: • XA • FREE • NO_DTX
ultimate_optimize	No	String	Whether the SQL execution plan is optimized based on parameter values. Possible values are as follows: • OFF • ON

Response Parameters

Status code: 200

Table 4-106 Response body parameters

Parameter	Type	Description
nodeList	String	DDM instance nodes
needRestart	Boolean	Whether the instance needs to be restarted.
jobId	String	Task ID
configId	String	Parameter template ID
configName	String	Parameter template name

Status code: 400

Table 4-107 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 4-108 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
PUT https://{endpoint}/v3/{project_id}/instances/{instance_id}/configurations

{
      "values": {
         "character_set_server": "gbk",
         "collation_server": "gbk_bin"
      }
}
```

Example Response

Status code: 200

ok

```
{
   "nodeList": xxxx,
   "needRestart": false,
   "jobId": "cd4572a9-9bfc-4952-9a9f-388a90fef02f",
   "configId": xxxx,
   "configName": xxxx
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
```



```
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

5 Schema Management

5.1 Creating a Schema

Function

This API is used to create a schema.

Constraints

Before creating a schema, ensure that you have imported available RDS DB instances into the required DDM instance and that the RDS DB instances are not associated with other DDM instances.

URI

POST /v1/{project_id}/instances/{instance_id}/databases

Table 5-1 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 5-2 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 5-3 Request body parameters

Parameter	Mandatory	Type	Description
databases	Yes	Array of **CreateDDMDatabaseDetail** objects	Schema information

Table 5-4 Parameters for creating a schema

Parameter	Mandatory	Type	Description
name	Yes	String	Schema name, which: • Consists of 2 to 24 characters. • Starts with a lowercase letter. • Contains only lowercase letters, digits, and underscores (_). • The schema name cannot contain keywords **information_schema**, **mysql**, **performance_schema**, or **sys**. Minimum length: **2** Maximum length: **24**

Parameter	Mandatory	Type	Description
shard_mode	Yes	String	Sharding mode of the schema. The value can be: • **cluster**: indicates that the schema is in sharded mode. • **single**: indicates that the schema is in unsharded mode. Possible values are as follows: • **cluster** • **single**
shard_number	Yes	Integer	Number of shards in the same working mode. The value is the product of the **shard_unit** value and the number of associated RDS DB instances.
shard_unit	Yes	Integer	Number of shards per RDS DB instance • For unsharded schemas, the value is fixed at **1**. • For sharded schemas, the default value is **8**. You can change the value to **16** or **32**. Possible values are as follows: • **8** • **16** • **32**
used_rds	Yes	Array of **DDMDatabaseInstabcesParam** objects	RDS DB instance to be associated with the schema

Table 5-5 Schema parameters

Parameter	Mandatory	Type	Description
id	Yes	String	ID of the RDS DB instance associated with the schema
adminUser	Yes	String	Username for logging in to the associated RDS DB instance

Parameter	Mandatory	Type	Description
adminPassword	Yes	String	Password for logging in to the associated RDS DB instance

Response Parameters

Status code: 200

Table 5-6 Response body parameters

Parameter	Type	Description
databases	Array of **CreateDDMDatabaseDetailResponses** objects	Schema information

Table 5-7 Parameters for creating a schema

Parameter	Type	Description
name	String	Schema name

Status code: 400

Table 5-8 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 5-9 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

The following is an example request of creating a schema and associating it with an existing DDM account.

```
POST https://{endpoint}/v1/{project_id}/instances/{instance_id}/databases

{
  "databases" : [ {
    "name" : "mytestdb",
    "shard_mode" : "cluster",
    "shard_number" : 8,
    "shard_unit" : 8,
    "used_rds" : [ {
      "id" : "f296c394f13f48449d715bf99af07e59in01",
      "adminUser" : "root",
      "adminPassword" : "PassWord_234"
    } ]
  } ]
}
```

Example Response

Status code: 200

OK

```
{
  "databases" : [ {
    "name" : "mytestdb"
  } ]
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

5.2 Querying Schemas

Function

This API is used to query schemas of a DDM instance.

Constraints

None

URI

GET /v1/{project_id}/instances/{instance_id}/databases

Table 5-10 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID

Table 5-11 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Number	Number of records displayed on each page. The start value cannot be less than 0. Minimum value: **0**
limit	No	Number	Number of records on each page. The value is greater than 0 and less than or equal to 128. Minimum value: **1** Maximum value: **128**

Request Parameters

Table 5-12 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 5-13 Response body parameters

Parameter	Type	Description
databases	Array of **GetDDMDatabaseInfo** objects	Schema information
total	Integer	Total number of records

Table 5-14 Parameters for querying details of a schema

Parameter	Type	Description
name	String	Schema name
shard_mode	String	Working mode of the schema • **cluster**: indicates that the schema is in sharded mode. • **single**: indicates that the schema is in unsharded mode.
shard_number	Integer	Number of shards in the same working mode
status	String	Schema status
created	String	Time when the schema is created
used_rds	Array of **GetDDMDatabaseUsedrds** objects	Details of the RDS DB instance associated with the schema

Parameter	Type	Description
shard_unit	Integer	Number of shards per RDS DB instance

Table 5-15 Parameters for querying details of the RDS DB instance associated with the schema

Parameter	Type	Description
id	String	Node ID of the associated RDS DB instance
name	String	Name of the associated RDS DB instance
status	String	Status of the associated RDS DB instance
error_msg	String	Response message. This parameter is not returned if no error occurs.

Status code: 400

Table 5-16 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
error_msg	String	Error message

Status code: 500

Table 5-17 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
error_msg	String	Error message

Example Request

```
GET https://{endpoint}/v1/{project_id}/instances/{instance_id}/databases?offset={offset}&limit={limit}
```

Example Response

Status code: 400

bad request

```
{
 "error_code": "DDM.1008",
```



```
"error_msg": "This DDM instance does not exist"
}
```

Status code: 500

Server failure

```
{
 "error_code": "DDM.2061",
 "error_msg": "Server failure"
 }
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

5.3 Querying Details of a Schema

Function

This API is used to query details about a schema.

Constraints

None

URI

GET /v1/{project_id}/instances/{instance_id}/databases/{ddm_dbname}

Table 5-18 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
ddm_dbname	Yes	String	Name of the schema to be queried, which is case-insensitive

Request Parameters

Table 5-19 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 5-20 Response body parameters

Parameter	Type	Description
database	**GetDDMDatabaseResponseBean** object	Schema information

Table 5-21 Parameters for querying details of a schema

Parameter	Type	Description
name	String	Schema name
created	String	Time when the schema is created
status	String	Schema status
updated	String	Time when the DDM instance is last updated
databases	Array of **GetDDMDatabases** objects	Sharding information of the schema
shard_mode	String	Working mode of the schema • **cluster**: indicates that the schema is in sharded mode. • **single**: indicates that the schema is in unsharded mode.
shard_number	Integer	Number of shards in the same working mode
shard_unit	Integer	Number of shards per RDS DB instance

Parameter	Type	Description
dataVips	Array of strings	IP address and port number for connecting to the schema
used_rds	Array of **GetDDMDatabaseUsedrds** objects	Associated RDS DB instances

Table 5-22 Parameters for querying schemas

Parameter	Type	Description
dbslot	Integer	Number of shards
name	String	Shard name
status	String	Schema status
created	String	Time when the schema is created
updated	String	Time when the schema is last updated
id	String	ID of the RDS DB instance where the shard is located
idName	String	Name of the RDS DB instance

Table 5-23 Parameters for querying RDS DB instances associated with the schema

Parameter	Type	Description
id	String	Node ID of the associated RDS DB instance
name	String	Name of the associated RDS DB instance
status	String	Status of the associated RDS DB instance
error_msg	String	Response message. This parameter is not returned if no error occurs.

Status code: 400

Table 5-24 Response body parameters

Parameter	Type	Description
errCode	String	Service error code

Parameter	Type	Description
externalMessage	String	Error message

Example Request

```
GET https://{endpoint} /v1/{project_id}/instances/{instance_id}/databases/{ddm_dbname}
```

Example Response

Status code: 200

OK

```
{
  "database" : {
    "databases" : [ "id:ea81976b12e84d57822209169caddc11in01", "name:db_2305", "idName:db_2305",
"status:RUNNING", "dbSlot:0", "created:1603861296004", "updated:1603861296004" ],
    "dataVips" : [ "92.168.0.175:5066" ],
    "status" : "RUNNING",
    "created" : "0f58c8dc-4a78-42e6-9811-565679de8e9e",
    "name" : "db_2305",
    "updated" : "1604282063035",
    "shard_mod" : "single",
    "shard_number" : "1",
    "shard_unit" : "1",
    "used_rds" : [ "id:ea81976b12e84d57822209169caddc11in01", "status:RUNNING", "nam:rds-94c3-wuli" ]
  }
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

5.4 Deleting a Schema

Function

This API is used to delete a schema to release all its resources.

Constraints

None

URI

DELETE /v1/{project_id}/instances/{instance_id}/databases/{ddm_dbname}

Table 5-25 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
ddm_dbname	Yes	String	Name of the schema to be queried, which is case-insensitive

Table 5-26 Query parameters

Parameter	Mandatory	Type	Description
delete_rds_data	No	Boolean	Whether to delete the data stored on the associated RDS DB instances. The value can be: • **true**: indicates that the data stored on the associated RDS DB instances is deleted. • **false**: indicates that the data stored on the associated RDS DB instances is not deleted. It is left blank by default. **NOTE** Parameter values are case-insensitive.

Request Parameters

Table 5-27 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 400

Table 5-28 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 5-29 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
DELETE https://{endpoint}/v1/{project_id}/instances/{instance_id}/databases/{ddm_dbname}?
delete_rds_data=true
```

Example Response

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

5.5 Querying DB Instances Available for Creating a Schema

Function

This API is used to query DB instances that can be used for creating a schema.

Constraints

None

URI

GET /v1/{project_id}/instances/{instance_id}/rds

Table 5-30 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 5-31 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 5-32 Response body parameters

Parameter	Type	Description
instances	Array of **instances** objects	Information about DB instances available for creating a schema

Table 5-33 instances

Parameter	Type	Description
id	String	DB instance ID
projectId	String	Project ID of a tenant in a region
status	String	DB instance status
name	String	DB instance name
engineName	String	DB instance engine
engineSoftwareVersion	String	DB instance engine
privateIp	String	Private IP address of the DB instance
mode	String	Deployment model of the DB instance, which can be clustered or single
port	Integer	DB instance port number
azCode	String	AZ code
timeZone	String	Time zone

Status code: 400

Table 5-34 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 5-35 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v1/{project_id}/instances/{instance_id}/rds
```

Example Response

Status code: 200

OK

```
{
   "instances": [
      {
         "id": "a44a103e64634a2e872d1ab2523bb838in01",
         "projectId": "070c071d8e80d58c2f42c0121b10cf9f",
         "status": "normal",
         "name": "rds-ab04-test",
         "engineName": "mysql",
         "engineSoftwareVersion": "8.0",
         "privateIp": "192.168.0.72",
         "mode": "Single",
         "port": 3306,
         "azCode": "az1xahz",
         "timeZone": "UTC+08:00"
      }
   ]
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK

Status Code	Description
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

6 Account Management

6.1 Creating an Account

Function

This API is used to create a DDM account. DDM accounts are used to connect to and manage schemas. A maximum of 100 DDM accounts can be created for each DDM instance, and one DDM account can be associated with multiple schemas.

Constraints

None

URI

POST /v1/{project_id}/instances/{instance_id}/users

Table 6-1 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID of a tenant in a region
instance_id	Yes	String	DDM instance ID

Request Parameters

Table 6-2 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 6-3 Request body parameters

Parameter	Mandatory	Type	Description
users	Yes	Array of **CreateDDMUsersInfo** objects	DDM account information

Table 6-4 Parameters for creating an account

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the DDM account, which: • Consists of 6 to 32 characters. • Must start with a letter. • Contains only letters, digits, and underscores (_). Minimum length: **6** Maximum length: **32**
password	Yes	String	DDM account password

Parameter	Mandatory	Type	Description
base_authority	Yes	Array of strings	Basic permissions of the DDM account. The value can be **CREATE**, **DROP**, **ALTER**, **INDEX**, **INSERT**, **DELETE**, **UPDATE**, or **SELECT**. Possible values are as follows: • **CREATE** • **DROP** • **ALTER** • **INDEX** • **INSERT** • **DELETE** • **UPDATE** • **SELECT**
extend_authority	No	Array of strings	Extended permissions of the DDM account. This parameter is left blank by default. The value can be **fulltableDelete**, **fulltableSelect**, or **fulltableUpdate**. When configuring permissions, select at least one basic permission. The mappings between basic permissions and extended permissions are as follows: • If **base_authority** is set to **SELECT**, set **extend_authority** to **fulltableSelect**. • If **base_authority** is set to **DELETE**, set **extend_authority** to **fulltableDelete**. • If **base_authority** is set to **UPDATE**, set **extend_authority** to **fulltableUpdate**. Possible values are as follows: • **fulltableSelect** • **fulltableDelete** • **fulltableUpdate**

Parameter	Mandatory	Type	Description
description	No	String	Description of the DDM account, which cannot exceed 256 characters. It is left blank by default. Maximum length: **256**
databases	No	Array of **CreateDDMUsersDatabases** objects	Associated schemas The **databases** field is optional. You can create a DDM account without associating it with any schema.

Table 6-5 Parameters for creating an account

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the associated schema

Response Parameters

Status code: 200

Table 6-6 Response body parameters

Parameter	Type	Description
users	Array of **CreateDDMUsersDetailResponses** objects	DDM account information

Table 6-7 Parameters for creating an account

Parameter	Type	Description
name	String	Name of the DDM account

Status code: 400

Table 6-8 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 6-9 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v1/{project_id}/instances/{instance_id}/users

{
  "users" : [ {
    "name" : "DDMuser1",
    "password" : "Axejs@98a",
    "base_authority" : [ "CREATE", "DROP", "ALTER", "INDEX", "INSERT", "DELETE", "UPDATE", "SELECT" ],
    "extend_authority" : [ "fulltableSelect", "fulltableDelete", "fulltableUpdate" ],
    "description" : "",
    "databases" : [ {
      "name" : "DDMdb1"
    } ]
  } ]
}
```

Example Response

Status code: 200

OK

```
{
  "users" : [ {
    "name" : "DDMuser1"
  } ]
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

6.2 Querying Accounts

Function

This API is used to query DDM accounts.

Constraints

None

URI

GET /v1/{project_id}/instances/{instance_id}/users

Table 6-10 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID

Table 6-11 Query parameters

Parameter	Mandatory	Type	Description
offset	Yes	Number	Number of records displayed on each page. The start value cannot be less than 0. Minimum value: **0**

Parameter	Mandatory	Type	Description
limit	Yes	Number	Number of records on each page. The value is greater than 0 and less than or equal to 128. Minimum value: **1** Maximum value: **128**

Request Parameters

Table 6-12 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 202

Table 6-13 Response body parameters

Parameter	Type	Description
users	Array of **GetDDMUsersListDetailResponses** objects	DDM account information
page_no	Integer	Current page number
page_size	Integer	Number of data records on the current page
total_record	Integer	Total number of records
total_page	Integer	Total number of pages

Table 6-14 Parameters for querying DDM accounts

Parameter	Type	Description
name	String	Name of the DDM account
status	String	Status of the DDM account
base_authority	Array of strings	Basic permissions of the DDM account. The value can be **CREATE**, **DROP**, **ALTER**, **INDEX**, **INSERT**, **DELETE**, **UPDATE**, or **SELECT**.
extend_authority	Array of strings	Extended permissions of the DDM account. The value can be **fulltableDelete**, **fulltableSelect**, or **fulltableUpdate**.
description	String	Description of the DDM account
created	String	Time when the DDM account is created
databases	Array of **GetDDMUsersListdatabase** objects	Associated schemas

Table 6-15 Parameters for querying accounts

Parameter	Type	Description
name	String	Name of the schema associated with the DDM account
description	String	Description of the associated schema

Status code: 400

Table 6-16 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
error_msg	String	Error message

Status code: 500

Table 6-17 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
error_msg	String	Error message

Example Request

```
null

GET https://{endpoint}/v1/{project_id}/instances/{instance_id}/users?offset={offset}&limit={limit}
```

Example Response

Status code: 202

OK

```
{
  "users" : [ {
    "name" : "ddmtest",
    "status" : "RUNNING",
    "base_authority" : [ "SELECT" ],
    "extend_authority" : [ "fulltableSelect" ],
    "description" : "Account",
    "created" : "2019-10-30T11:01:24+0800",
    "databases" : [ {
      "name" : "zhxtest",
      "description" : "Schema"
    } ]
  } ],
  "page_no" : 1,
  "page_size" : 10,
  "total_record" : 1,
  "total_page" : 1
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

Server failure

```
{
 "error_code": "DDM.2061",
 "error_msg": "Server failure"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

6.3 Modifying a DDM Account

Function

This API is used to modify permissions or associated schemas of a DDM account.

Constraints

At least one of the following parameters must be configured: **extend_authority**, **base_authority**, **description**, and **databases**.

URI

PUT /v1/{project_id}/instances/{instance_id}/users/{username}

Table 6-18 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
username	Yes	String	Name of the DDM account

Request Parameters

Table 6-19 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 6-20 Request body parameters

Parameter	Mandatory	Type	Description
user	Yes	**UpdateDDMUserDetailReq** object	DDM account information

Table 6-21 Parameters for modifying a DDM account

Parameter	Mandatory	Type	Description
base_authority	No	Array of strings	Basic permissions of the DDM account. The default value is basic permissions of the original DDM account. The value can be **CREATE**, **DROP**, **ALTER**, **INDEX**, **INSERT**, **DELETE**, **UPDATE**, or **SELECT**. Possible values are as follows: • **CREATE** • **DROP** • **ALTER** • **INDEX** • **INSERT** • **DELETE** • **UPDATE** • **SELECT**

Parameter	Mandatory	Type	Description
extend_authority	No	Array of strings	Extended permissions of the DDM account. This parameter is left blank by default. The value can be **fulltableDelete**, **fulltableSelect**, or **fulltableUpdate**. When configuring permissions, select at least one basic permission. The mappings between basic permissions and extended permissions are as follows: • If **base_authority** is set to **SELECT**, set **extend_authority** to **fulltableSelect**. • If **base_authority** is set to **DELETE**, set **extend_authority** to **fulltableDelete**. • If **base_authority** is set to **UPDATE**, set **extend_authority** to **fulltableUpdate**. Possible values are as follows: • **fulltableSelect** • **fulltableDelete** • **fulltableUpdate**
description	No	String	Description of the DDM account, which cannot exceed 256 characters. It is left blank by default. Maximum length: **256**
databases	No	Array of **UpdateDDMUsersDatabases** objects	DDM account information

Table 6-22 Parameters for modifying a DDM account

Parameter	Mandatory	Type	Description
name	No	String	Schema name, which is case-insensitive. The **databases** and **name** fields must be both or not specified at the same time. It is left blank by default.

Response Parameters

Status code: 200

Table 6-23 Response body parameters

Parameter	Type	Description
name	String	Name of the DDM account

Status code: 400

Table 6-24 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 6-25 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
PUT https://{endpoint}/v1/{project_id}/instances/{instance_id}/users/{username}

{
```



```
 "user" : {
   "base_authority" : [ "SELECT" ],
   "extend_authority" : [ "fulltableSelect" ],
   "description" : "test11",
   "databases" : [ {
     "name" : "db_7350"
   } ]
 }
}
```

Example Response

Status code: 200

OK

```
{
  "name" : "ddmtest"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

6.4 Deleting a DDM Account

Function

This API is used to delete a DDM account. This operation will also disassociate the account from schemas if any.

Constraints

None

URI

DELETE /v1/{project_id}/instances/{instance_id}/users/{username}

Table 6-26 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
username	Yes	String	Name of the DDM account to be deleted

Request Parameters

Table 6-27 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 6-28 Response body parameters

Parameter	Type	Description
name	String	Username of the DDM account

Status code: 400

Table 6-29 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 6-30 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
DELETE https://{endpoint}/v1/{project_id}/instances/{instance_id}/users/{username}
```

Example Response

Status code: 200

OK

```
{
  "name" : "ddmtest"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

For details, see **Status Codes**.

Error Codes

For details, see **Error Codes**.

6.5 Resetting the Password of a DDM Account

Function

This API is used to reset the password of a DDM account.

Constraints

None

URI

POST /v2/{project_id}/instances/{instance_id}/users/{username}/password

Table 6-31 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
username	Yes	String	Username of the DDM account

Request Parameters

Table 6-32 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Table 6-33 Request body parameters

Parameter	Mandatory	Type	Description
password	Yes	String	New password

Response Parameters

Status code: 200

Table 6-34 Response body parameters

Parameter	Type	Description
success	Boolean	Whether the operation is successful
instance_id	String	DDM instance ID

Parameter	Type	Description
user_name	String	Username of the DDM account

Status code: 400

Table 6-35 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 6-36 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
POST https://{endpoint}/v2/{project_id}/instances/{instance_id}/users/{username}/password

{
  "password" : "GaussTest_234"
}
```

Example Response

Status code: 200

OK

```
{
    "success": true,
    "instance_id": "46aa2a7d7e8c4b23a9193639ed4950f5in09",
    "user_name": "testUser"
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

7 Monitoring Management

7.1 Monitoring Slow SQL Logs

Function

This API is used to query information about the SQL statements that take a long time to execute on the DDM instance within a specified time range.

Constraints

None

URI

```
GET /v2/{project_id}/instances/{instance_id}/slowlog?
curPage={curPage}&perPage={perPage}&startDate={startDate}&endDate={endDate}
```

Table 7-1 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
curPage	Yes	String	Number of records displayed on each page. The start value cannot be less than 0.
perPage	Yes	String	Page size (number of records on each page).
startDate	Yes	String	Start time in UTC, accurate to milliseconds
endDate	Yes	String	End time in UTC, accurate to milliseconds

Request Parameters

Table 7-2 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 7-3 Response body parameters

Parameter	Type	Description
totalRecord	Integer	Number of slow SQL logs
slowLogList	Array of **SlowLogList** objects	Information about slow SQL logs

Table 7-4 SlowLogList

Parameter	Type	Description
users	String	Username of the DDM account for executing the slow SQL statement
database	String	Name of the schema that the slow SQL statement is executed for
querySample	String	Syntax for executing the slow SQL statement
logTime	String	Time when the slow SQL statement starts to be executed
time	String	Time for a SQL statement to execute, accurate to milliseconds
shards	String	Name of the physical database that the slow SQL statement is executed for
rowsExamined	String	Number of rows affected by the SQL statements that take a long time to execute

Status code: 400

Table 7-5 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 7-6 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v2/{project_id}/instances/{instance_id}/slowlog?
curPage={curPage}&perPage={perPage}&startDate={startDate}&endDate={endDate}
```

Example Response

Status code: 200

OK

```
{
   "totalRecord": 2,
   "slowLogList": [
      {
         "users": "testddm",
         "database": "test1",
         "querySample": "select id, sleep(3) from test",
         "logTime": "2021-04-26T02:40:21",
         "time": "12002",
         "shards": "test1_0000",
         "rowsExamined": "4"
      }
   ]
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

7.2 Monitoring the Read/Write Ratio

Function

This API is used to query read and write times of a DDM instance in a specified time range.

Constraints

None

URI

GET /v2/{project_id}/instances/{instance_id}/read-write-ratio?curPage={curPage}&perPage={perPage}&startDate={startDate}&endDate={endDate}

Table 7-7 Path parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID
instance_id	Yes	String	DDM instance ID
curPage	Yes	String	Number of records displayed on each page. The start value cannot be less than 0.

Parameter	Mandatory	Type	Description
perPage	Yes	String	Page size (number of records on each page).
startDate	Yes	String	Start time in UTC, accurate to milliseconds
endDate	Yes	String	End time in UTC, accurate to milliseconds

Request Parameters

Table 7-8 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	User token It can be obtained by calling the IAM API (value of **X-Subject-Token** in the response header).

Response Parameters

Status code: 200

Table 7-9 Response body parameters

Parameter	Type	Description
totalRecord	Integer	Respective number of reads and writes on DDM
readWriteRatioList	Array of **ReadWriteRatioList** objects	Information about reads and writes on DDM

Table 7-10 ReadWriteRatioList

Parameter	Type	Description
schema	String	Schema name
table	String	Logical table name
readCount	String	Number of reads on the DDM instance within the specified period of time

Parameter	Type	Description
writeCount	String	Number of writes on the DDM instance within the specified period of time
relationTables	String	Associated tables
lastUpdated	String	Time when the read or write statement is last executed

Status code: 400

Table 7-11 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Status code: 500

Table 7-12 Response body parameters

Parameter	Type	Description
errCode	String	Service error code
externalMessage	String	Error message

Example Request

```
GET https://{endpoint}/v2/{project_id}/instances/{instance_id}/read_write_ratio?
curPage={curPage}&perPage={perPage}&startDate={startDate}&endDate={endDate}
```

Example Response

Status code: 200

OK

```
{
   "totalRecord": 2,
   "readWriteRatioList": [
      {
         "schema": "xxxx",
         "table": "xxxx",
         "readCount": "215",
         "writeCount": "46",
         "relationTables": "xxxx",
         "lastUpdated": "1619404869724"
```



```
    }
  ]
}
```

Status code: 400

bad request

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status code: 500

server error

```
{
  "externalMessage" : "Parameter error.",
  "errCode" : "DBS.280001"
}
```

Status Codes

Status Code	Description
200	OK
400	bad request
500	server error

Error Codes

For details, see **Error Codes**.

8 Permissions Policies and Supported Actions

8.1 Introduction

This section describes fine-grained permissions management for your DDM instance. If your account does not need individual IAM users, skip over this section.

By default, new IAM users do not have any permissions granted. You need to add a user to one or more groups, and assign policies or roles to these groups. The user then inherits permissions from the groups it is a member of. This process is called authorization. After authorization, the user can perform specified operations on the service based on the permissions.

You can grant users permissions based on roles and policies. Roles: A coarse-grained authorization mechanism provided by IAM to define permissions based on users' job 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

If you want to allow or deny the access to an API, fine-grained authorization is a good choice.

An account has all of the permissions required to call all APIs. If you want to send an API request using an IAM user of the account, ensure that the IAM user has the required permissions specifically assigned. The permissions required for calling an API are determined by the actions supported by the API. Only users who have been granted permissions allowing the actions can call the API successfully. For example, if an IAM user queries ECSs using an API, the user must have been granted permissions that allow the **ecs:servers:list** action.

Supported Actions

Actions 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 in a custom policy
- Actions: Added to a custom policy to control permissions for specific operations
- Related actions: Actions which a specific action depends on to take effect. When assigning permissions for the action to a user, you also need to assign permissions for the dependent actions.
- IAM projects or enterprise projects: Type of projects in which policies can be used to grant permissions. A policy can be applied to IAM projects, enterprise projects, or both. Policies that contain actions for both IAM and enterprise projects can be used and take effect for both IAM and Enterprise Project Management Service (EPS). Policies that only contain actions supporting IAM projects can be assigned to user groups and only take effect for IAM. Such policies will not take effect if they are assigned to user groups in Enterprise Management.

8.2 Instance Management

Table 8-1 DDM instance management

Permission	API	Action	IAM Project	Enterprise Project
Creating an instance	POST /v1/{project_id}/instances	ddm:instance:create Before creating a DDM instance, obtain the following dependent permissions: • ecs:*:get* • ecs:*:list* • vpc:vpcs:list • vpc:securityGroups:get • vpc:subnets:get • ecs:cloudServerNics:update • ecs:serverInterfaces:use • Global or region-level **vpc:ports:***	√	√
Querying DDM Instances	GET /v1/{project_id}/instances?offset={offset}&limit={limit}	ddm:instance:list	√	√

Permission	API	Action	IAM Project	Enterprise Project
Querying Details of a DDM Instance	GET /v1/{project_id}/instances/{instance_id}	ddm:instance:get • vpc:*:get* • vpc:*:list*	√	√
Modifying a DDM Instance	PUT /v1/{project_id}/instances/{instance_id}	ddm:instance:modify To modify a security group, the following permissions must be configured: • vpc:*:get* • vpc:*:list* • vpc:ports:update • vpc:securityGroups:get	√	√
Restarting a DDM Instance	POST /v1/{project_id}/instances/{instance_id}/action	ddm:instance:reboot	√	√
Deleting a DDM Instance	DELETE /v1/{project_id}/instances/{instance_id}?delete_rds_data=true	ddm:instance:delete vpc:ports:delete	√	√

NOTE

The check mark (√) indicates that an action takes effect. The cross mark (x) indicates that an action does not take effect.

8.3 Schema Management

Table 8-2 Schema management actions

Permission	API	Actions	IAM Project	Enterprise Project
Creating a Schema	POST /v1/{project_id}/instances/{instance_id}/databases	ddm:database:create	√	√

Permission	API	Actions	IAM Project	Enterprise Project
Querying Schemas	GET /v1/{project_id}/instances/{instance_id}/databases?offset={offset}&limit={limit}	ddm:database:list	√	√
Querying Details of a Schema	GET /v1/{project_id}/instances/{instance_id}/databases/{ddm_dbname}	ddm:database:get	√	√
Deleting a Schema	DELETE /v1/{project_id}/instances/{instance_id}/databases/{ddm_dbname}?delete_rds_data=true	ddm:database:delete	√	√

8.4 Account Management

Table 8-3 Account management permissions

Permission	API	Actions	IAM Project	Enterprise Project
Creating a DDM Account	POST /v1/{project_id}/instances/{instance_id}/users	ddm:user:create	√	√
Querying DDM Accounts	GET /v1/{project_id}/instances/{instance_id}/users?offset={offset}&limit={limit}	ddm:user:list	√	√
Modifying a DDM Account	PUT /v1/{project_id}/instances/{instance_id}/users/{username}	ddm:user:modify	√	√
Deleting a DDM Account	DELETE /v1/{project_id}/instances/{instance_id}/users/{username}	ddm:user:delete	√	√

8.5 Reloading Table Data

Table 8-4 Permissions for managing logical tables

Permission	API	Action	IAM Project	Enterprise Project
Reloading table data	POST /v1/{project_id}/instances/{instance_id}/reload-config	ddm:instance:modify	√	√

9 Appendix

9.1 Abnormal Request Results

Abnormal Response

Table 9-1 Parameter description

Parameter	Type	Description
errCode	String	Returned error code when a task submission exception occurs. For details, see **Error Codes**.
externalMessage	String	Description of the error returned when a task submission exception occurs.

Example Response

```
{
    "errCode": "DBS.300101",
    "externalMessage": "Failed to delete the schema"
}
```

9.2 Status Codes

Normal

Table 9-2 lists the status codes that may be returned.

Table 9-2 Normal status codes

Status Code	Message	Description
200	OK	The request has been processed successfully.
202	OK	The asynchronous request is submitted successfully.

Abnormal

Table 9-3 lists the status codes that may be returned.

Table 9-3 Abnormal status codes

Status Code	Message	Description
400	Bad Request	The server fails to process the request. The possible causes are as follows: • The request could not be parsed by the server due to incorrect syntax. • Request parameters are incorrect.
401	Unauthorized	Necessary credentials (for example, username and password) required for user authentication are not provided.
403	Forbidden	You are forbidden to access the page requested.
404	Not Found	The request failed because the requested resource could not be found on the server.
405	Method Not Allowed	You are not allowed to use the method specified in the request.
409	Conflict	The request could not be processed due to a conflict with the current resource status.
413	Request Entity Too Large	The requested resource exceeds the resource quota.
415	Unsupported Media Type	**ContentType** contained in the request header is neither **application** nor **json**.
500	Internal Server Error	The request is not completed due to a service error.
501	Not Implemented	The request is not completed because the server does not support the requested function.

Status Code	Message	Description
503	Service Unavailable	The request could not be processed by the server because the server is being maintained or overloaded.

9.3 Error Codes

Status Code	Error Code	Error Message	Solution
400	DBS.280001	Parameter error.	Refresh the page, modify some parameters, and try again.
400	DBS.300002	Server failure.	Refresh the page and try again later.
400	DBS.300005	Failed to process the request.	-
400	DBS.300100	Failed to create the schema.	Check whether the DDM instance is available, whether the instance is in the **Running** state, whether the RDS DB instance is being scaled, and whether the schema name is duplicated. If the schema name is duplicated, modify the name and send the request again.
400	DBS.300101	Failed to delete the schema.	Check whether the schema has been deleted and whether the associated RDS DB instance exists or becomes abnormal.
400	DBS.300102	The number of RDS DB instances associated with the schema is invalid.	Check whether the number of RDS DB instances associated with the schema is valid and try again.
400	DBS.300103	The RDS DB instance does not exist or it is not in the same VPC as the schema.	Check whether the RDS DB instance exists and whether the DB instance is in the same VPC as the required DDM instance, and then try again.
400	DBS.300104	The sharding rule of the schema is invalid.	Ensure that the sharding rule is valid and try again.

Status Code	Error Code	Error Message	Solution
400	DBS.300106	The number of shards per RDS DB instance is invalid.	Check whether the number of shards per RDS DB instance in the request is correct. If not, modify the number and try again.
400	DBS.300107	The accounts are duplicated.	Check whether the accounts configured in parameters are duplicated and try again.
400	DBS.300108	The RDS DB instances are duplicated.	Check whether there are duplicate RDS DB instances in the request. If yes, modify them and try again.
400	DBS.300109	The schema name is invalid.	Check whether the schema name is valid. If no, modify it and try again.
400	DBS.300110	The status of the RDS DB instance does not allow associating with the schema.	Resolve the RDS DB instance status exception and try again.
400	DBS.300112	This schema name already exists.	Check whether a schema with the same name exists. If yes, modify the name and try again.
400	DBS.300113	Failed to create a physical database.	Check whether the RDS DB instance administrator and password are correct. If no, modify them and try again.
400	DBS.300114	The administrator or password is incorrect.	Check whether the RDS administrator and password are correct. If no, modify them and try again.
400	DBS.300115	Failed to delete the shard.	To delete the schema, check whether there are RDS DB instances associated with it. If the associated RDS DB instances have been deleted, click **Synchronize DB Instance Data** on the **Basic Information** page and delete the schema again.
400	DBS.300116	Failed to query available RDS DB instances.	Check whether the RDS service is running properly and try again.
400	DBS.300117	Failed to obtain the associated RDS DB instances.	Check whether the RDS service is running properly and try again.

Status Code	Error Code	Error Message	Solution
400	DBS.300118	Failed to scale out the schema.	Check input parameters in the request.
400	DBS.300120	Failed to obtain task information.	Ensure that the DDM instance is running properly and try again.
400	DBS.300121	Failed to clear source data.	Ensure that the scale-out task exists and is in the valid state and that the administrator password of the destination RDS DB instance is correct, and try again.
400	DBS.300122	Failed to roll back the scale-out task.	Ensure that the scale-out task exists and is in the valid state and that the administrator password of the destination RDS DB instance is correct, and try again.
400	DBS.300123	Failed to retry the scale-out task.	Ensure that the scaling out task exists and its status is normal, and try again.
400	DBS.300125	Failed to synchronize RDS information.	Ensure that the RDS service is running properly and try again.
400	DBS.300127	The number of shards in the RDS DB instances associated with the schema is invalid.	Ensure that the total number of shards in the associated RDS DB instances is valid and try again.
400	DBS.300128	Failed to query schema information.	Ensure that the DDM instance is running properly and try again.
400	DBS.300129	Failed to query schema information.	Ensure that the schema exists and try again.
400	DBS.300130	Invalid schema status.	Ensure that the schema is in the **Running** state and try again.
400	DBS.300131	Failed to update the schema SQL blacklist.	Ensure that the DDM instance is running properly and try again.
400	DBS.300132	Failed to query the schema SQL blacklist.	Ensure that the DDM instance is running properly and try again.

Status Code	Error Code	Error Message	Solution
400	DBS.300133	The RDS DB instance is being used to scale out a schema.	Ensure that the RDS DB instance status is not **Scaling out** or **Scaling failed** and try again.
400	DBS.300134	The schema status does not allow rolling back or canceling the scale-out task.	Refresh the page and try again later.
400	DBS.300135	Failed to update the relative read weight of the RDS DB instance.	Ensure that the DDM instance is running properly and try again.
400	DBS.300300	Failed to create a DDM account	Ensure that the DDM instance, schema, and account exist and try again.
400	DBS.300301	Failed to update the account.	Ensure that the account and associated schema exist and that the password meets the requirements, and try again.
400	DBS.300302	Failed to delete the account.	Ensure that the DDM instance is running properly and try again.
400	DBS.300305	Invalid DDM account name.	Ensure that the account name is valid and try again.
400	DBS.300306	The account password is invalid.	Ensure that the account name and password in the request body are correct and try again.
400	DBS.300307	The account description is invalid.	Ensure that the maximum length of account description does not exceed 256 characters and try again.
400	DBS.300309	The account basic permissions are invalid.	Ensure that basic permissions configured for the account are correct and try again.
400	DBS.300310	The account extended permissions are invalid.	Ensure that extended permissions configured for the account are correct and try again.
400	DBS.300311	The account already exists.	Ensure that the account name is unique and try again.
400	DBS.300312	Failed to query the account.	Ensure that the DDM instance is running properly and try again.

Status Code	Error Code	Error Message	Solution
400	DBS.300313	Failed to configure the SQL blacklist.	Ensure that the schema exists and is in the **Running** state, and try again.
400	DBS.300314	Failed to modify the read/write policy.	Ensure that the DDM instance is running properly and try again.
400	DBS.300315	Invalid read/write relative weight.	Ensure that the weight is greater than 0 and less than 100.
400	DBS.300316	Failed to query the read/write policy.	Ensure that the DDM instance is running properly and try again.
400	DBS.300322	Failed to save instance metadata.	Provide environment information, instance ID, involved operations, and symptom description and contact technical support.
400	DBS.300323	The associated RDS DB instance is unavailable or this operation cannot be performed when the RDS DB instance is in the current state.	Ensure that the associated RDS DB instance exists and is in normal state, and try again.
400	DBS.300327	The account does not exist.	Ensure that the account exists and try again.
400	DBS.300328	Failed to reset the password.	Ensure that the account exists and try again.
400	DBS.300329	Failed to obtain the step name.	Try again or roll back the scale-out task.
400	DBS.300330	Failed to convert the string from JSON to the required format.	Provide environment information, involved operations, instance ID, and symptom description and contact technical support.
400	DBS.300331	Data migration error.	Provide environment information, involved operations, instance ID, and symptom description and contact technical support.
400	DBS.300332	The scale-out task timed out.	Try again or roll back the scale-out task.

Status Code	Error Code	Error Message	Solution
400	DBS.300333	Failed to check the time zone.	Log in to the RDS console. In the instance list, locate the source RDS DB instance and click its name. In the navigation pane, choose **Parameters**, search for **time_zone** in the upper right text box to check its value. Then, perform these operations on the target RDS DB instance, and check whether its **time_zone** value is consistent with the source DB instance. If not, modify it to ensure that the two values are consistent and retry.
400	DBS.300334	**sql_mode** check failed.	Log in to the RDS console. In the instance list, locate the source RDS DB instance and click its name. In the navigation pane, choose **Parameters**, search for **sql_mode** in the upper right text box to check its value. Then, perform these operations on the target RDS DB instance, and check whether its **sql_mode** value is consistent with the source DB instance. If not, modify it to ensure that the two values are consistent and retry.
400	DBS.300335	Failed to obtain the RDS link.	Check whether the RDS service is running properly.
400	DBS.300336	Physical database not found.	Log in to the associated RDS DB instance and execute **SHOW DATABASES**. Check whether there is a physical database whose name starts with the schema name, and whether the number of physical databases must be the same as the number of shards in the schema.
400	DBS.300337	Failed to check the primary key.	Check whether there are tables without primary keys. If yes, add primary keys for those tables and retry.
400	DBS.300338	Failed to disable DDL or DML.	Provide environment information, instance ID, involved operations, and symptom description and contact technical support.

Status Code	Error Code	Error Message	Solution
400	DBS.300339	Failed to insert a scale-out subtask.	Contact technical support.
400	DBS.300340	Failed to change statuses of scale-out subtasks to **Initialization**.	Contact technical support.
400	DBS.300341	Failed to issue a scale-out subtask.	Contact technical support.
400	DBS.300342	Failed to obtain scale-out subtasks.	Contact technical support.
400	DBS.300343	The volume of remaining subtask data is invalid.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300344	Status check for scale-out task failed.	Contact technical support.
400	DBS.300345	Failed to obtain information about the scale-out task.	Try again.
400	DBS.300346	Failed to obtain information about the DDM process.	Try again.
400	DBS.300347	Failed to disable the link.	Try again.
400	DBS.300348	Failed to obtain subtasks during data verification.	Contact technical support.
400	DBS.300349	Failed to update the schema status during route switching.	Contact technical support.
400	DBS.300350	The required data is not found.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300351	Failed to change statuses of scale-out subtasks to **Error**.	Contact technical support.

Status Code	Error Code	Error Message	Solution
400	DBS.300352	Failed to change statuses of scale-out subtasks to **Stop**.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300353	Data verification failed.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300354	Failed to change statuses of scale-out subtasks to **Complete**.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300355	Schema creation failed.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300356	Failed to connect to the RDS DB instance.	Check whether the RDS service is running properly.
400	DBS.300357	The RDS DB instance administrator or password is incorrect.	If the RDS DB instance administrator is incorrect, log in to the RDS console, locate the required RDS DB instance and click its name, and view the administrator on the instance details page.
400	DBS.300358	There is a schema where source data is not cleared.	Log in to the DDM console, switch to the schema management page, locate the target schema, and click **Clear** in the **Operation** column.
400	DBS.300360	The associated instance does not support this operation.	Provide environment information, involved operations, and symptom description and contact technical support.
400	DBS.300362	The scaling method is invalid.	Select either one of rebalance and reshard.
400	DBS.300363	Pre-check failed.	Provide environment information, involved operations, and symptom description and contact technical support.

Status Code	Error Code	Error Message	Solution
400	DBS.300364	Failed to check disk space of the DB instance.	Perform the following operations to scale up disk space of the DB instance: 1. Log in to the management console. 2. Hover on the left menu to display **Service List** and choose **Database** > **Relational Database Service**. 3. On the **Instance Management** page, locate the required DB instance and click its name. 4. On the **Basic Information** page, locate the **Storage Space** part. 5. Click **Scale** and try again after the scaling is complete.
400	DBS.300365	Failed to update metadata.	Retry the scale-out task.
400	DBS.300366	Failed to rename physical tables during migration.	Retry the scale-out task.
400	DBS.300367	Failed to clear source data.	Try again.
400	DBS.300368	Parameter **lower_case_table_names** of the DB instance is invalid.	Perform the following operations to scale up disk space of the DB instance: 1. Log in to the management console. 2. Hover on the left menu to display **Service List** and choose **Database** > **Relational Database Service**. 3. On the **Instance Management** page, locate the required DB instance and click its name. 4. Choose **Parameters** in the left navigation pane, search for **lower_case_table_names** and verify that its value is **1** and retry.

Status Code	Error Code	Error Message	Solution
400	DBS.300369	Failed to configure the access control switch. Contact customer service.	View DBS-ddm-instancemanager logs and DBS-resource-manager logs and modify as follows: • If error code APIG.xxxx is returned, indicating that you have no permission to access the API, contact ELB O&M engineers to grant the user the required permission. View the URI of the API in the resource management INFO log. • If an error code containing **ELB.***xxxx* is displayed, contact ELB O&M engineers to locate the fault.
400	DBS.300370	Load balancing is not enabled for the current DDM instance. To enable it, contact technical support.	If needed, go to DBS Operation System to enable access control for the required DDM instance.
400	DBS.300371	Creating a test DDM instance is not supported. To enable this function, contact technical support.	Recommend users to create a DDM instance using the engine ID of a stable version. To create a test DDM instance, go to the DBS Operation System platform to add the user to the whitelist. View the DDM instance management logs to obtain the whitelist name.
400	DBS.300372	Invalid destination DDM instance.	Create a DDM instance as the destination instance.
400	DBS.300375	Invalid **{param}**.	Change the value of **{param}** and try again.
400	DBS.300376	The time zone is invalid.	Enter a correct time zone.
400	DBS.300377	Invalid time range.	1. Ensure that the format of the time range for route switching is HH:mm:ss. 2. Ensure that the route switching start time and end time are the same day and the interval is longer than 1 hour. 3. Retry after completing the above operations.

Status Code	Error Code	Error Message	Solution
400	DBS.300379	The operation is not allowed for this type of tasks.	Enter the ID of the required schema scale-out task.
400	DBS.300400	The task is not found.	Enter a valid task ID.
400	DBS.300401	Failed to modify the automatic route switching time range.	Provide environment information, involved operations, symptom description, and tenant node logs and contact technical support.
400	DBS.300402	Failed to switch the route manually.	Provide environment information, involved operations, symptom description, and tenant node logs and contact technical support.
400	DBS.300405	The schema name length is invalid.	Ensure that the schema name contains 2 to 24 characters.
400	DBS.300406	The schema name cannot contain keyword *keyword*.	Ensure that the schema name does not contain **information_schema**, **mysql**, **performance_schema**, and **sys**.
400	DBS.300407	The schema name cannot contain uppercase letters.	Enter a schema name that only consists of lowercase letters.
400	DBS.300408	Failed to check the RDS connectivity.	1. Upgrade Agent to 2.6.1 or later. 2. Provide environment information, involved operations, symptom description and contact O&M engineers to check whether the Agent is faulty.

9.4 Instance Specifications

For details about DDM instance classes, see **Table 9-4**. The classes vary depending on actual situations.

Table 9-4 Supported DDM instance specifications

Specification Code	vCPUs	Memory (GB)	Architecture
ddm.c6.2xlarge.2	8	16	X86
ddm.c6.4xlarge.2	16	32	X86

Specification Code	vCPUs	Memory (GB)	Architecture
ddm.c6.8xlarge.2	32	64	X86

9.5 Obtaining a Project ID

Scenarios

When calling APIs, you need to specify the project ID in some URLs. To do so, you need to obtain the project ID first Two methods are available:

- **Obtaining the Project ID by Calling an API**
- **Obtaining a Project ID from the Console**

Obtaining the Project ID by Calling an API

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

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

```
{
    "projects": [
        {
            "domain_id": "65382450e8f64ac0870cd180d14e684b",
            "is_domain": false,
            "parent_id": "65382450e8f64ac0870cd180d14e684b",
            "name": "project_name",
            "description": "",
            "links": {
                "next": null,
                "previous": null,
                "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
            },
            "id": "a4a5d4098fb4474fa22cd05f897d6b99",
            "enabled": true
        }
    ],
    "links": {
        "next": null,
        "previous": null,
        "self": "https://www.example.com/v3/projects"
    }
}
```

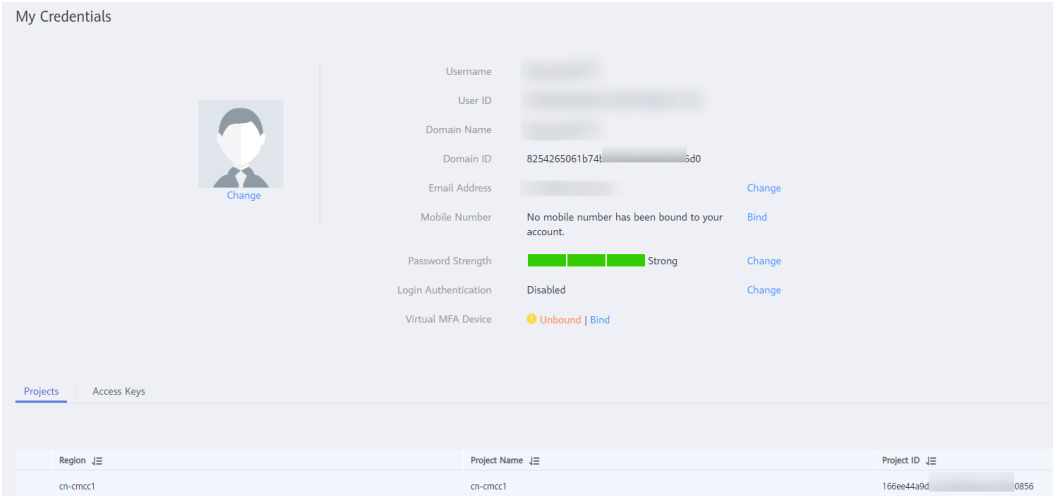
Obtaining a Project ID from the Console

Step 1 Sign up and log in to the management console.

Step 2 Move your pointer over the username and select **My Credentials** in the displayed drop-down list.

On the displayed page, view project IDs in the project list.

Figure 9-1 Viewing project IDs



----End

9.6 Status Description

DDM Instance Statuses

Table 9-5 DDM instance statuses

Status	Description
CREATING	The DDM instance is being created.
CREATEFAILED	The DDM instance fails to be created.
RUNNING	The DDM instance is running and available.
ERROR	The DDM instance is faulty.
RESTARTING	The DDM instance is being restarted.
FREEZING	The DDM instance is being frozen.
FROZEN	The DDM instance is frozen.
UNFREEZING	The DDM instance is being unfrozen.
RESIZING	Class of the DDM instance fail to be changed.
UPGRADE_VERSION_INSTANCE	The version is being upgraded.
GROWING	A DDM instance is being scaled out.
REDUCING	A DDM instance is being scaled in.
data_disk_full	Disk space is full.
RESTORE	A DDM instance is being restored.

Status	Description
BACKUP	A DDM instance is being backed up.

DDM Schema Statuses

Table 9-6 DDM schema statuses

Status	Description
CREATING	The schema is being created.
RUNNING	The schema is running and available.
CREATEFAILED	The schema fails to be created.
DELETING	The schema is being deleted.
Scaling out	The schema is being scaled out.
Scaling out failed	The schema fails to be scaled out.
Rolling back	The schema is being rolled back.

10 Change History

Table 10-1 Document change history

Released On	Description
2021-02-30	This issue is the first official release.

