Data Warehouse Service

API Reference

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1 Before You Start

1.1 Overview

Welcome to GaussDB(DWS). GaussDB(DWS) is a fully hosted enterprise-class cloud data warehouse service. It features O&M-free, online scaling, and efficient multi-source data loading. It is compatible with the PostgreSQL ecosystem, helping enterprises economically and efficiently analyze massive amounts of data online and monetize data.

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

Before calling an API, get familiar with related concepts of GaussDB(DWS). For details, see **Service Overview**.

1.2 API Calling

GaussDB(DWS) supports representational state transfer (REST) APIs, allowing you to call APIs using HTTPS. For details, see **Calling APIs**.

1.3 Endpoints

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

1.4 Constraints

- The number of DWS resources that you can create is determined by your quota. For details, see **Service Quota**.
- For more constraints, see API description.

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1.5 Basic Concepts

- Account

  An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity, which should not be used directly to perform routine management. For security purposes, create Identity and Access Management (IAM) users and grant them permissions for routine management.

- Users

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

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

- Region

  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.

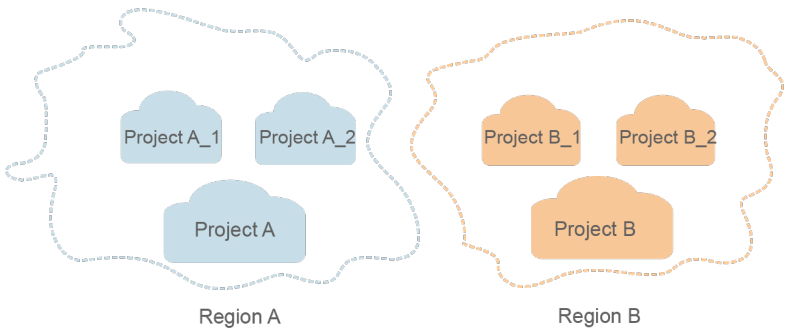
- AZ

  An AZ contains one or more physical data centers. Each AZ has independent power and network devices. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to support cross-AZ high-availability systems.

- Item

  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 apply for resources in the subprojects. IAM users can then be assigned permissions to access only specific resources in the subprojects.

Figure 1-1 Project isolating model



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- Enterprise project

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

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2 API Overview

GaussDB(DWS) provides APIs developed by Huawei. You can use the following GaussDB(DWS) functions with the APIs.

Function	API	Description
Cluster management	Creating a Cluster	Creates a cluster.
	Querying the Cluster List	Queries and displays the cluster list.
	Querying Cluster Details	Queries cluster details.
	Querying Node Types	Queries all node types supported by GaussDB(DWS).
	Deleting Clusters	Deletes a cluster.
	Restarting a Cluster	Restarts a cluster.
	Scaling Out a Cluster	Scales out a cluster.
	Resetting a Password	Resets the cluster administrator password.
Snapshot management	Creating a Snapshot	Creates snapshots for a specified cluster.
	Querying the Snapshot List	Queries the snapshot list.
	Querying Snapshot Details	Queries the snapshot details using the snapshot ID.
	Deleting a Manual Snapshot	Deletes a snapshot.
	Restoring a Cluster	Restores a cluster using a snapshot.

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3 Calling APIs

3.1 Making an API Request

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

Request URI

A request URI is in the following format:

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

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

Table 3-1 URI parameter description

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

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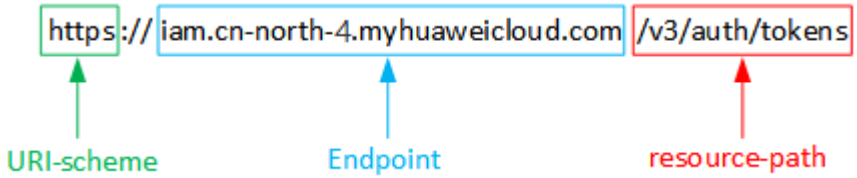
Parameter	Description
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of "*Parameter name=Parameter value*". For example, **?limit=10** indicates that a maximum of 10 data records will be displayed.

For example, to obtain the IAM token in the **CN-Hong Kong** region, obtain the endpoint of IAM (**iam.ap-southeast-1.myhuaweicloud.com**) for this region and the **resource-path** (**/v3/auth/tokens**) in the URI of the API used to **obtain a user token**. Then, construct the URI as follows:

```
https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
```

Figure 3-1 Example URI



NOTE

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

Request Methods

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

Table 3-2 HTTP methods

Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add resources or perform special operations.
DELETE	Requests the server to delete specified resources, for example, an object.
HEAD	Same as GET except that the server must return only the response header.

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

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

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
```

Request Header

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

For details about common request headers, see **Table 3-3**.

Table 3-3 Common request header fields

Field	Description	Mandatory	Example
x-sdk-date	Time when the request is sent. The time is in **YYYYMMDD'T'HHMMSS'Z'** format. The value is the current GMT time of the system.	No	20150907T101459Z
Host	Server information of the resource being requested. The value can be obtained from the URL of the service API. The value is in the format of *hostname[:port]*. If the port number is not specified, the default port is used. The default port number for HTTPS is **443**.	No	code.test.com or code.test.com:443

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Field	Description	Mandatory	Example
Content-Type	Request body MIME type. You are advised to use the default value **application/json**. For APIs used to upload objects or images, the value can vary depending on the flow type.	Yes	application/json
Content-Length	Length of the request body. The unit is byte.	No	3495
X-Project-id	Project ID. Obtain the project ID by following the instructions in **Obtaining Project ID**.	No	e9993fc787d94b6c886cbaa340f9c0f4
X-Auth-Token	User token. The user token is a response to the API used to **obtain a user token**. This API is the only one that does not require authentication. The **X-Subject-Token** value contained in the returned message header is the token.	No This parameter is mandatory for token-based authentication.	The following is part of an example token: MIIPAgYJKoZIhvcNAQc-Co...ggg1BBIINPXsidG9rZ
X-Language	Request language.	No	zh_cn

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

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
Content-type: application/json
```

Request Body

The body of a request is often sent in a structured format (JSON or XML) as specified in the **Content-type** header field. The request body transfers content

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except the request header. If the request body contains Chinese characters, these characters must be coded in UTF-8.

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

In the case of the API used to **obtain a user token**, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace ***user_name***, ***domainname*** (account name), ******** (login password), and ***xxxxxxxxxxxxxxxxx*** (project ID) with actual ones. Obtain the project ID from **Regions and Endpoints** from the database administrator.

NOTE

The **scope** parameter specifies where a token takes effect. In the example, the token takes effect only on the resources specified by the project. In the following example, the token takes effect only for the resources in a specified project. For more information about this API, see **Obtaining a User Token**.

```
POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens
Content-type: application/json

{
    "auth": {
        "identity": {
            "methods": [
                "password"
            ],
            "password": {
                "user": {
                    "name": "user_name",
                    "password": "********",
                    "domain": {
                        "name": "domainname"
                    }
                }
            }
        },
        "scope": {
            "project": {
                "id": "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. In the response to the API used to obtain a user token, **x-subject-token** is the desired user token. This token can then be used to authenticate the calling of other APIs.

3.2 Authentication

Calling an API can be authenticated using tokens.

Token-based Authentication

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

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> **NOTE**
>
> The validity period of a token is 24 hours. When using a token for authentication, cache it to prevent frequently calling the IAM API used to obtain a user token.

When calling the API to **obtain a user token**, you must set **auth.scope** in the request body to **project**.

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

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

3.3 Response

Status Code

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

A status code is a group of digits, ranging from 1xx to 5xx. It indicates the status of a request. For more information, see **Status Code**.

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

Response Header

Similar to a request, a response also has a header, for example, **content-type**.

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

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

Response Body

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.

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

```
{
    "token": {
        "expires_at": "2019-02-13T06:52:13.855000Z",
        "methods": [
            "password"
        ],
        "catalog": [
            {
                "endpoints": [
                    {
                        "region_id": "ap-southeast-1",
.....
```

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

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

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

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4 Getting Started

This section describes how to use GaussDB(DWS) APIs to manage clusters. The procedure of the management clusters is as follows:

1. Call the API in **Authentication** to obtain the user token, which will be put into the request header for authentication in a subsequent request.
2. Call the API in **Querying Node Types** to obtain the supported node types.
3. Call the API in **Creating a Cluster** to create a cluster.
4. Call the API in **Querying the Cluster List** to obtain the cluster information.
5. Call the API in **Querying Cluster Details** to view cluster details.
6. Call the API in **Creating a Snapshot** to create a snapshot.
7. Call the API in **Querying the Snapshot List** to check whether the snapshot is successfully created.
8. Call the API in **Restoring a Cluster** to restore a cluster using its snapshot.
9. Call the API in **Deleting a Manual Snapshot** to delete an unwanted snapshot.
10. Call the API in **Deleting Clusters** to delete a finished or unwanted cluster.

Prerequisites

- You have created a VPC, subnet, and security group and obtained their IDs. For details, see **Creating a VPC**.
- You have obtained the **IAM endpoint** and **GaussDB(DWS) endpoint**
- You have obtained the Project ID. For details, see **Obtaining Project ID**.

Managing a Cluster

The following values are examples (replace them based on the actual situation).

- IAM endpoint: **iam_endpoint**
- GaussDB(DWS) endpoint: **dws_endpoint**
- VPC ID: **219ab8a0-1272-4049-a383-8ad0b770fa11**
- Subnet ID: **d23ef2e9-8b90-49b3-bc4a-fd7d6bea6bec**
- Security group ID: **12e3c23a-8710-4b75-95e4-5c8d7f68ef3c**

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- Project ID: **9bc552e6-19af-4326-800d-281a92984636**

Perform the following operations to manage the cluster.

Step 1 Before calling other APIs, call the API in **Authentication** to obtain the token and set it as an environment variable.

```
curl -H "Content-type:application/json" https://{iam_endpoint}/v3/auth/tokens -X POST -d '{
    "auth": {
        "identity": {
            "methods": [
                "password"
            ],
            "password": {
                "user": {
                    "name": "testname",
                    "domain": {
                        "name": "testname"
                    },
                    "password": "Passw0rd"
                }
            }
        },
        "scope": {
            "project": {
                "name": "ap-southeast-1"
            }
        }
    }
}' -v -k
```

1. Obtain the value of **X-Subject-Token** from the response header as follows. **X-Subject-Token** indicates the token.

   ```
   X-Subject-Token:MIidkgYJKoZIhvcNAQcCoIidgzCCA38CAQExDTALBglghkgBZQMEAgEwgXXXXX...
   ```

2. Run the following command to set the token as an environment variable:

   export Token={X-Subject-Token}

   X-Subject-Token is the token obtained in the preceding step.

   ```
   export Token=MIidkgYJKoZIhvcNAQcCoIidgzCCA38CAQExDTALBglghkgBZQMEAgEwgXXXXX...
   ```

Step 2 Call the API in **Querying Node Types** to obtain the supported node types.

```
curl -X GET -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" https://
{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/node_types -v -k
```

The request response is as follows:

```
status CODE 200
{
    "node_types": [
        {
            "spec_name": "dws.d2.xlarge",
            "id": "ebe532d6-665f-40e6-a4d4-3c51545b6a67",
            "detail": [
                {
                    "type": "vCPU",
                    "value": "4"
                },
                {
                    "value": "1675",
                    "type": "LOCAL_DISK",
                    "unit": "GB"
                },
                {
                    "type": "mem",
                    "value": "32",
                    "unit": "GB"
                }
            ]
```

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```
        },
        {
            "spec_name": "dws.m1.xlarge.ultrahigh",
            "id": "ebe532d6-665f-40e6-a4d4-3c51545b4f71",
            "detail": [
                {
                    "type": "vCPU",
                    "value": "4"
                },
                {
                    "value": "512",
                    "type": "SSD",
                    "unit": "GB"
                },
                {
                    "type": "mem",
                    "value": "32",
                    "unit": "GB"
                }
            ]
        }
    ]
}
```

Step 3 Call the API in **Creating a Cluster** to create a cluster.

The examples for configuring the cluster are as follows:

- Cluster name: **dws-demo**
- Administrator username: **dbadmin**
- Administrator password: **passw0rd**
- Port: **8000**
- Node type: **dws.d1.xlarge**
- Number of nodes: **3**
- Elastic IP (EIP): **auto_assign**

```
curl -X POST -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" -d '{
    "node_type": "dws.d1.xlarge",
        "number_of_node": 3,
        "subnet_id": "d23ef2e9-8b90-49b3-bc4a-fd7d6bea6bec",
        "security_group_id": "12e3c23a-8710-4b75-95e4-5c8d7f68ef3c",
        "vpc_id": "219ab8a0-1272-4049-a383-8ad0b770fa11",
        "port": 8000,
        "name": "dws-demo",
        "user_name": "dbadmin",
        "user_pwd": "passw0rd",
        "public_ip": {
            "public_bind_type": "auto_assign"
        }
}' https://{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/clusters -v -k
```

If status code **200** is returned, the request for creating a cluster is successfully sent.

Step 4 Call the API in **Querying the Cluster List** to obtain the cluster information.

```
curl -X GET -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" https://
{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/clusters -k –v
```

The request response is as follows:

```
{
        "clusters": [
        {
        "id": "7ba031f6-81f4-4670-ad20-c490b91877e5",
        "status": "AVAILABLE",
```

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```
        "sub_status": "NORMAL",
        "task_status": null,
        "action_progress": null,
        "node_type":  "dws.d1.xlarge",
        "subnet_id": "d23ef2e9-8b90-49b3-bc4a-fd7d6bea6bec",
        "security_group_id": "12e3c23a-8710-4b75-95e4-5c8d7f68ef3c",
        "number_of_node": 3,
        "availability_zone": "ap-southeast-1",
        "port": 8000,
        "name": "dws-demo",
        "version": "1.1.0",
        "vpc_id": "219ab8a0-1272-4049-a383-8ad0b770fa11",
        "user_name": "dbadmin",
        "public_ip": {
            "public_bind_type": "auto_assign",
            "eip_id": "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574"
         },
        "public_endpoints": [
           {
              "public_connect_info": "dws-demo.ap-southeast-1.myhuaweicloud.com",
              "jdbc_url": "jdbc:postgresql://dws-demo.ap-southeast-1.myhuaweicloud.com/
<YOUR_DATABASE_name>"
           }
         ],
        "endpoints": [
           {
              "connect_info": "dws-demo.ap-southeast-1.myhuaweicloud.com",
              "jdbc_url": "jdbc:postgresql://dws-demo.ap-southeast-1.myhuaweicloud.com/
<YOUR_DATABASE_name>"
           },
         ] ,
        "updated": "2018-01-15T12:50:06",
        "created": "2018-01-15T12:50:06",
        "recent_event": 1
       }
    ]
}
```


- If **status** is **CREATING**, the cluster is being created. If **status** is **AVAILABLE**, the cluster is successfully created.
- The UUID of cluster **dws-demo** is **7ba031f6-81f4-4670-ad20-c490b91877e5**. Record the UUID for subsequent use.

Step 5 Call the API in **Querying Cluster Details** to view cluster details.

```
curl -X GET -H "Content-type:application/json" -H "X-Auth-Token:$Token"
 https://{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/clusters/7ba031f6-81f4-4670-
ad20-c490b91877e5 -k -v
```

The request response is as follows:


```
{
    "cluster": {
        "id": "7ba031f6-81f4-4670-ad20-c490b91877e5",
        "status": "AVAILABLE",
        "name": "dws-demo",
        "updated": "2018-01-15T12:50:06",
        "created": "2018-01-15T12:50:06",
        "user_name": "dbadmin",
        "sub_status": "NORMAL",
        "task_status": null,
        "action_progress": null,
        "node_type":  "dws.d1.xlarge",
        "node_type_id": "5ddb1071-c5d7-40e0-a874-8a032e81a697",
        "subnet_id": "d23ef2e9-8b90-49b3-bc4a-fd7d6bea6bec",
        "security_group_id": "12e3c23a-8710-4b75-95e4-5c8d7f68ef3c",
        "number_of_node": 3,
        "availability_zone": "ap-southeast-1",
        "port": 8000,
```


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```
        "vpc_id": "219ab8a0-1272-4049-a383-8ad0b770fa11",
        "public_ip": {
            "public_bind_type": "auto_assign",
            "eip_id": "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574"
        },
        "public_endpoints": [
        {
                "public_connect_info": "dws-demo.ap-southeast-1.myhuaweicloud.com",
                "jdbc_url": "jdbc:postgresql://dws-demo.ap-southeast-1.myhuaweicloud.com/
<YOUR_DATABASE_name>"
         }
         ],
        "endpoints": [
        {
                "connect_info": "dws-demo.ap-southeast-1.myhuaweicloud.com",
                "jdbc_url": "jdbc:postgresql://dws-demo.ap-southeast-1.myhuaweicloud.com/
<YOUR_DATABASE_name>"
        },
        {
                "connect_info": "192.168.0.12:8000",
                "jdbc_url": "jdbc:postgresql://192.168.0.12:8000/<YOUR_DATABASE_name>"
        }
         ],
        "version": "1.1.0",
        "maintain_window": {
            "day": "Wed",
            "start_time": "18:00",
            "end_time": "22:00"
        },
        "recent_event": 1,
        "tags": null,
        "parameter_group": {
              "id": "157e9cc4-64a8-11e8-adc0-fa7ae01bbebc",              "name": "Default-Parameter-Group-
dws ",              "status": "In-Sync"
        }
    }
}
```

public_endpoints and **endpoints** can be queried from the response. After the cluster is successfully created, you can use **public_endpoints** or **endpoints** to access the cluster from an external source.

Step 6 Call the API in **Creating a Snapshot** to create a snapshot.

Create snapshot **snapshotForDemoCluster** for cluster **dws-demo**.

```
curl -X POST -H "Content-type:application/json" -H "X-Auth-Token:$Token" -d '{
    "snapshot": {
        "name": "snapshotForDemoCluster",
        "cluster_id": "7ba031f6-81f4-4670-ad20-c490b91877e5",
        "description": "Snapshot description"
    }
}' https://{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/snapshots -k -v
```

The request response is as follows:

```
{
  "snapshot": {
      "id": "2a4d0f86-67cd-408a-8b66-017454fb7793"
  }
}
```

If status code **200** is returned, the request for creating a snapshot is successfully sent. Record **id** so that the ID can be used when you query the snapshot details later.

Step 7 Call the API in **Querying the Snapshot List** to check whether the snapshot is successfully created.

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```
curl -X GET -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" https://
{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/snapshots/
2a4d0f86-67cd-408a-8b66-017454fb7793 -k -v
```

If the snapshot status in the response is **AVAILABLE**, the snapshot is successfully created. If the snapshot status is **CREATING**, the snapshot is being created.

```
{
    "snapshot": {
        "id": "2a4d0f86-67cd-408a-8b66-017454fb7793",
        "name": "snapshotForDemoCluster",
        "description": "Snapshot description",
        "started": "2018-01-18T13:59:23Z",
        "finished": "2018-01-18T13:01:40Z",
        "size": 500,
        "status": "AVAILABLE",
        "type": "MANUAL",
        "cluster_id": "4f87d3c4-9e33-482f-b962-e23b30d1a18c"
    }
}
```

Step 8 Call the API in **Restoring a Cluster** to restore a cluster using its snapshot.

Restore snapshot **snapshotForDemoCluster** to new cluster **dws-restore**.

```
curl -X POST -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" -d '{
    "restore": {
        "name": "dws-restore"
    }
}' https://{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/snapshots/
2a4d0f86-67cd-408a-8b66-017454fb7793/actions -v -k
```

If status code **200** is returned, the cluster is successfully restored. You can check the cluster restoration status by performing operations in **Restoring a Cluster**.

Step 9 Call the API in **Deleting a Manual Snapshot** to delete an unwanted snapshot.

```
curl -X DELETE -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" https://
{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/snapshots/
2a4d0f86-67cd-408a-8b66-017454fb7793 -v -k
```

If status code **202** is returned, the snapshot is successfully deleted.

Step 10 Call the API in **Deleting Clusters** to delete an unwanted cluster.

```
curl -X DELETE -H 'Content-type:application/json;charset=utf-8' -H "X-Auth-Token:$Token" -d '{
    "keep_last_manual_snapshot":0
}' https://{dws_endpoint}/v1.0/9bc552e6-19af-4326-800d-281a92984636/clusters/7ba031f6-81f4-4670-
ad20-c490b91877e5 -v -k
```

If status code **202** is returned, the cluster is successfully deleted.

----End

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5 API Description

5.1 AZ

5.1.1 Querying AZs

Function

This API is used to query the IDs of AZs available for a tenant to create a cluster. AZ IDs are configured during instance creation.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/availability-zones

Table 5-1 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-2 Response body parameters

Parameter	Type	Description
availability_zones	Array of **AvailabilityZone** objects	AZ list objects
count	Integer	Number of AZs

Table 5-3 AZ parameters

Parameter	Type	Description
code	String	Unique ID of an AZ
name	String	AZ name
status	String	AZ status • Available • Unavailable
public_border_group	String	AZ group, for example, **center**.

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/availability-zones
```

Example Responses

Status code: 200

The AZ list is queried successfully.

```
{
  "availability_zones" : [ {
    "code" : "az1",
    "name" : "AZ1",
    "status" : "available",
    "public_border_group" : "center"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
```

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```
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAvailabilityZonesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListAvailabilityZonesRequest request = new ListAvailabilityZonesRequest();
        try {
            ListAvailabilityZonesResponse response = client.listAvailabilityZones(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()
```

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```
    try:
        request = ListAvailabilityZonesRequest()
        response = client.list_availability_zones(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListAvailabilityZonesRequest{}
    response, err := client.ListAvailabilityZones(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The AZ list is queried successfully.
400	Request error

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Status Code	Description
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error
503	Service unavailable.

5.2 Cluster Management

5.2.1 Creating a Cluster

Function

This API is used to create a cluster.

The cluster must run in a VPC. Before creating a cluster, you need to create a VPC and obtain the VPC and subnet IDs.

This API is an asynchronous API. It takes 10 to 15 minutes to create a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/clusters
```

Table 5-4 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Request Parameters

Table 5-5 Request body parameters

Parameter	Mandatory	Type	Description
cluster	Yes	**CreateClusterInfo** object	Cluster object

Table 5-6 CreateClusterInfo

Parameter	Mandatory	Type	Description
node_type	Yes	String	Node type. For details, see **Data Warehouse Types**.
number_of_node	Yes	Integer	Number of cluster nodes. For a cluster, the value ranges from 3 to 256. For a hybrid data warehouse (standalone), the value is 1.
subnet_id	Yes	String	Subnet ID, which is used for configuring cluster network.
security_group_id	Yes	String	ID of a security group, which is used for configuring cluster network.
vpc_id	Yes	String	VPC ID, which is used for configuring cluster network.
availability_zone	No	String	AZ of a cluster. For details, see **Regions and Endpoints**. **NOTE** Currently, you cannot select multiple AZs at a time.
port	No	Integer	Service port of a cluster. The value ranges from 8000 to 30000. The default value is **8000**.
name	Yes	String	Cluster name, which must be unique. The cluster name must contain 4 to 64 characters, which must start with a letter. Only letters, digits, hyphens (-), and underscores (_) are allowed.

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Parameter	Mandatory	Type	Description
user_name	Yes	String	Administrator username for logging in to a GaussDB(DWS) cluster. The username must: • Consists of lowercase letters, digits, or underscores. • Starts with a lowercase letter or an underscore. • Contain 6 to 64 characters. • Cannot be a keyword of the GaussDB(DWS) database.
user_pwd	Yes	String	Administrator password for logging in to a GaussDB(DWS) cluster • Contains 12 to 32 characters. • Contains at least three types of the following characters: uppercase letters, lowercase letters, digits, and special characters (~!?, .:;-_(){}[]/ <>@# %^&*+|\=). • Cannot be the username or the username spelled backwards.
public_ip	No	**PublicIp** object	Public IP address. If this parameter is not specified, the public network is not used by default.
number_of_cn	No	Integer	Number of deployed CNs. The value ranges from 3 to the number of cluster nodes. The maximum value is **20** and the default value is **3**.
tags	No	**Tags** object	Tags
enterprise_project_id	No	String	Enterprise project ID. If no enterprise project is specified, the ID of the default enterprise project is used, that is, 0.

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Table 5-7 PublicIp

Parameter	Mandatory	Type	Description
public_bind_type	Yes	String	Binding type of an EIP. The value can be one of the following: • **auto_assign** • **not_use** • **bind_existing**
eip_id	No	String	EIP ID

Table 5-8 Tags

Parameter	Mandatory	Type	Description
key	Yes	String	Key. A tag key can contain a maximum of 128 Unicode characters, which cannot be null. The first and last characters cannot be spaces. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/
value	Yes	String	Value. A tag value can contain a maximum of 43 characters, which can be an empty string. It cannot start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/

Response Parameters

Status code: 200

Table 5-9 Response body parameters

Parameter	Type	Description
cluster	**Cluster** object	Cluster object

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Table 5-10 Cluster

Parameter	Type	Description
id	String	Cluster ID

Example Request

Create a data warehouse cluster whose AZ is **az1.dc1**, node flavor is **dws.m1.xlarge.ultrahigh**, has three nodes, database port is **8000**, and public IP address, security group ID, subnet ID, and VPC ID are as follows:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters

{
  "cluster" : {
    "node_type" : "dws.m1.xlarge.ultrahigh",
    "number_of_node" : 3,
    "subnet_id" : "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
    "security_group_id" : "dc3ec145-9029-4b39-b5a3-ace5a01f772b",
    "vpc_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
    "availability_zone" : "az1.dc1",
    "port" : 8000,
    "name" : "dws-1",
    "user_name" : "dbadmin",
    "user_pwd" : "Passw0rd!",
    "public_ip" : {
      "public_bind_type" : "auto_assign",
      "eip_id" : ""
    },
    "enterprise_project_id" : "aca4e50a-266f-4786-827c-f8d6cc3fbada"
  }
}
```

Example Response

Status code: 200

The cluster has been successfully created.

```
{
  "cluster" : {
    "id" : "7d85f602-a948-4a30-afd4-e84f47471c15"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class CreateClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CreateClusterRequest request = new CreateClusterRequest();
        CreateClusterRequestBody body = new CreateClusterRequestBody();
        PublicIp publicIpCluster = new PublicIp();
        publicIpCluster.withPublicBindType("auto_assign")
            .withEipId("");
        CreateClusterInfo clusterbody = new CreateClusterInfo();
        clusterbody.withNodeType("dws.m1.xlarge.ultrahigh")
            .withNumberOfNode(3)
            .withSubnetId("374eca02-cfc4-4de7-8ab5-dbebf7d9a720")
            .withSecurityGroupId("dc3ec145-9029-4b39-b5a3-ace5a01f772b")
            .withVpcId("85b20d7e-9eb7-4b2a-98f3-3c8843ea3574")
            .withAvailabilityZone("az1.dc1")
            .withPort(8000)
            .withName("dws-1")
            .withUserName("dbadmin")
            .withUserPwd("Passw0rd!")
            .withPublicIp(publicIpCluster)
            .withEnterpriseProjectId("aca4e50a-266f-4786-827c-f8d6cc3fbada");
        body.withCluster(clusterbody);
        request.withBody(body);
        try {
            CreateClusterResponse response = client.createCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security
```

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```
risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CreateClusterRequest()
        publicIpCluster = PublicIp(
            public_bind_type="auto_assign",
            eip_id=""
        )
        clusterbody = CreateClusterInfo(
            node_type="dws.m1.xlarge.ultrahigh",
            number_of_node=3,
            subnet_id="374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
            security_group_id="dc3ec145-9029-4b39-b5a3-ace5a01f772b",
            vpc_id="85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
            availability_zone="az1.dc1",
            port=8000,
            name="dws-1",
            user_name="dbadmin",
            user_pwd="Passw0rd!",
            public_ip=publicIpCluster,
            enterprise_project_id="aca4e50a-266f-4786-827c-f8d6cc3fbada"
        )
        request.body = CreateClusterRequestBody(
            cluster=clusterbody
        )
        response = client.create_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
```

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```
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CreateClusterRequest{}
    eipIdPublicIp:= ""
    publicIpCluster := &model.PublicIp{
        PublicBindType: "auto_assign",
        EipId: &eipIdPublicIp,
    }
    availabilityZoneCluster:= "az1.dc1"
    portCluster:= int32(8000)
    enterpriseProjectIdCluster:= "aca4e50a-266f-4786-827c-f8d6cc3fbada"
    clusterbody := &model.CreateClusterInfo{
        NodeType: "dws.m1.xlarge.ultrahigh",
        NumberOfNode: int32(3),
        SubnetId: "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
        SecurityGroupId: "dc3ec145-9029-4b39-b5a3-ace5a01f772b",
        VpcId: "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
        AvailabilityZone: &availabilityZoneCluster,
        Port: &portCluster,
        Name: "dws-1",
        UserName: "dbadmin",
        UserPwd: "Passw0rd!",
        PublicIp: publicIpCluster,
        EnterpriseProjectId: &enterpriseProjectIdCluster,
    }
    request.Body = &model.CreateClusterRequestBody{
        Cluster: clusterbody,
    }
    response, err := client.CreateCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster has been successfully created.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error
503	Service unavailable.

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5.2.2 Creating a Cluster (V2)

Function

This API is used to create a cluster. The cluster must run in a VPC. Before creating a cluster, you need to create a VPC and obtain the VPC and subnet IDs.

NOTE

This API is an asynchronous API. It takes 10 to 15 minutes to create a cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters

Table 5-11 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-12 Request body parameters

Parameter	Mandatory	Type	Description
cluster	No	**V2CreateCluster** object	Request for creating a cluster

Table 5-13 V2CreateCluster

Parameter	Mandatory	Type	Description
name	Yes	String	Cluster name, which must be unique. The cluster name must contain 4 to 64 characters, which must start with a letter. Only letters, digits, hyphens (-), and underscores (_) are allowed.
flavor	Yes	String	Cluster flavor name For details about node flavors, see **Data Warehouse Flavors**.

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Parameter	Mandatory	Type	Description
num_cn	Yes	Integer	Number of CNs in the cluster. The value ranges from 2 to the number of cluster nodes. The maximum value is **20** and the default value is **3**.
num_node	Yes	Integer	Number of cluster nodes. For a cluster, the value ranges from 3 to 256. For a hybrid data warehouse (standalone), the value is 1.
db_name	Yes	String	Username of the administrator. The username must meet the following requirements: • Consists of only lowercase letters, digits, or underscores. • Starts with a lowercase letter or an underscore. • Contains 6 to 64 characters. • Cannot be a keyword of the GaussDB(DWS) database.
db_password	Yes	String	Password of the administrator, which must meet the following requirements: • Contains 12 to 32 characters. • Contains at least three types of the following characters: uppercase letters, lowercase letters, digits, and special characters (~!?, .:;-_(){}[]/<>@# %^&*+|\=). • Cannot be the same as the username or the username written in reverse order.
db_port	Yes	Integer	Cluster database port. The value ranges from 8000 to 30000. The default value is **8000**.
dss_pool_id	No	String	DSS storage pool ID.
availability_zones	Yes	Array of String	List of AZs. For details, see **Regions and Endpoints**. **NOTE** Currently, only three AZs can be selected for a multi-AZ cluster.
tags	No	Array of **Tags** objects	Tags

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Parameter	Mandatory	Type	Description
vpc_id	Yes	String	VPC ID, which is used for configuring cluster network.
subnet_id	Yes	String	Subnet ID, which is used for configuring cluster network.
security_group_id	No	String	ID of a security group, which is used for configuring cluster network.
public_ip	No	**PublicIp** object	Public IP address. If the parameter is not specified, public connection is not used by default.
datastore_version	Yes	String	Cluster version
master_key_id	No	String	Key pair ID.
master_key_name	No	String	Key name.
crypt_algorithm	No	String	Encryption algorithm
volume	No	**Volume** object	Disk information
enterprise_project_id	No	String	Enterprise project. The default enterprise project ID is **0**.

Table 5-14 Tags

Parameter	Mandatory	Type	Description
key	Yes	String	Key. A tag key can contain a maximum of 128 Unicode characters, which cannot be null. The first and last characters cannot be spaces. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/
value	Yes	String	Value. A tag value can contain a maximum of 255 characters, which can be an empty string. It cannot start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/

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Table 5-15 PublicIp

Parameter	Mandatory	Type	Description
public_bind_type	Yes	String	Binding type of an EIP. The value can be one of the following: • **auto_assign** • **not_use** • **bind_existing**
eip_id	No	String	EIP ID

Table 5-16 Volume

Parameter	Mandatory	Type	Description
volume	No	String	Disk name. The options are as follows: • **SSD**: Ultra-high I/O • **High I/O** (SAS) • **Common I/O** (SATA)
capacity	No	Integer	Disk capacity

Response Parameters

Status code: 200

Table 5-17 Response body parameter

Parameter	Type	Description
cluster	**Cluster** object	Cluster object

Table 5-18 Cluster

Parameter	Type	Description
id	String	Cluster ID

Example Request

Create a multi-AZ data warehouse cluster with the following specifications: cluster version 8.2.1, AZs **az1**, **az2**, and **az3**, node flavor **dws.m1.xlarge.ultrahigh**, three

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nodes, SSD disk with 100 GB capacity, database port **8000**, and public IP address, security Group ID, Subnet ID, VPC ID are as follows:

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters

{
  "cluster" : {
    "flavor" : "dws.m1.xlarge.ultrahigh",
    "num_node" : 3,
    "subnet_id" : "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
    "security_group_id" : "dc3ec145-9029-4b39-b5a3-ace5a01f772b",
    "vpc_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
    "db_port" : 8000,
    "datastore_version" : "8.2.1",
    "availability_zones" : [ "az1", "az2", "az3" ],
    "name" : "dws-1",
    "num_cn": 3,
    "db_name" : "dbadmin",
    "db_password" : "Passw0rd!",
    "public_ip" : {
      "public_bind_type" : "auto_assign",
      "eip_id" : ""
    },
    "volume":{
      "volume":"SSD",
      "capacity":100
    },
    "enterprise_project_id" : "aca4e50a-266f-4786-827c-f8d6cc3fbada"
  }
}
```

Example Response

Status code: 200

The cluster has been successfully created.

```
{
  "cluster" : {
    "id" : "7d85f602-a948-4a30-afd4-e84f47471c15"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class CreateClusterV2Solution {

    public static void main(String[] args) {
```

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```
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CreateClusterV2Request request = new CreateClusterV2Request();
        V2CreateClusterReq body = new V2CreateClusterReq();
        PublicIp publicIpCluster = new PublicIp();
        publicIpCluster.withPublicBindType("auto_assign")
            .withEipId("");
        List<String> listClusterAvailabilityZones = new ArrayList<>();
        listClusterAvailabilityZones.add("az1");
        listClusterAvailabilityZones.add("az2");
        V2CreateCluster clusterbody = new V2CreateCluster();
        clusterbody.withName("dws-1")
            .withFlavor("dws.m1.xlarge.ultrahigh")
            .withNumNode(3)
            .withDbName("dbadmin")
            .withDbPassword("Passw0rd!")
            .withDbPort(8000)
            .withAvailabilityZones(listClusterAvailabilityZones)
            .withVpcId("85b20d7e-9eb7-4b2a-98f3-3c8843ea3574")
            .withSubnetId("374eca02-cfc4-4de7-8ab5-dbebf7d9a720")
            .withSecurityGroupId("dc3ec145-9029-4b39-b5a3-ace5a01f772b")
            .withPublicIp(publicIpCluster)
            .withDatastoreVersion("8.2.1")
            .withEnterpriseProjectId("aca4e50a-266f-4786-827c-f8d6cc3fbada");
        body.withCluster(clusterbody);
        request.withBody(body);
        try {
            CreateClusterV2Response response = client.createClusterV2(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment
```

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```
variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CreateClusterV2Request()
        publicIpCluster = PublicIp(
            public_bind_type="auto_assign",
            eip_id=""
        )
        listAvailabilityZonesCluster = [
            "az1",
            "az2"
        ]
        clusterbody = V2CreateCluster(
            name="dws-1",
            flavor="dws.m1.xlarge.ultrahigh",
            num_node=3,
            db_name="dbadmin",
            db_password="Passw0rd!",
            db_port=8000,
            availability_zones=listAvailabilityZonesCluster,
            vpc_id="85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
            subnet_id="374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
            security_group_id="dc3ec145-9029-4b39-b5a3-ace5a01f772b",
            public_ip=publicIpCluster,
            datastore_version="8.2.1",
            enterprise_project_id="aca4e50a-266f-4786-827c-f8d6cc3fbada"
        )
        request.body = V2CreateClusterReq(
            cluster=clusterbody
        )
        response = client.create_cluster_v2(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")
```

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```
    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CreateClusterV2Request{}
    eipIdPublicIp:= ""
    publicIpCluster := &model.PublicIp{
        PublicBindType: "auto_assign",
        EipId: &eipIdPublicIp,
    }
    var listAvailabilityZonesCluster = []string{
        "az1",
        "az2",
    }
    securityGroupIdCluster:= "dc3ec145-9029-4b39-b5a3-ace5a01f772b"
    enterpriseProjectIdCluster:= "aca4e50a-266f-4786-827c-f8d6cc3fbada"
    clusterbody := &model.V2CreateCluster{
        Name: "dws-1",
        Flavor: "dws.m1.xlarge.ultrahigh",
        NumNode: int32(3),
        DbName: "dbadmin",
        DbPassword: "Passw0rd!",
        DbPort: int32(8000),
        AvailabilityZones: listAvailabilityZonesCluster,
        VpcId: "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
        SubnetId: "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
        SecurityGroupId: &securityGroupIdCluster,
        PublicIp: publicIpCluster,
        DatastoreVersion: "8.2.1",
        EnterpriseProjectId: &enterpriseProjectIdCluster,
    }
    request.Body = &model.V2CreateClusterReq{
        Cluster: clusterbody,
    }
    response, err := client.CreateClusterV2(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster has been successfully created.
400	Request error.
401	Authentication failed.

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Status Code	Description
403	You do not have required permissions.
500	Internal server error
503	Service unavailable.

5.2.3 Creating a Logical Cluster

Function

This API is used to create a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/logical-clusters

Table 5-19 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-20 Request body parameters

Parameter	Mandatory	Type	Description
logical_cluster	Yes	**CreateLogicalClusterInfo** object	Information of the logical cluster.

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Table 5-21 CreateLogicalClusterInfo

Parameter	Mandatory	Type	Description
logical_cluster_name	Yes	String	Name of a logical cluster
cluster_rings	Yes	Array of **ClusterRing** objects	Ring information of the logical cluster.

Table 5-22 ClusterRing

Parameter	Mandatory	Type	Description
ring_hosts	Yes	Array of **RingHost** objects	Cluster host information

Table 5-23 RingHost

Parameter	Mandatory	Type	Description
host_name	Yes	String	Host name
back_ip	Yes	String	Backend IP address
cpu_cores	Yes	Integer	Number of host CPUs
memory	Yes	Double	Host memory
disk_size	Yes	Double	Disk size of the host

Response Parameters

Status code: 200

Table 5-24 Response body parameter

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
POST https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/logical-clusters
```

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```
{
  "logical_cluster" : {
    "logical_cluster_name" : "v3_logical",
    "cluster_rings" : [ {
      "ring_hosts" : [ {
        "host_name" : "host-172-16-20-246",
        "back_ip" : "172.16.73.90",
        "cpu_cores" : 8,
        "memory" : 32.0,
        "disk_size" : 800.0
      }, {
        "host_name" : "host-172-16-4-26",
        "back_ip" : "172.16.123.5",
        "cpu_cores" : 8,
        "memory" : 32.0,
        "disk_size" : 800.0
      }, {
        "host_name" : "host-172-16-4-26",
        "back_ip" : "172.16.123.5",
        "cpu_cores" : 8,
        "memory" : 32.0,
        "disk_size" : 800.0
      } ]
    } ]
  }
}
```

Example Response

Status code: 200

The logical cluster is created.

```
{
  "error_code" : "DWS.0000",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class CreateLogicalClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
```

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```
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CreateLogicalClusterRequest request = new CreateLogicalClusterRequest();
        CreateLogicalClusterRequestBody body = new CreateLogicalClusterRequestBody();
        List<RingHost> listClusterRingsRingHosts = new ArrayList<>();
        listClusterRingsRingHosts.add(
            new RingHost()
                .withHostName("host-172-16-20-246")
                .withBackIp("172.16.73.90")
                .withCpuCores(8)
                .withMemory((double)32.0)
                .withDiskSize((double)800.0)
        );
        listClusterRingsRingHosts.add(
            new RingHost()
                .withHostName("host-172-16-4-26")
                .withBackIp("172.16.123.5")
                .withCpuCores(8)
                .withMemory((double)32.0)
                .withDiskSize((double)800.0)
        );
        listClusterRingsRingHosts.add(
            new RingHost()
                .withHostName("host-172-16-4-26")
                .withBackIp("172.16.123.5")
                .withCpuCores(8)
                .withMemory((double)32.0)
                .withDiskSize((double)800.0)
        );
        List<ClusterRing> listLogicalClusterClusterRings = new ArrayList<>();
        listLogicalClusterClusterRings.add(
            new ClusterRing()
                .withRingHosts(listClusterRingsRingHosts)
        );
        CreateLogicalClusterInfo logicalClusterbody = new CreateLogicalClusterInfo();
        logicalClusterbody.withLogicalClusterName("v3_logical")
            .withClusterRings(listLogicalClusterClusterRings);
        body.withLogicalCluster(logicalClusterbody);
        request.withBody(body);
        try {
            CreateLogicalClusterResponse response = client.createLogicalCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
```

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```
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CreateLogicalClusterRequest()
        listRingHostsClusterRings = [
            RingHost(
                host_name="host-172-16-20-246",
                back_ip="172.16.73.90",
                cpu_cores=8,
                memory=32.0,
                disk_size=800.0
            ),
            RingHost(
                host_name="host-172-16-4-26",
                back_ip="172.16.123.5",
                cpu_cores=8,
                memory=32.0,
                disk_size=800.0
            ),
            RingHost(
                host_name="host-172-16-4-26",
                back_ip="172.16.123.5",
                cpu_cores=8,
                memory=32.0,
                disk_size=800.0
            )
        ]
        listClusterRingsLogicalCluster = [
            ClusterRing(
                ring_hosts=listRingHostsClusterRings
            )
        ]
        logicalClusterbody = CreateLogicalClusterInfo(
            logical_cluster_name="v3_logical",
            cluster_rings=listClusterRingsLogicalCluster
        )
        request.body = CreateLogicalClusterRequestBody(
            logical_cluster=logicalClusterbody
        )
        response = client.create_logical_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main
```

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```
import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CreateLogicalClusterRequest{}
    var listRingHostsClusterRings = []model.RingHost{
        {
            HostName: "host-172-16-20-246",
            BackIp: "172.16.73.90",
            CpuCores: int32(8),
            Memory: float64(32.0),
            DiskSize: float64(800.0),
        },
        {
            HostName: "host-172-16-4-26",
            BackIp: "172.16.123.5",
            CpuCores: int32(8),
            Memory: float64(32.0),
            DiskSize: float64(800.0),
        },
        {
            HostName: "host-172-16-4-26",
            BackIp: "172.16.123.5",
            CpuCores: int32(8),
            Memory: float64(32.0),
            DiskSize: float64(800.0),
        },
    }
    var listClusterRingsLogicalCluster = []model.ClusterRing{
        {
            RingHosts: listRingHostsClusterRings,
        },
    }
    logicalClusterbody := &model.CreateLogicalClusterInfo{
        LogicalClusterName: "v3_logical",
        ClusterRings: listClusterRingsLogicalCluster,
    }
    request.Body = &model.CreateLogicalClusterRequestBody{
        LogicalCluster: logicalClusterbody,
    }
    response, err := client.CreateLogicalCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
```

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```
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The logical cluster is created.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

5.2.4 Converting a Physical Cluster to a Logical Cluster

Function

This API is used to convert a physical cluster to a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/clusters/{cluster_id}/convert-to-logical-cluster/{name}
```

Table 5-25 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
name	Yes	String	Name of a logical cluster

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-26 Response body parameter

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
POST https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/convert-to-logical-cluster/elastic_group
```

Example Response

Status code: 200

The cluster has been converted to a logical cluster.

```
{
  "error_code" : "DWS.0000",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ConvertToLogicalClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");
```

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```
        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ConvertToLogicalClusterRequest request = new ConvertToLogicalClusterRequest();
        try {
            ConvertToLogicalClusterResponse response = client.convertToLogicalCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ConvertToLogicalClusterRequest()
        response = client.convert_to_logical_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
```

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```
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ConvertToLogicalClusterRequest{}
    response, err := client.ConvertToLogicalCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster has been converted to a logical cluster.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

5.2.5 Querying the Cluster List

Function

This API is used to query and display the cluster list.

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Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/clusters
```

Table 5-27 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response parameters

Status code: 200

Table 5-28 Response body parameter

Parameter	Type	Description
clusters	Array of **ClusterInfo** objects	List of cluster objects
count	Integer	Total number of cluster objects

Table 5-29 ClusterInfo

Parameter	Type	Description
id	String	Cluster ID
name	String	Cluster name

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Parameter	Type	Description
status	String	Cluster status. The value can be one of the following: • **CREATING**: The cluster is being created. • **ACTIVE**: The cluster is available. • **FAILED**: The cluster is unavailable. • **CREATION FAILED** • **DELETING**: The cluster is being deleted. • DELETION FAILED: The deletion fails. • **DELETED**: The cluster is deleted. • STOPING: The task is being stopped. • **STOPPED**: The job has been stopped. • **STARTING**: The job is starting. • **FROZEN**: The cluster is frozen. **NOTE** If the query result is **AVAILABLE**, the service is available.
version	String	Data warehouse version
updated	String	Last modification time of a cluster in ISO8601:YYYY-MM-DDThh:mm:ssZ format
created	String	Cluster creation time. Format: ISO8601:YYYY-MM-DDThh:mm:ssZ
port	Integer	Cluster service port.
endpoints	Array of **Endpoints** objects	Private network connection information about the cluster.
nodes	Array of **Nodes** objects	Cluster instance
tags	Array of **Tags** objects	Cluster tag
user_name	String	Administrator user name
number_of_node	Integer	Number of nodes in a cluster
recent_event	Integer	Number of events
availability_zone	String	AZ
enterprise_project_id	String	Enterprise project ID. The value **0** indicates the ID of the default enterprise project.
node_type	String	Node type.

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Parameter	Type	Description
vpc_id	String	VPC ID,
subnet_id	String	Subnet ID,
public_ip	**PublicIp** object	Public IP address. If the parameter is not specified, public connection is not used by default.
public_endpoints	Array of **PublicEndpoints** objects	Public network connection information about the cluster. If the parameter is not specified, the public network connection information is not used by default.

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Parameter	Type	Description
action_progress	Map<String,String>	Task information, consisting of a key and a value. The key indicates an ongoing task, and the value indicates the progress of the ongoing task. Valid key values include: • **CREATING** • **RESTORING** • **SNAPSHOTTING** • **GROWING** • **REBOOTING** • **SETTING_CONFIGURATION** • **CONFIGURING_EXT_DATASOURCE** • **ADD_CN_ING**: A CN is being added. • **DEL_CN_ING**: A CN is being deleted. • **REDISTRIBUTING** • **ELB_BINDING**: Associating ELB • **ELB_UNBINDING**: Disassociating ELB • **ELB_SWITCHIN**: Switching ELB nodes • **NETWORK_CONFIGURING**: The network is being configured. • **DISK_EXPANDING**: The disk capacity is being expanded. • **ACTIVE_STANDY_SWITCHOVER**: The active-standby switchover is being performed. • **CLUSTER_SHRINKING**: The cluster is being scaled in. • **SHRINK_CHECKING**: Scale-in detection is in progress. • **FLAVOR_RESIZING**: The instance flavor is being changed. • **MANAGE_IP_BINDING**: Login is being enabled. • **FINE_GRAINED_RESTORING**: Fine-grained restoration is in progress. • **DR_RECOVERING**: DR recovery is in progress. • **REPAIRING** An example is as follows: `"action_progress": {"SNAPSHOTTING":"16%"}`

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Parameter	Type	Description
sub_status	String	Sub-status of clusters in the **AVAILABLE** state. The value can be one of the following: • **NORMAL** • **READONLY** • **REDISTRIBUTING** • **REDISTRIBUTION-FAILURE** • **UNBALANCED** • **UNBALANCED | READONLY** • **DEGRADED** • **DEGRADED | READONLY** • **DEGRADED | UNBALANCED** • **UNBALANCED | REDISTRIBUTING** • **UNBALANCED | REDISTRIBUTION-FAILURE** • **READONLY | REDISTRIBUTION-FAILURE** • **UNBALANCED | READONLY | REDISTRIBUTION-FAILURE** • **DEGRADED | REDISTRIBUTION-FAILURE** • **DEGRADED | UNBALANCED | REDISTRIBUTION-FAILURE** • **DEGRADED | UNBALANCED | READONLY | REDISTRIBUTION-FAILURE** • **DEGRADED | UNBALANCED | READONLY**

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Parameter	Type	Description
task_status	String	Cluster management task. The value can be one of the following: • **UNFREEZING** • **FREEZING** • **RESTORING** • **SNAPSHOTTING** • **GROWING** • **REBOOTING** • **SETTING_CONFIGURATION** • **CONFIGURING_EXT_DATASOURCE** • **DELETING_EXT_DATASOURCE** • **REBOOT_FAILURE** • **RESIZE_FAILURE** • **ADD_CN_ING**: A CN is being added. • **DEL_CN_ING**: A CN is being deleted. • **CREATING_NODE**: Add a node. • **CREATE_NODE_FAILED**: Failed to add the node. • **DELETING_NODE**: Delete a node. • DELETE_NODE_FAILED: Failed to delete the node. • **REDISTRIBUTING** • **REDISTRIBUTE_FAILURE**: The redistribution failed. • **WAITING_REDISTRIBUTION**: Waiting to be redistributed • **REDISTRIBUTION_PAUSED**: Redistribution is paused. • **ELB_BINDING**: ELB is being bound. • **ELB_BIND_FAILED**: Failed to associate ELB • **ELB_UNBINDING**: ELB is being unbound. • **ELB_UNBIND_FAILED**: Failed to disassociate ELB. • **ELB_SWITCHING**: ELB nodes are being switched. • **ELB_SWITCHING_FAILED**: Failed to switch ELB nodes. • **NETWORK_CONFIGURING**: The network is being configured. • **NETWORK_CONFIG_FAILED**: Failed to configure the network.

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Parameter	Type	Description
		• **DISK_EXPAND_FAILED**: Failed to expand the disk capacity. • **DISK_EXPANDING**: The disk capacity is being expanded. • **ACTIVE_STANDY_SWITCHOVER**: The active-standby switchover is being performed. • **ACTIVE_STANDY_SWITCHOVER_FAILURE**: The active-standby switchover failed. • **CLUSTER_SHRINK_FAILED**: Failed to scale-in. • **CLUSTER_SHRINKING**: The cluster is being scaled in. • **SHRINK_CHECK_FAILED**: The scale-in detection failed. • **SHRINK_CHECKING**: Scale-in detection is in progress. • **FLAVOR_RESIZING_FAILED**: Failed to change the flavor. • **FLAVOR_RESIZING**: The instance flavor is being changed. • MANAGE_IP_BIND_FAILED: Failed to enable login. • **MANAGE_IP_BINDING**: Login is being enabled. • **ORDER_PENDING**: The order is pending to be paid. • **FINE_GRAINED_RESTORING**: Fine-grained restoration is in progress. • **DR_RECOVERING**: DR recovery is in progress.
security_group_id	String	Security group ID
failed_reasons	**FailedReason** object	Cause of failure. If the parameter is left empty, the cluster is in the normal state.

Table 5-30 Endpoints

Parameter	Type	Description
connect_info	String	Private network connection information

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Parameter	Type	Description
jdbc_url	String	Intranet JDBC URL. The default format is **jdbc:postgresql://<connect_info>/<*YOUR_DATABASE_NAME*>**

Table 5-31 Nodes

Parameter	Type	Description
id	String	Cluster instance ID
status	String	Cluster instance status • **100**: Creating • **199**: Idle • **200**: Available • **300**: Unavailable • **303**: Creation failed. • **304**: Deleting • **305**: Deletion failed. • **400**: Deleted

Table 5-32 Tags

Parameter	Type	Description
key	String	Key. A tag key can contain a maximum of 128 characters. It cannot be an empty string or start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/
value	String	Value. A tag value can contain a maximum of 255 characters, which can be an empty string. It cannot start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/

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Table 5-33 PublicIp

Parameter	Type	Description
public_bind_type	String	Binding type of an EIP. The value can be one of the following: • **auto_assign** • **not_use** • **bind_existing**
eip_id	String	EIP ID

Table 5-34 PublicEndpoints

Parameter	Type	Description
public_connect_info	String	Public network connection information
jdbc_url	String	Public network JDBC URL. The default format is **jdbc:postgresql://<public_connect_info>/<*YOUR_DATABASE_name*>**.

Table 5-35 FailedReason

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters
```

Example Response

Status code: 200

The cluster list is queried successfully.

```
{
  "clusters" : [ {
    "id" : "7d85f602-a948-4a30-afd4-e84f47471c15",
    "name" : "dws-1",
    "status" : "AVAILABLE",
    "version" : "1.2.0",
    "updated" : "2016-02-10T14:28:14Z",
    "created" : "2016-02-10T14:26:14Z",
    "port" : 8000,
    "endpoints" : [ {
      "connect_info" : "dws-1.cn-north-4.myhuaweicloud.com",
      "jdbc_url" : "jdbc:postgresql://dws-1.cn-north-4.myhuaweicloud.com/<YOUR_DATABASE_name>"
```

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```
  } ],
  "nodes" : [ {
    "id" : "acaf62a4-41b3-4106-bf6b-2f669d88291e",
    "status" : "200"
  }, {
    "id" : "d32de51e-4fcd-4e5a-a9dc-bb903abb494b",
    "status" : "200"
  }, {
    "id" : "d71a4a25-c9bc-4ffd-9f4a-e422aef327f9",
    "status" : "200"
  } ],
  "tags" : [ {
    "key" : "key1",
    "value" : "value1"
  }, {
    "key" : "key2",
    "value" : "value2"
  } ],
  "user_name" : "dbadmin",
  "number_of_node" : 3,
  "recent_event" : 6,
  "availability_zone" : "cn-north-4b",
  "enterprise_project_id" : "0",
  "node_type" : "dws.d1.xlarge.ultrahigh",
  "vpc_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
  "subnet_id" : "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
  "public_ip" : {
    "public_bind_type" : "auto_assign",
    "eip_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574"
  },
  "public_endpoints" : [ {
    "public_connect_info" : "dws-1.cn-north-4.myhuaweicloud.com",
    "jdbc_url" : "jdbc:postgresql://dws-1.cn-north-4.myhuaweicloud.com/<YOUR_DATABASE_name>"
  } ],
  "action_progress" : {
    "SNAPSHOTTING" : "20%"
  },
  "sub_status" : "READONLY",
  "task_status" : "SNAPSHOTTING",
  "security_group_id" : "dc3ec145-9029-4b39-b5a3-ace5a01f772b"
 } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClustersSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
```

```
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListClustersRequest request = new ListClustersRequest();
        try {
            ListClustersResponse response = client.listClusters(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListClustersRequest()
        response = client.list_clusters(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main
```

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```
import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListClustersRequest{}
    response, err := client.ListClusters(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

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5.2.6 Querying the Logical Cluster List

Function

This API is used to query the logical cluster list.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/logical-clusters

Table 5-36 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-37 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for the pagination query
limit	No	Integer	Number of records displayed on each page of the pagination query

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-38 Response body parameter

Parameter	Type	Description
logical_clusters	Array of **LogicalClusterInfo** objects	Logical cluster list
count	Integer	Total number of logical clusters
add_enable	Boolean	Specifies whether a logical cluster can be added. If other O&M operations are performed in the cluster, the value is **false**. In this case, the logical cluster cannot be added. **true** indicates that a logical cluster can be added.

Table 5-39 LogicalClusterInfo

Parameter	Type	Description
logical_cluster_id	String	ID of the logical cluster
logical_cluster_name	String	Name of a logical cluster
cluster_rings	Array of **ClusterRing** objects	Host information of the logical cluster
status	String	Status of the logical cluster The status is as follows: • Failed: unavailable • Normal: available • **Unavailable**: The MCP instance is unavailable. • Redistributing: redistribution • Redistribute_failed: Redistribution failed. • Unbalanced: unbalanced • Stopped: stopped.
first_logical_cluster	Boolean	Whether the cluster is the first logical cluster. The first created or converted logical cluster cannot be deleted because it contains some system views.
action_info	**ActionInfo** object	Operation information about the logical cluster
edit_enable	Boolean	Whether editing is allowed.
restart_enable	Boolean	Whether restart is allowed.

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Parameter	Type	Description
delete_enable	Boolean	Whether deletion is allowed.
add_to_elastic	Boolean	Whether autoscaling is allowed.
mode	String	Logical cluster mode
waiting_for_killing	Integer	Waiting to be destroyed.
cluster_type	String	Cluster type

Table 5-40 ClusterRing

Parameter	Type	Description
ring_hosts	Array of **RingHost** objects	Cluster host information

Table 5-41 RingHost

Parameter	Type	Description
host_name	String	Host name
back_ip	String	Backend IP address
cpu_cores	Integer	Number of host CPUs
memory	Double	Host memory
disk_size	Double	Disk size of the host

Table 5-42 ActionInfo

Parameter	Type	Description
action_name	String	Operation name. Currently, the following operations are allowed: • **Create** • **Expand** • **Restart** • **Delete** • **Shrink**
progress	Integer	Operation progress. The default value is **10**.

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Parameter	Type	Description
completed	Boolean	Whether an operation is complete.
start_time	String	Start time of an operation
end_time	String	End time of an operation
result	String	Operation result. The value can be **success** or **failed**. The default value is an empty string.
logs	String	Operation logs

Example Request

```
GET https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/logical-clusters
```

Example Response

Status code: 200

The cluster list is queried successfully.


```
{
  "logical_clusters" : [ {
    "logical_cluster_id" : "fa9d69a0-3814-4fb9-98df-d9f4f5ef53ca",
    "logical_cluster_name" : "elastic_group",
    "cluster_rings" : [ {
      "ring_hosts" : [ {
        "host_name" : "host-172-16-20-246",
        "back_ip" : "172.16.73.90",
        "cpu_cores" : 8,
        "memory" : 32.0,
        "disk_size" : 800.0
      }, {
        "host_name" : "host-172-16-4-26",
        "back_ip" : "172.16.123.5",
        "cpu_cores" : 8,
        "memory" : 32.0,
        "disk_size" : 800.0
      }, {
        "host_name" : "host-172-16-43-90",
        "back_ip" : "172.16.92.175",
        "cpu_cores" : 8,
        "memory" : 32.0,
        "disk_size" : 800.0
      } ]
    } ],
    "status" : "Normal",
    "first_logical_cluster" : false,
    "action_info" : {
      "progress" : 100,
      "completed" : true,
      "result" : "success",
      "logs" : null,
      "action_name" : "Grow",
      "start_time" : "2023-06-05 01:58:43",
      "end_time" : "2023-06-05 02:11:50"
    },
    "edit_enable" : true,
    "restart_enable" : true,
    "delete_enable" : false,
```


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```
    "add_to_elastic" : true,
    "mode" : null,
    "cluster_type" : null
  } ],
  "count" : 1,
  "add_enable" : true
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListLogicalClustersSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListLogicalClustersRequest request = new ListLogicalClustersRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListLogicalClustersResponse response = client.listLogicalClusters(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListLogicalClustersRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_logical_clusters(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())
```

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```
    request := &model.ListLogicalClustersRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListLogicalClusters(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.7 Querying Task Information About a Logical Cluster

Function

This API is used to query information about a logical cluster task.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/logical-clusters/tasks
```

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Table 5-43 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-44 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for the pagination query
limit	No	Integer	Number of records displayed on each page of the pagination query
logical_cluster_name	No	String	Cluster name
type	No	String	Type
order_by	No	String	Sorting field
order	No	String	Sorting order (ascending or descending)

Request Parameters

None

Response Parameters

Status code: 200

Table 5-45 Response body parameter

Parameter	Type	Description
logical_cluster_tasks	Array of **LogicalClusterTaskInfo** objects	Task information of a logical cluster
count	Long	Total number of tasks in a logical cluster

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Table 5-46 LogicalClusterTaskInfo

Parameter	Type	Description
type	String	Task type
logical_cluster_name	String	Name of a logical cluster
start_time	String	Task start time
end_time	String	Task end time
result	String	Task execution result: **Success**/**Failed**
log	String	Task execution log

Example Request

```
GET https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/logical-clusters/tasks?offset=0&limit=10&logical_cluster_name=test_logical&type=Expand&order_by=startTime&order=DESC
```

Example Response

Status code: 200

The task information is queried.

```
{
  "logical_cluster_tasks" : [ {
    "type" : "Grow",
    "logical_cluster_name" : "elastic_group",
    "start_time" : "2023-06-05 01:58:43",
    "end_time" : "2023-06-05 02:11:50",
    "result" : "success",
    "log" : "Expand from outside success"
  }, {
    "type" : "Create",
    "logical_cluster_name" : "test_logical",
    "start_time" : "2023-06-21 08:35:58",
    "end_time" : "2023-06-21 08:36:14",
    "result" : "failed",
    "log" : "list index out of range\\nChecking whether the reentry command is consistent with the previous command."
  } ],
  "count" : 2
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
```

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```
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListLogicalClusterTasksSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListLogicalClusterTasksRequest request = new ListLogicalClusterTasksRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        request.withLogicalClusterName("<logical_cluster_name>");
        request.withType("<type>");
        request.withOrderBy("<order_by>");
        request.withOrder("<order>");
        try {
            ListLogicalClusterTasksResponse response = client.listLogicalClusterTasks(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \
```

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```
    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListLogicalClusterTasksRequest()
        request.offset = <offset>
        request.limit = <limit>
        request.logical_cluster_name = "<logical_cluster_name>"
        request.type = "<type>"
        request.order_by = "<order_by>"
        request.order = "<order>"
        response = client.list_logical_cluster_tasks(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListLogicalClusterTasksRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    logicalClusterNameRequest:= "<logical_cluster_name>"
    request.LogicalClusterName = &logicalClusterNameRequest
    typeRequest:= "<type>"
    request.Type = &typeRequest
    orderByRequest:= "<order_by>"
    request.OrderBy = &orderByRequest
    orderRequest:= "<order>"
    request.Order = &orderRequest
    response, err := client.ListLogicalClusterTasks(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
```

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```
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Querying task information.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.8 Querying Disk Information of a Logical Cluster

Function

This API is used to query information about disks in a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/logical-clusters/volumes
```

Table 5-47 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-48 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for the pagination query
limit	No	Integer	Number of records displayed on each page of the pagination query

Request Parameters

None

Response Parameters

Status code: 200

Table 5-49 Response body parameter

Parameter	Type	Description
volumes	Array of **LogicalClusterVolume** objects	Disk information list of the logical cluster
count	Long	Total number of disks in the logical cluster

Table 5-50 LogicalClusterVolume

Parameter	Type	Description
logical_cluster_name	String	Name of the logical cluster
usage	String	Storage space usage
total	String	Disk capacity
percent	String	Disk usage

Example Request

```
GET https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/logical-clusters/volumes
```

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Example Response

Status code: 200

The cluster disk information is queried.

```
{
  "volumes" : [ {
    "logical_cluster_name" : "v3_logical",
    "usage" : "1.0G",
    "total" : "10.0G",
    "percent" : 0.1
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListLogicalClusterVolumesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListLogicalClusterVolumesRequest request = new ListLogicalClusterVolumesRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListLogicalClusterVolumesResponse response = client.listLogicalClusterVolumes(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
```

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```
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListLogicalClusterVolumesRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_logical_cluster_volumes(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListLogicalClusterVolumesRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListLogicalClusterVolumes(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Querying cluster disk information
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.9 Querying the Node List

Function

This API is used to query the node list.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/nodes
```

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Table 5-51 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-52 Query parameters

Parameter	Mandatory	Type	Description
deleted	No	String	Reserved and not recommended. can be replaced by node_ids: • deleted = true: node_ids is not empty. • "deleted = false": node_ids is empty.
node_ids	No	Array	List of node IDs
offset	No	Integer	Offset of pagination query. The value ranges from 0 to 10000.
limit	No	Integer	Specifies the number of records displayed on each page. The value ranges from 1 to 1000.
filter_by	No	String	Filter field • status: node status. • instCreateType: resource status.

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Parameter	Mandatory	Type	Description
filter	No	String	Content of the filter field • status = ALL: queries all nodes, including deleted historical nodes. • status = CREATING: The instance is being created. • status = FREE: indicates that the node is idle. • status = INIT: initialized. • status = ACTIVE: available. • status = FAILED: unavailable. • status = UNKNOWN: unknown. • status = CREATE_FAILED: The creation fails. • status = DELETING: The volume is being deleted. • status = DELETE_FAILED: The deletion fails. • status = REBOOTING: The VM is being restarted. • status = STOPPED: The task has been stopped. • instCreateType = ALL: Query all nodes, including deleted historical nodes. • instCreateType = INST: used. • instCreateType = NODE: idle.
order_by	No	String	Sort By: • Node ID: id. • Node name: name. • Node status: status.
order	No	String	Sorting method. Available values include: • **asc**: the ascending order • **desc**: the descending order

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-53 Response body parameter

Parameter	Type	Description
node_list	Array of **ClusterNodeInfo** objects	List of nodes in a logical cluster
count	Integer	Total number of nodes in a logical cluster
failed_count	Integer	Total number of failed nodes in a logical cluster

Table 5-54 ClusterNodeInfo

Parameter	Type	Description
id	String	Node ID
name	String	Node name

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Parameter	Type	Description
status	String	Node status. • **CREATING** • FREE: idle. • **ACTIVE**: The cluster is available. • **FAILED**: The cluster is unavailable. • **UNKNOWN**: The device node type is unknown. • SERVER_FAILED: An internal error occurs. • **CREATE_FAILED**: The workspace failed to be created. • DELETING • **DELETE_FAILED**: The workspace failed to be deleted. • **DELETED**: deleted • **REBOOTING**: Restarting • **RESTORING**: Restoring • MODIFYING: The policy is being modified. • MODIFYING_PORT: The port is being bonded. • INIT: initializing. • STOPPED
sub_status	String	Node sub-status • READY: The ECS on the node is ready. • PREPARED: The node software has been installed. • INITED: The cluster has been created. • CREATED: The node has been created.
spec	String	Node specifications
inst_create_type	String	Instance creation type
alias_name	String	Node alias
az_code	String	AZ code

Example Request

```
GET https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/nodes?deleted=false&node_ids&offset=0&limit=10&filter_by=instCreateType&filter=INST
```

Example Response

Status code: 200

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The cluster node information is queried.

```
{
  "node_list" : [ {
    "id" : "16413746-258e-4a3c-bea9-8496fdbefde3",
    "name" : "ty-default--BGy6PUIN-K-dws-cn-cn-2-1",
    "status" : "ACTIVE",
    "sub_status" : "CREATED",
    "spec" : "dws2.kc1.2xlarge",
    "inst_create_type" : null,
    "alias_name" : null,
    "az_code" : "cn-north-4c"
  }, {
    "id" : "46d8754b-3ed3-4b92-85b5-7479ef5b10ac",
    "name" : "ty-default--BGy6PUIN-K-dws-cn-cn-1-1",
    "status" : "ACTIVE",
    "sub_status" : "CREATED",
    "spec" : "dws2.kc1.2xlarge",
    "inst_create_type" : null,
    "alias_name" : null,
    "az_code" : "cn-north-4c"
  } ],
  "count" : 2,
  "failed_count" : 0
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class ListClusterNodesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterNodesRequest request = new ListClusterNodesRequest();
        request.withDeleted("<deleted>");
        request.withNodeIds();
```

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```
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        request.withFilterBy("<filter_by>");
        request.withFilter("<filter>");
        request.withOrderBy("<order_by>");
        request.withOrder("<order>");
        try {
            ListClusterNodesResponse response = client.listClusterNodes(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterNodesRequest()
        request.deleted = "<deleted>"
        request.node_ids =
        request.offset = <offset>
        request.limit = <limit>
        request.filter_by = "<filter_by>"
        request.filter = "<filter>"
        request.order_by = "<order_by>"
        request.order = "<order>"
        response = client.list_cluster_nodes(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterNodesRequest{}
    deletedRequest:= "<deleted>"
    request.Deleted = &deletedRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    filterByRequest:= "<filter_by>"
    request.FilterBy = &filterByRequest
    filterRequest:= "<filter>"
    request.Filter = &filterRequest
    orderByRequest:= "<order_by>"
    request.OrderBy = &orderByRequest
    orderRequest:= "<order>"
    request.Order = &orderRequest
    response, err := client.ListClusterNodes(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The cluster node information is queried.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.10 Querying Information About Available Ring Nodes in a Logical Cluster

Function

This API is used to query information about available ring nodes in a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/logical-clusters/rings
```

Table 5-55 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-56 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for the pagination query
limit	No	Integer	Number of records displayed on each page of the pagination query

Request Parameters

None

Response Parameters

Status code: 200

Table 5-57 Response body parameter

Parameter	Type	Description
cluster_rings	Array of **LogicalClusterRingInfo** objects	List of cluster rings
count	Integer	Number of cluster rings

Table 5-58 LogicalClusterRingInfo

Parameter	Type	Description
ring_hosts	Array of **RingHost** objects	Cluster host ring information

Table 5-59 RingHost

Parameter	Type	Description
host_name	String	Host name
back_ip	String	Backend IP address
cpu_cores	Integer	Number of host CPUs
memory	Double	Host memory

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Parameter	Type	Description
disk_size	Double	Disk size of the host

Example Request

```
GET https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/logical-clusters/rings
```

Example Response

Status code: 200

Information about available ring nodes in a logical cluster is queried.

```
{
  "cluster_rings" : [ {
    "ring_hosts" : [ {
      "host_name" : "host-172-16-20-246",
      "back_ip" : "172.16.73.90",
      "cpu_cores" : 8,
      "memory" : 32.0,
      "disk_size" : 800.0
    }, {
      "host_name" : "host-172-16-4-26",
      "back_ip" : "172.16.123.5",
      "cpu_cores" : 8,
      "memory" : 32.0,
      "disk_size" : 800.0
    }, {
      "host_name" : "host-172-16-43-90",
      "back_ip" : "172.16.92.175",
      "cpu_cores" : 8,
      "memory" : 32.0,
      "disk_size" : 800.0
    } ]
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListLogicalClusterRingsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
```

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```
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListLogicalClusterRingsRequest request = new ListLogicalClusterRingsRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListLogicalClusterRingsResponse response = client.listLogicalClusterRings(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListLogicalClusterRingsRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_logical_cluster_rings(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
```

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```
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListLogicalClusterRingsRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListLogicalClusterRings(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Information about available ring nodes in a logical cluster is queried.
400	Request error.
401	Authentication failed.

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Status Code	Description
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.11 Querying Information About Ring Nodes in a Cluster Topology

Function

This API is used to query ring node information in a cluster topology.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/topo/rings

Table 5-60 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-61 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset for the pagination query
limit	No	Integer	Number of records displayed on each page of the pagination query

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-62 Response body parameter

Parameter	Type	Description
cluster_rings	Array of **TopoRingInfo** objects	List of rings in the cluster topology
count	Integer	Number of cluster rings

Table 5-63 TopoRingInfo

Parameter	Type	Description
instance_info_lists	Array of **TopoInstanceInfo** objects	List of cluster instances

Table 5-64 TopoInstanceInfo

Parameter	Type	Description
id	String	Instance ID
name	String	Instance name
manage_ip	String	Instance management IP address
traffic_ip	String	Service IP address
internal_ip	String	Internal communication IP address
internal_mgnt_ip	String	Internal management IP address
eip	String	EIP
elb	String	ELB address.

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Parameter	Type	Description
status	String	Instance status. Valid values are as follows: • **100**: Creating. • **200**: Available. • **300**: Unavailable • **303**: Creation failed • **304**: Deleting • 302: Deletion failed. • **400**: Deleted • 910: being stopped. • 900: stopped. • **920**: indicates that a graph is being started. • **800**: indicates that a graph is frozen.
az_code	String	AZ code

Example Request

```
GET https://{Endpoint}/v2/9b06d044ea4f49f1a58b2bed2b0084bd/clusters/9b7ff56b-47b3-4d00-a1fd-4c023d34404b/logical-clusters/rings
```

Example Response

Status code: 200

The ring node information of the cluster topology is queried.

```
{
  "cluster_rings" : [ {
    "instance_info_lists" : [ {
      "id" : "a57e49db-c04b-45c7-9863-f7b6f3eed1b8",
      "name" : "ty-default--BGy6PUIN-K-dws-cn-cn-1-1",
      "manage_ip" : "172.16.26.233",
      "traffic_ip" : "192.168.0.217",
      "internal_ip" : "172.16.66.153",
      "internal_mgnt_ip" : null,
      "eip" : null,
      "elb" : null,
      "status" : 200,
      "az_code" : "cn-north-4c"
    }, {
      "id" : "3a37f794-be37-42d1-a299-a3eb94888ccb",
      "name" : "ty-default--BGy6PUIN-K-dws-cn-cn-2-1",
      "manage_ip" : "172.16.34.21",
      "traffic_ip" : "192.168.0.80",
      "internal_ip" : "172.16.65.89",
      "internal_mgnt_ip" : null,
      "eip" : null,
      "elb" : null,
      "status" : 200,
      "az_code" : "cn-north-4c"
    }, {
      "id" : "8763cbf1-5851-44a5-9e71-cbae35201f27",
      "name" : "ty-default--BGy6PUIN-K-dws-dn-1-1",
      "manage_ip" : "172.16.9.16",
```

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```
      "traffic_ip" : "192.168.0.88",
      "internal_ip" : "172.16.67.64",
      "internal_mgnt_ip" : null,
      "eip" : null,
      "elb" : null,
      "status" : 200,
      "az_code" : "cn-north-4c"
    } ]
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListTopoRingsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListTopoRingsRequest request = new ListTopoRingsRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListTopoRingsResponse response = client.listTopoRings(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListTopoRingsRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_topo_rings(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())
```

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```
    request := &model.ListTopoRingsRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListTopoRings(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The ring node information of the cluster topology is queried.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.12 Querying Cluster Details

Function

This API is used to query cluster details.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/clusters/{cluster_id}
```

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Table 5-65 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request

None

Response Parameters

Status code: 200

Table 5-66 Response body parameters

Parameter	Type	Description
cluster	**ClusterDetail** object	Cluster object

Table 5-67 ClusterDetail

Parameter	Type	Description
id	String	Cluster ID
name	String	Cluster name

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Parameter	Type	Description
status	String	Cluster status. The value can be one of the following: • **CREATING**: The instance is being created. • **ACTIVE**: The instance is available. • **FAILED**: The instance is unavailable. • **CREATE_FAILED**: The instance failed to be created. • **DELETING**: The instance is being deleted. • **DELETE_FAILED**: The instance failed to be deleted. • **DELETED**: The instance is deleted. • **FROZEN**: The instance is being frozen. **NOTE** If the query result is **AVAILABLE**, the service is available.
version	String	Data warehouse version
updated	String	Last modification time of a cluster. Format: ISO8601:YYYY-MM-DDThh:mm:ssZ
created	String	Cluster creation time. Format: ISO8601: YYYY-MM-DDThh:mm:ssZ
port	Integer	Cluster service port.
endpoints	Array of **Endpoints** objects	Private network connection information about the cluster.
nodes	Array of **Nodes** objects	Cluster instance
tags	Array of **Tags** objects	Cluster tag
user_name	String	Administrator username
number_of_node	Integer	Number of nodes in a cluster
recent_event	Integer	Number of events
availability_zone	String	AZ
enterprise_project_id	String	Enterprise project ID. The value **0** indicates the ID of the default enterprise project.
node_type	String	Node type. For details, see **Data Warehouse Types**.

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Parameter	Type	Description
vpc_id	String	VPC ID
subnet_id	String	Subnet ID
public_ip	**PublicIp** object	Public IP address. If the parameter is not specified, public connection is not used by default.
public_endpoints	Array of **PublicEndpoints** objects	Public network connection information about the cluster. If the parameter is not specified, the public network connection information is not used by default.

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Parameter	Type	Description
action_progress	Map<String,String>	The key indicates an ongoing task. The value can be one of the following: • **CREATING** • **RESTORING** • **SNAPSHOTTING** • **GROWING** • **REBOOTING** • **SETTING_CONFIGURATION** • **CONFIGURING_EXT_DATASOURCE** • **ADD_CN_ING**: A CN is being added. • **DEL_CN_ING**: A CN is being deleted. • **REDISTRIBUTING** • **ELB_BINDING**: ELB is being bound. • **ELB_UNBINDING**: ELB is being unbound. • **ELB_SWITCHING**: ELB nodes are being switched. • **NETWORK_CONFIGURING**: The network is being configured. • **DISK_EXPANDING**: The disk capacity is being expanded. • **ACTIVE_STANDY_SWITCHOVER**: The active-standby switchover is being performed. • **CLUSTER_SHRINKING**: The cluster is being scaled in. • **SHRINK_CHECKING**: Scale-in detection is in progress. • **FLAVOR_RESIZING**: The instance flavor is being changed. • **MANAGE_IP_BINDING**: Login is being enabled. • **FINE_GRAINED_RESTORING**: Fine-grained restoration is in progress. • **DR_RECOVERING**: DR recovery is in progress. • **REPAIRING** The value indicates the task progress.

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Parameter	Type	Description
sub_status	String	Sub-status of clusters in the **AVAILABLE** state. The value can be one of the following: • **NORMAL** • **READONLY** • **REDISTRIBUTING** • **REDISTRIBUTION-FAILURE** • **UNBALANCED** • **UNBALANCED | READONLY** • **DEGRADED** • **DEGRADED | READONLY** • **DEGRADED | UNBALANCED** • **UNBALANCED | REDISTRIBUTING** • **UNBALANCED | REDISTRIBUTION-FAILURE** • **READONLY | REDISTRIBUTION-FAILURE** • **UNBALANCED | READONLY | REDISTRIBUTION-FAILURE** • **DEGRADED | REDISTRIBUTION-FAILURE** • **DEGRADED | UNBALANCED | REDISTRIBUTION-FAILURE** • **DEGRADED | UNBALANCED | READONLY | REDISTRIBUTION-FAILURE** • **DEGRADED | UNBALANCED | READONLY**

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Parameter	Type	Description
task_status	String	Cluster management task. The value can be one of the following: • **UNFREEZING** • **FREEZING** • **RESTORING** • **SNAPSHOTTING** • **GROWING** • **REBOOTING** • **SETTING_CONFIGURATION** • **CONFIGURING_EXT_DATASOURCE** • **DELETING_EXT_DATASOURCE** • **REBOOT_FAILURE** • **RESIZE_FAILURE** • **ADD_CN_ING**: A CN is being added. • **DEL_CN_ING**: A CN is being deleted. • **CREATING_NODE**: Add a node. • **CREATE_NODE_FAILED**: Failed to add the node. • **DELETING_NODE**: Delete a node. • DELETE_NODE_FAILED: Failed to delete the node. • **REDISTRIBUTING** • **REDISTRIBUTE_FAILURE**: Redistribution failed. • **WAITING_REDISTRIBUTION**: Waiting to be redistributed • **REDISTRIBUTION_PAUSED**: Redistribution is paused. • **ELB_BINDING**: ELB is being bound. • **ELB_BIND_FAILED**: Failed to associate ELB • **ELB_UNBINDING**: ELB is being unbound. • **ELB_UNBIND_FAILED**: Failed to disassociate ELB. • **ELB_SWITCHING**: ELB nodes are being switched. • **ELB_SWITCHING_FAILED**: Failed to switch ELB nodes. • **NETWORK_CONFIGURING**: The network is being configured. • **NETWORK_CONFIG_FAILED**: Failed to configure the network.

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Parameter	Type	Description
		• **DISK_EXPAND_FAILED**: Failed to expand the disk capacity. • **DISK_EXPANDING**: The disk capacity is being expanded. • **ACTIVE_STANDY_SWITCHOVER**: The active-standby switchover is being performed. • **ACTIVE_STANDY_SWITCHOVER_FAILURE**: The active-standby switchover failed. • **CLUSTER_SHRINK_FAILED**: Failed to scale-in. • **CLUSTER_SHRINKING**: The cluster is being scaled in. • **SHRINK_CHECK_FAILED**: The scale-in detection failed. • **SHRINK_CHECKING**: Scale-in detection is in progress. • **FLAVOR_RESIZING_FAILED**: Failed to change the flavor. • **FLAVOR_RESIZING**: The instance flavor is being changed. • MANAGE_IP_BIND_FAILED: Failed to enable login. • **MANAGE_IP_BINDING**: Login is being enabled. • **ORDER_PENDING**: The order is pending to be paid. • **FINE_GRAINED_RESTORING**: Fine-grained restoration is in progress. • **DR_RECOVERING**: DR recovery is in progress.
parameter_group	**ParameterGroup** object	Parameter group details
node_type_id	String	Node type ID
security_group_id	String	Security group ID
private_ip	Array of strings	List of private network IP addresses
maintain_window	**MaintainWindow** object	Cluster maintenance window
resize_info	**ResizeInfo** object	Cluster scale-out details

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Parameter	Type	Description
failed_reasons	**FailedReason** object	Cause of failure. If the parameter is left empty, the cluster is in the normal state.
elb	**ElbResp** object	ELB bound to the cluster

Table 5-68 Endpoints

Parameter	Type	Description
connect_info	String	Private network connection information
jdbc_url	String	Intranet JDBC URL. The default format is **jdbc:postgresql://<connect_info>/<*YOUR_DATABASE_NAME*>**

Table 5-69 Nodes

Parameter	Type	Description
id	String	Cluster instance ID
status	String	Cluster instance status • **100**: Creating • **199**: Idle • **200**: Available • **300**: Unavailable • **303**: Creation failed. • **304**: Deleting • **305**: Deletion failed. • **400**: Deleted

Table 5-70 Tags

Parameter	Type	Description
key	String	Key. A tag key can contain a maximum of 128 characters. It cannot be an empty string or start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/

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Parameter	Type	Description
value	String	Value. A tag value can contain a maximum of 255 characters, which can be an empty string. It cannot start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/

Table 5-71 PublicIp

Parameter	Type	Description
public_bind_type	String	Binding type of an EIP. The value can be one of the following: • **auto_assign** • **not_use** • **bind_existing**
eip_id	String	EIP ID

Table 5-72 PublicEndpoints

Parameter	Type	Description
public_connect_info	String	Public network connection information
jdbc_url	String	Public network JDBC URL. The default format is **jdbc:postgresql://<public_connect_info>/<*YOUR_DATABASE_name*>**.

Table 5-73 ParameterGroup

Parameter	Type	Description
id	String	Parameter group ID
name	String	Parameter group name
status	String	Cluster parameter status. The value can be one of the following: • **In-Sync**: synchronized • **Applying**: in application • **Pending-Reboot**: restart for the modification to take effect • **Sync-Failure**: application failed

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Table 5-74 MaintainWindow

Parameter	Type	Description
day	String	Maintenance time in each week in the unit of day. The value can be one of the following: • **Mon** • **Tue** • **Wed** • **Thu** • **Fri** • **Sat** • **Sun**
start_time	String	Maintenance start time in HH:mm format. The time zone is GMT+0.
end_time	String	Maintenance end time in HH:mm format. The time zone is GMT+0.

Table 5-75 ResizeInfo

Parameter	Type	Description
target_node_num	Integer	Number of nodes after the scale-out
origin_node_num	Integer	Number of nodes before the scale-out
resize_status	String	Scale-out status. The value can be one of the following: • **GROWING** • **RESIZE_FAILURE**
start_time	String	Scale-out start time. Format: ISO8601:YYYY-MM-DDThh:mm:ss

Table 5-76 FailedReason

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

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Table 5-77 ElbResp

Parameter	Type	Description
public_ip	String	Public IP address
private_ip	String	Private IP address
private_endpoint	String	ELB endpoint address
name	String	ELB name
id	String	ELB ID
vpc_id	String	ID of the VPC to which the ELB belongs

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7
```

Example Response

Status code: 200

Cluster details have been queried successfully.

```
{
  "cluster" : {
    "id" : "7d85f602-a948-4a30-afd4-e84f47471c15",
    "name" : "dws-1",
    "status" : "AVAILABLE",
    "version" : "1.2.0",
    "updated" : "2018-02-10T14:28:14Z",
    "created" : "2018-02-10T14:28:14Z",
    "port" : 8000,
    "endpoints" : [ {
      "connect_info" : "dws-1.cn-north-4.myhuaweicloud.com",
      "jdbc_url" : "jdbc:postgresql://dws-1.cn-north-4.myhuaweicloud.com/<YOUR_DATABASE_name>"
    } ],
    "nodes" : [ {
      "id" : "acaf62a4-41b3-4106-bf6b-2f669d88291e",
      "status" : "200"
    }, {
      "id" : "d32de51e-4fcd-4e5a-a9dc-bb903abb494b",
      "status" : "200"
    }, {
      "id" : "d71a4a25-c9bc-4ffd-9f4a-e422aef327f9",
      "status" : "200"
    } ],
    "tags" : [ {
      "key" : "key1",
      "value" : "value1"
    }, {
      "key" : "key2",
      "value" : "value2"
    } ],
    "user_name" : "dbadmin",
    "number_of_node" : 3,
    "recent_event" : 6,
    "availability_zone" : "cn-north-4b",
    "enterprise_project_id" : "0",
```

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```
    "node_type" : "dws.m1.xlarge.ultrahigh",
    "vpc_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
    "subnet_id" : "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
    "public_ip" : {
      "public_bind_type" : "auto_assign",
      "eip_id" : "85b20d7e-9etypeb2a-98f3-3c8843ea3574"
    },
    "public_endpoints" : [ {
      "public_connect_info" : "dws-1.cn-north-4.myhuaweicloud.com",
      "jdbc_url" : "jdbc:postgresql://dws-1.cn-north-4.myhuaweicloud.com/<YOUR_DATABASE_name>"
    } ],
    "action_progress" : {
      "SNAPSHOTTING" : "20%"
    },
    "sub_status" : "READONLY",
    "task_status" : "SNAPSHOTTING",
    "parameter_group" : {
      "id" : "157e9cc4-64a8-11e8-adc0-fa7ae01bbebc",
      "name" : "Default-Parameter-Group-dws ",
      "status" : "In-Sync"
    },
    "security_group_id" : "dc3ec145-9029-4b39-b5a3-ace5a01f772b",
    "private_ip" : [ "192.168.0.12", "192.168.0.66" ],
    "maintain_window" : {
      "day" : "Wed",
      "start_time" : "18:00",
      "end_time" : "22:00"
    },
    "resize_info" : {
      "target_node_num" : "6",
      "origin_node_num" : "3",
      "resize_status" : "GROWING",
      "start_time" : "2018-02-14T14:28:14Z"
    }
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterDetailsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
```

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```
            .withSk(sk);

    DwsClient client = DwsClient.newBuilder()
            .withCredential(auth)
            .withRegion(DwsRegion.valueOf("cn-north-4"))
            .build();
    ListClusterDetailsRequest request = new ListClusterDetailsRequest();
    try {
        ListClusterDetailsResponse response = client.listClusterDetails(request);
        System.out.println(response.toString());
    } catch (ConnectionException e) {
        e.printStackTrace();
    } catch (RequestTimeoutException e) {
        e.printStackTrace();
    } catch (ServiceResponseException e) {
        e.printStackTrace();
        System.out.println(e.getHttpStatusCode());
        System.out.println(e.getRequestId());
        System.out.println(e.getErrorCode());
        System.out.println(e.getErrorMsg());
    }
  }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListClusterDetailsRequest()
        response = client.list_cluster_details(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
```

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```
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterDetailsRequest{}
    response, err := client.ListClusterDetails(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Cluster details have been queried successfully.
400	Request error
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.13 Querying Node Types

Function

This API is used to query the node types supported by GaussDB(DWS).

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Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/node-types
```

Table 5-78 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-79 Response body parameters

Parameter	Type	Description
node_types	Array of **NodeTypes** objects	List of node type objects
count	Integer	Total number of node types.

Table 5-80 NodeTypes

Parameter	Type	Description
spec_name	String	Name of a node type
detail	Array of **Detail** objects	Node type details
id	String	Node type ID
datastore_type	String	Product type • dws: standard data warehouse. • hybrid: hybrid data warehouse. • stream: stream data warehouse.

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Parameter	Type	Description
available_zones	Array of **NodeTypeAvailableZones** objects	Supported AZs and their statuses
ram	Integer	Memory size
vcpus	Integer	Number of CPUs
datastores	Array of **NodeTypeDatastores** objects	Kernel version information
volume	**VolumeResp** object	For a fixed storage flavor, the value is the storage of its typical configuration. For an elastic storage flavor, the value **null**.
elastic_volume_specs	Array of **NodeTypeElasticVolumeSpecs** objects	If the specification is elastic, this attribute indicates the typical specification, including the storage type, minimum capacity, maximum capacity, and step. If the specification is fixed, this attribute is null.

Table 5-81 Detail

Parameter	Type	Description
type	String	Attribute type
value	String	Attribute value
unit	String	Attribute unit

Table 5-82 NodeTypeAvailableZones

Parameter	Type	Description
code	String	AZ ID
status	String	Availability status of a node type. • **normal**: The node type is available. • **sellout**: The VM has been sold out. • **abandon**: The node type is unavailable.

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Table 5-83 NodeTypeDatastores

Parameter	Type	Description
version	String	OS kernel version
attachments	**Attachments** object	Additional information about the kernel version

Table 5-84 attachments

Parameter	Type	Description
min_cn	String	Minimum CNs allowed by the kernel version
max_cn	String	Maximum CNs allowed by the kernel version

Table 5-85 VolumeResp

Parameter	Type	Description
type	String	Disk type. Only SSD is supported.
size	Integer	Available disk capacity (GB)

Table 5-86 NodeTypeElasticVolumeSpecs

Parameter	Type	Description
type	String	Cloud disk type.
step	String	Cloud disk size increment
min_size	Integer	Minimum cloud disk size
max_size	Integer	Maximum cloud disk size

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/node-types
```

Example Response

Status code: 200

The node type is queried successfully.

```
{
  "node_types" : [ {
    "spec_name" : "dws.d2.xlarge",
    "id" : "ebe532d6-665f-40e6-a4d4-3c51545b6a67",
```

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```
    "datastore_type" : "dws",
    "available_zones" : [ {
      "code" : "az1",
      "status" : "normal"
    } ],
    "ram" : 32,
    "vcpus" : 4,
    "datastores" : [ {
      "version" : "8.1.3.200",
      "attachments" : {
        "min_cn" : 2,
        "max_cn" : 20
      }
    } ],
    "volume" : {
      "type" : "SSD",
      "size" : 160
    },
    "elastic_volume_specs" : [ {
      "type" : "SSD",
      "step" : 100,
      "min_size" : 100,
      "max_size" : 32000
    } ],
    "detail" : [ {
      "type" : "vCPU",
      "value" : "4"
    }, {
      "value" : "1675",
      "type" : "LOCAL_DISK",
      "unit" : "GB"
    }, {
      "type" : "mem",
      "value" : "32",
      "unit" : "GB"
    } ]
  } ],
  "count" : 1
}
```


SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListNodeTypesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");
```

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```
        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListNodeTypesRequest request = new ListNodeTypesRequest();
        try {
            ListNodeTypesResponse response = client.listNodeTypes(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListNodeTypesRequest()
        response = client.list_node_types(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
```

```
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListNodeTypesRequest{}
    response, err := client.ListNodeTypes(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The node type is queried successfully.
400	Request error
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

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5.2.14 Deleting Clusters

Function

This API is used to delete clusters. All resources of the deleted cluster, including user data, will be released. For data security, create a snapshot for the cluster that you want to delete before deleting the cluster.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v1.0/{project_id}/clusters/{cluster_id}
```

Table 5-87 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster to be deleted. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-88 Request body parameters

Parameter	Mandatory	Type	Description
keep_last_manual_snapshot	Yes	Integer	The number of latest manual snapshots that need to be retained for a cluster.

Response Parameters

None

Example Request

```
DELETE https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90

{
  "keep_last_manual_snapshot" : 0
}
```

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Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteClusterRequest request = new DeleteClusterRequest();
        DeleteClusterRequestBody body = new DeleteClusterRequestBody();
        body.withKeepLastManualSnapshot(0);
        request.withBody(body);
        try {
            DeleteClusterResponse response = client.deleteCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
```

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```
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteClusterRequest()
        request.body = DeleteClusterRequestBody(
            keep_last_manual_snapshot=0
        )
        response = client.delete_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteClusterRequest{}
    request.Body = &model.DeleteClusterRequestBody{
        KeepLastManualSnapshot: int32(0),
    }
```

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```
    response, err := client.DeleteCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
202	The cluster is terminated successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.15 Deleting a Logical Cluster

Function

This API is used to delete a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/clusters/{cluster_id}/logical-clusters/{logical_cluster_id}
```

Table 5-89 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster to be deleted. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
logical_cluster_id	Yes	String	ID of the logical cluster to be deleted

Request Parameters

None

Response Parameters

Status code: 200

Table 5-90 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
DELETE https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/logical-clusters/0b494d0d-8431-4c4f-8a06-2cc42d0d0c7d
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteLogicalClusterSolution {
```

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```
    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DeleteLogicalClusterRequest request = new DeleteLogicalClusterRequest();
        try {
            DeleteLogicalClusterResponse response = client.deleteLogicalCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DeleteLogicalClusterRequest()
        response = client.delete_logical_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
```

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```
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DeleteLogicalClusterRequest{}
    response, err := client.DeleteLogicalCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The logical cluster is deleted.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.

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Status Code	Description
500	Internal server error.
503	Service unavailable.

5.2.16 Editing a Logical Cluster

Function

This API is used to modify a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

PUT /v2/{project_id}/clusters/{cluster_id}/logical-clusters/{logical_cluster_id}

Table 5-91 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster to be edited. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
logical_cluster_id	Yes	String	ID of the logical cluster to be edited.

Request Parameters

Table 5-92 Request body parameters

Parameter	Mandatory	Type	Description
cluster_rings	Yes	Array of **ClusterRing** objects	Information about the edited logical cluster ring.
mode	No	String	Mode

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Parameter	Mandatory	Type	Description
waiting_for_killing	No	Integer	Indicates whether the cluster is waiting for destruction.

Table 5-93 ClusterRing

Parameter	Mandatory	Type	Description
ring_hosts	Yes	Array of **RingHost** objects	Cluster host information

Table 5-94 RingHost

Parameter	Mandatory	Type	Description
host_name	Yes	String	Host name
back_ip	Yes	String	Backend IP address
cpu_cores	Yes	Integer	Number of host CPUs
memory	Yes	Double	Host memory
disk_size	Yes	Double	Disk size of the host

Response Parameters

Status code: 200

Table 5-95 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
PUT https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/logical-clusters/0b494d0d-8431-4c4f-8a06-2cc42d0d0c7d

{
  "cluster_rings" : [ {
    "ring_hosts" : [ {
      "host_name" : "host-172-16-20-246",
      "back_ip" : "172.16.73.90",
      "cpu_cores" : 8,
      "memory" : 32.0,
```

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```
      "disk_size" : 800.0
    }, {
      "host_name" : "host-172-16-4-26",
      "back_ip" : "172.16.123.5",
      "cpu_cores" : 8,
      "memory" : 32.0,
      "disk_size" : 800.0
    }, {
      "host_name" : "host-172-16-43-90",
      "back_ip" : "172.16.92.175",
      "cpu_cores" : 8,
      "memory" : 32.0,
      "disk_size" : 800.0
    } ]
  } ],
  "mode" : null,
  "waiting_for_killing" : 0
}
```

Example Response

Status code: 200

The logical cluster is edited successfully.

```
{
  "error_code" : "DWS.0000",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class UpdateLogicalClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
```

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```
            .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
            .build();
        UpdateLogicalClusterRequest request = new UpdateLogicalClusterRequest();
        UpdateLogicalClusterRequestBody body = new UpdateLogicalClusterRequestBody();
        List<RingHost> listClusterRingsRingHosts = new ArrayList<>();
        listClusterRingsRingHosts.add(
            new RingHost()
                .withHostName("host-172-16-20-246")
                .withBackIp("172.16.73.90")
                .withCpuCores(8)
                .withMemory((double)32.0)
                .withDiskSize((double)800.0)
        );
        listClusterRingsRingHosts.add(
            new RingHost()
                .withHostName("host-172-16-4-26")
                .withBackIp("172.16.123.5")
                .withCpuCores(8)
                .withMemory((double)32.0)
                .withDiskSize((double)800.0)
        );
        listClusterRingsRingHosts.add(
            new RingHost()
                .withHostName("host-172-16-43-90")
                .withBackIp("172.16.92.175")
                .withCpuCores(8)
                .withMemory((double)32.0)
                .withDiskSize((double)800.0)
        );
        List<ClusterRing> listbodyClusterRings = new ArrayList<>();
        listbodyClusterRings.add(
            new ClusterRing()
                .withRingHosts(listClusterRingsRingHosts)
        );
        body.withWaitingForKilling(0);
        body.withClusterRings(listbodyClusterRings);
        request.withBody(body);
        try {
            UpdateLogicalClusterResponse response = client.updateLogicalCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
```

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```
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = UpdateLogicalClusterRequest()
        listRingHostsClusterRings = [
            RingHost(
                host_name="host-172-16-20-246",
                back_ip="172.16.73.90",
                cpu_cores=8,
                memory=32.0,
                disk_size=800.0
            ),
            RingHost(
                host_name="host-172-16-4-26",
                back_ip="172.16.123.5",
                cpu_cores=8,
                memory=32.0,
                disk_size=800.0
            ),
            RingHost(
                host_name="host-172-16-43-90",
                back_ip="172.16.92.175",
                cpu_cores=8,
                memory=32.0,
                disk_size=800.0
            )
        ]
        listClusterRingsbody = [
            ClusterRing(
                ring_hosts=listRingHostsClusterRings
            )
        ]
        request.body = UpdateLogicalClusterRequestBody(
            waiting_for_killing=0,
            cluster_rings=listClusterRingsbody
        )
        response = client.update_logical_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this
```

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```
example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.UpdateLogicalClusterRequest{}
    var listRingHostsClusterRings = []model.RingHost{
        {
            HostName: "host-172-16-20-246",
            BackIp: "172.16.73.90",
            CpuCores: int32(8),
            Memory: float64(32.0),
            DiskSize: float64(800.0),
        },
        {
            HostName: "host-172-16-4-26",
            BackIp: "172.16.123.5",
            CpuCores: int32(8),
            Memory: float64(32.0),
            DiskSize: float64(800.0),
        },
        {
            HostName: "host-172-16-43-90",
            BackIp: "172.16.92.175",
            CpuCores: int32(8),
            Memory: float64(32.0),
            DiskSize: float64(800.0),
        },
    }
    var listClusterRingsbody = []model.ClusterRing{
        {
            RingHosts: listRingHostsClusterRings,
        },
    }
    waitingForKillingUpdateLogicalClusterRequestBody:= int32(0)
    request.Body = &model.UpdateLogicalClusterRequestBody{
        WaitingForKilling: &waitingForKillingUpdateLogicalClusterRequestBody,
        ClusterRings: listClusterRingsbody,
    }
    response, err := client.UpdateLogicalCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The logical cluster is edited successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.17 Restarting a Logical Cluster

Function

This API is used to restart a logical cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/logical-clusters/{logical_cluster_id}/restart

Table 5-96 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster to be restarted. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
logical_cluster_id	Yes	String	ID of the logical cluster to be restarted

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-97 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/logical-clusters/0b494d0d-8431-4c4f-8a06-2cc42d0d0c7d/restart
```

Example Response

Status code: 200

The cluster is restarted.

```
{
  "error_code" : "DWS.0000",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class RestartLogicalClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);
```

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```
        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        RestartLogicalClusterRequest request = new RestartLogicalClusterRequest();
        try {
            RestartLogicalClusterResponse response = client.restartLogicalCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = RestartLogicalClusterRequest()
        response = client.restart_logical_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)
```

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```
func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.RestartLogicalClusterRequest{}
    response, err := client.RestartLogicalCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster is restarted.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.18 Switching to a Logical Cluster

Function

This API is used to switch the logical cluster switch. It is only used to control whether the function modules related to the logical cluster are displayed on the

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page. If the cluster is already a logical cluster, modifying this interface has no effect or impact.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v2/{project_id}/clusters/{cluster_id}/logical-clusters/enable
```

Table 5-98 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-99 Request body parameters

Parameter	Mandatory	Type	Description
enable	Yes	Boolean	**true** indicates the logical cluster is enabled.

Response Parameters

Status code: 200

Table 5-100 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
PUT https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/logical-clusters/enable

{
```

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```
  "enable" : true
}
```

Example Response

Status code: 200

The logical cluster is enabled.

```
{
  "error_code" : "DWS.0000",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class EnableLogicalClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        EnableLogicalClusterRequest request = new EnableLogicalClusterRequest();
        EnableLogicalClusterRequestBody body = new EnableLogicalClusterRequestBody();
        body.withEnable(true);
        request.withBody(body);
        try {
            EnableLogicalClusterResponse response = client.enableLogicalCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
```

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```
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = EnableLogicalClusterRequest()
        request.body = EnableLogicalClusterRequestBody(
            enable=True
        )
        response = client.enable_logical_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.EnableLogicalClusterRequest{}
    request.Body = &model.EnableLogicalClusterRequestBody{
        Enable: true,
    }
    response, err := client.EnableLogicalCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The logical cluster is enabled.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.19 Deleting a Node

Function

This API is used to delete a node.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/clusters/{cluster_id}/nodes/delete
```

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Table 5-101 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster whose node is to be deleted. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-102 Request body parameters

Parameter	Mandatory	Type	Description
node_list	Yes	Array of strings	List of node IDs in a logical cluster.
operate_type	Yes	String	Operation type, which can be **clear** or **delete**.

Response Parameters

Status code: 202

Table 5-103 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/nodes/delete

{
  "node_list" : [ "16413746-258e-4a3c-bea9-8496fdbefde3" ],
  "operate_type" : "delete"
}
```

Example Response

Status code: 202

The cluster node is deleted.

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```
{
  "error_code" : "DWS.0000",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class DeleteClusterNodesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DeleteClusterNodesRequest request = new DeleteClusterNodesRequest();
        DeleteClusterNodesRequestBody body = new DeleteClusterNodesRequestBody();
        List listbodyNodeList = new ArrayList<>();
        listbodyNodeList.add("16413746-258e-4a3c-bea9-8496fdbefde3");
        body.withOperateType("delete");
        body.withNodeList(listbodyNodeList);
        request.withBody(body);
        try {
            DeleteClusterNodesResponse response = client.deleteClusterNodes(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DeleteClusterNodesRequest()
        listNodeListbody = [
            "16413746-258e-4a3c-bea9-8496fdbefde3"
        ]
        request.body = DeleteClusterNodesRequestBody(
            operate_type="delete",
            node_list=listNodeListbody
        )
        response = client.delete_cluster_nodes(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
```

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```
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DeleteClusterNodesRequest{}
    var listNodeListbody = []string{
        "16413746-258e-4a3c-bea9-8496fdbefde3",
    }
    request.Body = &model.DeleteClusterNodesRequestBody{
        OperateType: "delete",
        NodeList: listNodeListbody,
    }
    response, err := client.DeleteClusterNodes(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
202	The cluster node is deleted.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.20 Scaling Out with Idle Nodes

Function

This API is used to scale out with idle nodes.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/clusters/{cluster_id}/resize-with-existed-nodes
```

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Table 5-104 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster containing the specified idles nodes. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-105 Request body parameters

Parameter	Mandatory	Type	Description
scale_out	Yes	**ScaleOut** object	Object to be scaled out
force_backup	No	Boolean	Whether to forcibly back up data
mode	No	String	Capacity expansion backup mode. The default value is offline read-only.
logical_cluster_name	No	String	Logical cluster name In non-logical cluster mode, this parameter is left blank. In logical cluster mode, the default value is **elastic_group**.
expand_with_existed_node	Yes	Boolean	Whether to use the added idle nodes for scale-out
auto_redistribute	No	Boolean	Whether to automatically start redistribution after scale-out. The default value is **true**.
redis_conf	No	**RedisConfReq** object	Redistribution configuration information

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Table 5-106 ScaleOut

Parameter	Mandatory	Type	Description
count	Yes	Integer	Number of nodes to be added If there are idle nodes, all idle nodes must be used for scale-out.

Table 5-107 RedisConfReq

Parameter	Mandatory	Type	Description
redis_mode	Yes	String	Redistribution mode **offLine** and **onLine**. The default is **offLine**.
parallel_jobs	Yes	Integer	Number of parallel jobs The value ranges from 1 to 200. The default value is 4.

Response Parameters

None

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/resize-with-existed-nodes

{
  "scale_out" : {
    "count" : 3
  },
  "expand_with_existed_node" : true,
  "auto_redistribute" : true,
  "redis_conf" : {
    "redis_mode" : "offLine",
    "parallel_jobs" : 4
  }
}
```

Example Response

Status code: 200

The scale-out using idle nodes is successful.

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;
```

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```
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ResizeClusterWithExistedNodesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ResizeClusterWithExistedNodesRequest request = new ResizeClusterWithExistedNodesRequest();
        ResizeClusterWithExistedNodesRequestBody body = new ResizeClusterWithExistedNodesRequestBody();
        BuildTaskInfo buildTaskInfobody = new BuildTaskInfo();
        buildTaskInfobody.withBuildMode("read-only");
        RedisConf redisConfbody = new RedisConf();
        redisConfbody.withRedisMode("offLine")
            .withParalleUobs(4)
            .withParalleUob(4);
        ScaleOut scaleOutbody = new ScaleOut();
        scaleOutbody.withCount(3);
        body.withBuildTaskInfo(buildTaskInfobody);
        body.withRedisConf(redisConfbody);
        body.withIsSchedulerBuildMode(false);
        body.withAutoRedistribute(true);
        body.withCreateNodeOnly(true);
        body.withExpandWithExistedNode(true);
        body.withLogicalClusterName("test-logical-cluster");
        body.withMode("read-only");
        body.withForceBackup(false);
        body.withScaleOut(scaleOutbody);
        request.withBody(body);
        try {
            ResizeClusterWithExistedNodesResponse response = client.resizeClusterWithExistedNodes(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ResizeClusterWithExistedNodesRequest()
        buildTaskInfobody = BuildTaskInfo(
            build_mode="read-only"
        )
        redisConfbody = RedisConf(
            redis_mode="offLine",
            parallel_jobs=4,
            parallel_job=4
        )
        scaleOutbody = ScaleOut(
            count=3
        )
        request.body = ResizeClusterWithExistedNodesRequestBody(
            build_task_info=buildTaskInfobody,
            redis_conf=redisConfbody,
            is_scheduler_build_mode=False,
            auto_redistribute=True,
            create_node_only=True,
            expand_with_existed_node=True,
            logical_cluster_name="test-logical-cluster",
            mode="read-only",
            force_backup=False,
            scale_out=scaleOutbody
        )
        response = client.resize_cluster_with_existed_nodes(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)
```

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```
func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ResizeClusterWithExistedNodesRequest{}
    buildTaskInfobody := &model.BuildTaskInfo{
        BuildMode: "read-only",
    }
    redisConfbody := &model.RedisConf{
        RedisMode: "offLine",
        ParallelJobs: int32(4),
        ParallelJob: int32(4),
    }
    scaleOutbody := &model.ScaleOut{
        Count: int32(3),
    }
    request.Body = &model.ResizeClusterWithExistedNodesRequestBody{
        BuildTaskInfo: buildTaskInfobody,
        RedisConf: redisConfbody,
        IsSchedulerBuildMode: false,
        AutoRedistribute: true,
        CreateNodeOnly: true,
        ExpandWithExistedNode: true,
        LogicalClusterName: "test-logical-cluster",
        Mode: "read-only",
        ForceBackup: false,
        ScaleOut: scaleOutbody,
    }
    response, err := client.ResizeClusterWithExistedNodes(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The scale-out using idle nodes is successful.

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Status Code	Description
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.21 Resuming Redistribution

Function

This API is used to resume redistribution in the paused state. Only DWS2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/redistribution/recovery

Table 5-108 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the redistribution cluster to be restored. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

None

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Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/redistribution/recovery
```

Example Response

Status code: 200

Redistribution resumed.

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class RestoreRedistributionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        RestoreRedistributionRequest request = new RestoreRedistributionRequest();
        try {
            RestoreRedistributionResponse response = client.restoreRedistribution(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = RestoreRedistributionRequest()
        response = client.restore_redistribution(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.RestoreRedistributionRequest{}
    response, err := client.RestoreRedistribution(request)
```

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```
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Redistribution resumed.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.22 Suspending Redistribution

Function

This API is used to suspend redistribution in the running state. In the suspended state, you can set the redistribution priority and change the number of concurrent redistribution tasks. Only DWS 2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/clusters/{cluster_id}/redistribution/suspend
```

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Table 5-109 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster where redistribution is to be suspended. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

None

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/redistribution/suspend
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class StopRedistributionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
```

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```
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        StopRedistributionRequest request = new StopRedistributionRequest();
        try {
            StopRedistributionResponse response = client.stopRedistribution(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = StopRedistributionRequest()
        response = client.stop_redistribution(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
```

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```
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.StopRedistributionRequest{}
    response, err := client.StopRedistribution(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Redistribution suspended.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

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5.2.23 Restarting a Cluster

Function

This API is used to restart a cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/restart

Table 5-110 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster to be restarted. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-111 Request body parameters

Parameter	Mandatory	Type	Description
restart	Yes	Object	Restart flag

Response Parameters

None

Example Request

Restart the cluster whose ID is 4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/restart

{
  "restart" : { }
}
```

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Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class RestartClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        RestartClusterRequest request = new RestartClusterRequest();
        RestartClusterRequestBody body = new RestartClusterRequestBody();
        body.withRestart(new Object());
        request.withBody(body);
        try {
            RestartClusterResponse response = client.restartCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
```

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```
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = RestartClusterRequest()
        request.body = RestartClusterRequestBody(
            restart={}
        )
        response = client.restart_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.RestartClusterRequest{}
    var restartRestartClusterRequestBody interface{} = make(map[string]string)
    request.Body = &model.RestartClusterRequestBody{
        Restart: &restartRestartClusterRequestBody,
```

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```
    }
    response, err := client.RestartCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster is restarted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.24 Scaling Out a Cluster

Function

This API is used to scale out clusters.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/clusters/{cluster_id}/resize
```

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Table 5-112 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster to be scaled out. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-113 Request body parameters

Parameter	Mandatory	Type	Description
scale_out	No	**ScaleOut** object	Object to be scaled out

Table 5-114 ScaleOut

Parameter	Mandatory	Type	Description
count	Yes	Integer	Number of nodes to be added

Response parameter

None

Example Request

Scale out a cluster by adding 3 nodes.

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/resize

{
  "scale_out" : {
    "count" : 3
  }
}
```

Example Response

None

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SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ResizeClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ResizeClusterRequest request = new ResizeClusterRequest();
        ResizeClusterRequestBody body = new ResizeClusterRequestBody();
        ScaleOut scaleOutbody = new ScaleOut();
        scaleOutbody.withCount(3);
        body.withScaleOut(scaleOutbody);
        request.withBody(body);
        try {
            ResizeClusterResponse response = client.resizeCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *
```

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```
if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ResizeClusterRequest()
        scaleOutbody = ScaleOut(
            count=3
        )
        request.body = ResizeClusterRequestBody(
            scale_out=scaleOutbody
        )
        response = client.resize_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ResizeClusterRequest{}
    scaleOutbody := &model.ScaleOut{
        Count: int32(3),
    }
```

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```
    request.Body = &model.ResizeClusterRequestBody{
        ScaleOut: scaleOutbody,
    }
    response, err := client.ResizeCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster is scaled out successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.25 Resetting a Password

Function

This API is used to reset the password of cluster administrator.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/clusters/{cluster_id}/reset-password
```

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Table 5-115 URI parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	ID of the cluster whose password is to be reset. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
project_id	Yes	String	Project ID For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-116 Request body parameters

Parameter	Mandatory	Type	Description
new_password	Yes	String	New password of the GaussDB(DWS) cluster administrator A password must conform to the following rules: • Contains 12 to 32 characters. • Cannot be the same as the username or the username written in reverse order. • Contains at least three types of the following: – Lowercase letters – Uppercase letters – Digits – Special characters: ~!?,.:;-_'"(){}[]/<>@#%^&*+|\= • Cannot be the same as previous passwords. • Cannot be a weak password.

Response Parameters

None

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Example Request

Reset the password of the cluster whose ID is 4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/reset-password

{
  "new_password" : "NewPassw0rd!"
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ResetPasswordSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ResetPasswordRequest request = new ResetPasswordRequest();
        ResetPasswordRequestBody body = new ResetPasswordRequestBody();
        body.withNewPassword("NewPassw0rd!");
        request.withBody(body);
        try {
            ResetPasswordResponse response = client.resetPassword(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
```

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```
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ResetPasswordRequest()
        request.body = ResetPasswordRequestBody(
            new_password="NewPassw0rd!"
        )
        response = client.reset_password(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
```

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```
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ResetPasswordRequest{}
    request.Body = &model.ResetPasswordRequestBody{
        NewPassword: "NewPassw0rd!",
    }
    response, err := client.ResetPassword(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The password is reset successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.2.26 Performing a Check Before Cluster Creation

Function

This API is used to perform a check before creating a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/cluster-precheck
```

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Table 5-117 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-118 Request body parameters

Parameter	Mandatory	Type	Description
cluster	Yes	**ClusterCheckBody** object	Cluster verification object.

Table 5-119 ClusterCheckBody

Parameter	Mandatory	Type	Description
enterprise_project_id	No	String	Enterprise project ID
flavor	Yes	String	Cluster specification name
availability_zones	Yes	Array of strings	List of AZs.
num_node	Yes	Integer	Number of instance nodes.
security_group_id	No	String	Security group ID
datastore_version	Yes	String	Cluster version
vpc_id	Yes	String	VPC ID
subnet_id	Yes	String	Subnet ID
public_ip	No	**OpenPublicIp** object	EIP
cross_spec_restore	No	String	Cross-specification restoration
volume	No	**Volume** object	Disk
old_cluster_hostname	No	String	Name of the old host

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Parameter	Mandatory	Type	Description
restore_point	No	**RestorePoint** object	Restoration pointer
tag_list	No	Array of **Tag** objects	Tag list
dss_pool_id	No	String	Storage pool ID
db_port	No	String	Database port
db_password	No	String	Administrator password
db_name	No	String	Administrator username
num_cn	No	Integer	Number of CNs
name	No	String	Cluster name

Table 5-120 OpenPublicIp

Parameter	Mandatory	Type	Description
public_bind_type	No	String	Binding type of an EIP. The value can be one of the following: • **auto_assign** • **not_use** • **bind_existing**
eip_id	No	String	EIP ID

Table 5-121 Volume

Parameter	Mandatory	Type	Description
volume	No	String	Disk name. The options are as follows: • **SSD**: Ultra-high I/O • **High I/O** (SAS) • **Common I/O** (SATA)
capacity	No	Integer	Disk capacity

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Table 5-122 RestorePoint

Parameter	Mandatory	Type	Description
back_ref	No	String	Snapshot ID
restore_time	No	Long	Recovery time
cluster_id	No	String	Cluster ID

Table 5-123 Tag

Parameter	Mandatory	Type	Description
key	No	String	Tag key
value	No	String	Tag value

Response Parameters

None

Example Request

Check the conditions for creating a cluster. For example, check whether the **dws.m3.xlarge** flavor, three nodes, public IP address, security group, and VPC are available in the AZ **cn-north-7c**.

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/cluster-precheck

{
  "cluster" : {
    "flavor" : "dws.m3.xlarge",
    "num_node" : 3,
    "availability_zones" : [ "cn-north-7c" ],
    "vpc_id" : "c9f1171e-dc90-4ae9-bf22-f9736983ce2d",
    "subnet_id" : "ad9ef23f-1d03-4e52-af80-69604645e109",
    "security_group_id" : "f54a4572-d5d2-40b6-823a-79049bd5b71c",
    "public_ip" : {
      "public_bind_type" : "bind_existing",
      "eip_id" : "1923e8b0-cd40-4469-8cb1-64546c7b530c"
    },
    "datastore_version" : "8.2.0"
  }
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class CheckClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CheckClusterRequest request = new CheckClusterRequest();
        ClusterCheckRequestBody body = new ClusterCheckRequestBody();
        OpenPublicIp publicIpCluster = new OpenPublicIp();
        publicIpCluster.withPublicBindType("bind_existing")
            .withEipId("1923e8b0-cd40-4469-8cb1-64546c7b530c");
        List<String> listClusterAvailabilityZones = new ArrayList<>();
        listClusterAvailabilityZones.add("cn-north-7c");
        ClusterCheckBody clusterbody = new ClusterCheckBody();
        clusterbody.withFlavor("dws.m3.xlarge")
            .withAvailabilityZones(listClusterAvailabilityZones)
            .withNumNode(3)
            .withSecurityGroupId("f54a4572-d5d2-40b6-823a-79049bd5b71c")
            .withDatastoreVersion("8.2.0")
            .withVpcId("c9f1171e-dc90-4ae9-bf22-f9736983ce2d")
            .withSubnetId("ad9ef23f-1d03-4e52-af80-69604645e109")
            .withPublicIp(publicIpCluster);
        body.withCluster(clusterbody);
        request.withBody(body);
        try {
            CheckClusterResponse response = client.checkCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CheckClusterRequest()
        publicIpCluster = OpenPublicIp(
            public_bind_type="bind_existing",
            eip_id="1923e8b0-cd40-4469-8cb1-64546c7b530c"
        )
        listAvailabilityZonesCluster = [
            "cn-north-7c"
        ]
        clusterbody = ClusterCheckBody(
            flavor="dws.m3.xlarge",
            availability_zones=listAvailabilityZonesCluster,
            num_node=3,
            security_group_id="f54a4572-d5d2-40b6-823a-79049bd5b71c",
            datastore_version="8.2.0",
            vpc_id="c9f1171e-dc90-4ae9-bf22-f9736983ce2d",
            subnet_id="ad9ef23f-1d03-4e52-af80-69604645e109",
            public_ip=publicIpCluster
        )
        request.body = ClusterCheckRequestBody(
            cluster=clusterbody
        )
        response = client.check_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security
```

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```
risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CheckClusterRequest{}
    publicBindTypePublicIp:= "bind_existing"
    eipIdPublicIp:= "1923e8b0-cd40-4469-8cb1-64546c7b530c"
    publicIpCluster := &model.OpenPublicIp{
        PublicBindType: &publicBindTypePublicIp,
        EipId: &eipIdPublicIp,
    }
    var listAvailabilityZonesCluster = []string{
        "cn-north-7c",
    }
    securityGroupIdCluster:= "f54a4572-d5d2-40b6-823a-79049bd5b71c"
    clusterbody := &model.ClusterCheckBody{
        Flavor: "dws.m3.xlarge",
        AvailabilityZones: listAvailabilityZonesCluster,
        NumNode: int32(3),
        SecurityGroupId: &securityGroupIdCluster,
        DatastoreVersion: "8.2.0",
        VpcId: "c9f1171e-dc90-4ae9-bf22-f9736983ce2d",
        SubnetId: "ad9ef23f-1d03-4e52-af80-69604645e109",
        PublicIp: publicIpCluster,
    }
    request.Body = &model.ClusterCheckRequestBody{
        Cluster: clusterbody,
    }
    response, err := client.CheckCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The check before cluster creation is successful.
400	Request error.
401	Authentication failed.

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Status Code	Description
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.27 Scaling In a Cluster

Function

This API is used to scales in a cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/cluster-shrink

Table 5-124 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-125 Request body parameters

Parameter	Mandatory	Type	Description
shrink_number	Yes	Integer	Number of scale-in nodes. • The cluster is configured in the ring mode. A ring is the smallest unit for scale-in. Three or four hosts form a ring. The primary, standby, and secondary DNs are deployed in this ring. • The scale-in must be performed in reverse order of the scale-out. For example, if three nodes are added and then four nodes are added, you can reduce four nodes or seven nodes.
online	Yes	Boolean	Online scale-in
type	Yes	String	Database type. • dws: standard data warehouse. • stream: stream data warehouse. • hybrid: hybrid data warehouse.
retry	No	Boolean	Whether to retry
force_backup	Yes	Boolean	Whether to perform back up
need_agency	Yes	Boolean	Whether an agency is required If scale-in takes a long time, you need to authorize an agency. Otherwise, scale-in may fail.

Response Parameters

Table 5-126 Response parameters

Parameter	Type	Description
error_code	String	Error code
error_code	String	Error message

Example Request

Scale in the standard data warehouse cluster whose ID is 4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90 offline by reducing 3 nodes, perform backup, and do not use agency:

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```
POST https://{Endpoint} /v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/cluster-shrink
{
  "shrink_number": 3,
  "online": false,
  "type": "dws",
  "force_backup": true,
  "need_agency": false
}
```

Example Response

Status code: 200

```
{
	"error_code": "DWS.0000",
	"error_msg": "Request successfully processed."
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShrinkClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShrinkClusterRequest request = new ShrinkClusterRequest();
        ClusterShrinkReq body = new ClusterShrinkReq();
        body.withNeedAgency(false);
        body.withForceBackup(true);
        body.withType("dws");
        body.withOnline(false);
        body.withShrinkNumber(3);
        request.withBody(body);
        try {
            ShrinkClusterResponse response = client.shrinkCluster(request);
            System.out.println(response.toString());
```

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```
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShrinkClusterRequest()
        request.body = ClusterShrinkReq(
            need_agency=False,
            force_backup=True,
            type="dws",
            online=False,
            shrink_number=3
        )
        response = client.shrink_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
```

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```
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShrinkClusterRequest{}
    request.Body = &model.ClusterShrinkReq{
        NeedAgency: false,
        ForceBackup: true,
        Type: "dws",
        Online: false,
        ShrinkNumber: int32(3),
    }
    response, err := client.ShrinkCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The scale-in request is successfully sent.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.2.28 Delivering Redistribution

Function

This API is used to evenly distribute data from old nodes to new nodes after cluster scale-out. After data redistribution, the service response speed is greatly improved. Only DWS 2.0, 8.1.1.200, and later versions support the redistribution function. Offline scheduling is not supported in 8.2.0 or later. This function can be manually enabled only when the cluster task information displays **To be redistributed** after scale-out. You can also select advanced configurations such as the redistribution mode during scale-out. Redistribution queues are sorted based on the relpage size of tables. To ensure that the relpage size is correct, you are advised to perform the **ANALYZE** operation on the tables to be redistributed.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/redistribution

Table 5-127 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-128 Request body parameters

Parameter	Mandatory	Type	Description
redis_mode	Yes	String	Redistribution mode. The options are as follows: • **online** • **offline**
parallel_jobs	Yes	Integer	Redistribution concurrency Value range: 1 to 32

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Response Parameters

None

Example Request

Deliver an online cluster redistribution task and set the number of concurrent tasks to 3:

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/redistribution
{
  "redis_mode":"online",
  "parallel_jobs":3
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ExecuteRedistributionClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ExecuteRedistributionClusterRequest request = new ExecuteRedistributionClusterRequest();
        RedistributionReq body = new RedistributionReq();
        body.withParallelJobs(3);
        body.withRedisMode("online");
        request.withBody(body);
        try {
            ExecuteRedistributionClusterResponse response = client.executeRedistributionCluster(request);
```

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```
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ExecuteRedistributionClusterRequest()
        request.body = RedistributionReq(
            parallel_jobs=3,
            redis_mode="online"
        )
        response = client.execute_redistribution_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment
```

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```
variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this
example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ExecuteRedistributionClusterRequest{}
    request.Body = &model.RedistributionReq{
        ParallelJobs: int32(3),
        RedisMode: "online",
    }
    response, err := client.ExecuteRedistributionCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The redistribution task is successfully delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.29 Querying Redistribution Details

Function

This API is used to view monitoring information about the current cluster, such as the redistribution mode, redistribution progress, and redistribution details. Only

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GaussDB(DWS) 2.0, 8.1.1.200, and later versions support the function of viewing redistribution details. Only GaussDB(DWS) 2.0, 8.2.1, and later versions support the function of viewing redistribution progress details.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/redistribution

Table 5-129 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-130 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Size of each page to be queried
offset	No	Integer	Offset for the pagination query
db_name	No	String	Database name
table_name	No	String	Table name
type	No	String	Type.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-131 Response body parameter

Parameter	Type	Description
redis_info	**RdsRedisInfo** object	Redistribution information
schedule_mode	Boolean	Scheduling mode
pause_enable	Boolean	Whether suspension is allowed
recover_enable	Boolean	Whether resuming is allowed
retry_enable	Boolean	Whether retry is allowed
update_enable	Boolean	Whether update is allowed
control_enable	Boolean	Whether control is allowed

Table 5-132 RdsRedisInfo

Parameter	Type	Description
id	String	ID.
cluster_id	String	Cluster ID.
start_time	String	Start time
end_time	String	End time
status	String	Running status
redis_conf	**RedisConf** object	Redistribution configuration
redis_progress	**RedisProgress** object	Redistribution progress
redis_table_detail	**RedisTableDetail** object	Redistribution table information

Table 5-133 RedisConf

Parameter	Type	Description
redis_mode	String	Redistribution mode
schedule_conf	**ScheduleConf** object	Scheduling configuration information

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Parameter	Type	Description
parallel_jobs	Integer	Number of parallel jobs
parallel_job	Integer	Number of parallel jobs

Table 5-134 ScheduleConf

Parameter	Type	Description
schedule_start	String	Scheduling start time
schedule_end	String	Scheduling end time
schedule_type	String	Scheduling type
schedule_date	Array of integers	Scheduling date
schedule_time	Array of strings	Scheduling time list

Table 5-135 RedisProgress

Parameter	Type	Description
bytes_done	Long	Number of completed bytes
byte_left	Long	Number of remaining bytes
tables_done	Integer	Completed tables
tables_left	Integer	Remaining tables
table_progress	Integer	Table redistribution progress
total_progress	Integer	Overall progress
redis_rate	String	Redistribution ratio
estimated_time	String	Estimated time
completed	Boolean	Completed or not
initialed	Boolean	Initialized or not
fail_count	Integer	Total number of failures
redistributing	Boolean	cm_ctl result
status	String	Running status

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Parameter	Type	Description
pause_by_user	Boolean	Whether it is suspended by the user

Table 5-136 RedisTableDetail

Parameter	Type	Description
data	Array of **RedisTable** objects	Detailed data
total	Integer	Total records

Table 5-137 RedisTable

Parameter	Type	Description
table_name	String	Table name
id	Integer	Unique ID of a table
schema_name	String	Schema name
logical_cluster_name	String	Logical cluster name
size	Long	Table size
status	String	Redistribution Status • **i**: Redistribution is in progress. • **y**: Redistribution is complete. • **n**: Redistribution is not started.

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/redistribution

{
  "redis_mode" : "online",
  "parallel_jobs" : 3
}
```

Example Response

Status code: 200

The redistribution details are queried.

```
{
  "redis_info" : {
```

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```
  "id" : "8e4cc873-577a-4ca0-8a8c-723ef84581a9",
  "cluster_id" : "f2175f2e-8379-4158-b521-6a961a952eb3",
  "start_time" : "2023-01-11 09:21",
  "end_time" : "2023-01-12 06:47",
  "status" : "SUCCESS",
  "redis_conf" : {
    "redis_mode" : "online",
    "schedule_conf" : {
      "schedule_start" : "2023/01/11 16:41:27",
      "schedule_end" : "2023/01/11 17:41:27",
      "schedule_type" : "timeRange",
      "schedule_date" : null,
      "schedule_time" : null
    },
    "parallel_jobs" : 4,
    "parallel_job" : 4
  },
  "redis_progress" : {
    "bytes_done" : 191746048,
    "byte_left" : 0,
    "tables_done" : 163,
    "tables_left" : 0,
    "table_progress" : 100,
    "total_progress" : 100,
    "redis_rate" : null,
    "estimated_time" : null,
    "completed" : true,
    "initialed" : true,
    "fail_count" : 0,
    "redistributing" : true,
    "status" : "SUCCESS",
    "pause_by_user" : false
  },
  "redis_table_detail" : null
 },
 "schedule_mode" : true,
 "pause_enable" : true,
 "recover_enable" : true,
 "retry_enable" : true,
 "update_enable" : true,
 "control_enable" : true
}
```


SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowClusterRedistributionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
```

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```
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShowClusterRedistributionRequest request = new ShowClusterRedistributionRequest();
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        request.withDbName("<db_name>");
        request.withTableName("<table_name>");
        request.withType("<type>");
        try {
            ShowClusterRedistributionResponse response = client.showClusterRedistribution(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShowClusterRedistributionRequest()
        request.limit = <limit>
        request.offset = <offset>
        request.db_name = "<db_name>"
        request.table_name = "<table_name>"
        request.type = "<type>"
        response = client.show_cluster_redistribution(request)
        print(response)
```

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```
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShowClusterRedistributionRequest{}
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    dbNameRequest:= "<db_name>"
    request.DbName = &dbNameRequest
    tableNameRequest:= "<table_name>"
    request.TableName = &tableNameRequest
    typeRequest:= "<type>"
    request.Type = &typeRequest
    response, err := client.ShowClusterRedistribution(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The redistribution details are queried.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.30 Querying the DSS Storage Pool List

Function

This interface is used to obtain the list of DSS storage pools, including only the SSD dedicated resource pool enabled for a user.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/dss-pools
```

Table 5-138 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-139 Response body parameters

Parameter	Type	Description
pools	Array of **DssPool** objects	DSS storage pools
count	Integer	Number of DSS storage pools.

Table 5-140 DssPool

Parameter	Type	Description
id	String	DSS storage pool ID
name	String	DSS storage pool name
type	String	DSS storage pool type • **SSD**: ultra-high I/O storage pool.
project_id	String	ID of the project to which the DSS storage pool belongs
capacity	Integer	DSS storage pool capacity, in GB.
availability_zone	String	AZ to which the DSS storage pool belongs
status	String	DSS storage pool status • **available**: The DSS storage pool is available. • **deploying**: The DSS storage pool is being deployed and cannot be used. • extending: The DSS storage pool is being expanded and can be used.
created_at	String	Time when the DSS storage pool was created. • Time format: UTC YYYY-MM-DDTHH:MM:SS

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/dss-pools
```

Example Response

Status code: 200

The DSS storage pool list is queried successfully.

```
{
  "pools" : [ {
    "id" : "c950ee97-587c-4f24-8a74-3367e3da570f",
    "name" : "pool-1",
    "type" : "SSD",
```

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```
    "project_id" : "63d910f2705a487ebe4e1c274748d9e1",
    "capacity" : "1000",
    "availability_zone" : "AZ1",
    "status" : "available",
    "created_at" : "2014-12-18T15:57:56.299000"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListDssPoolsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListDssPoolsRequest request = new ListDssPoolsRequest();
        try {
            ListDssPoolsResponse response = client.listDssPools(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8
```

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```
from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListDssPoolsRequest()
        response = client.list_dss_pools(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListDssPoolsRequest{}
    response, err := client.ListDssPools(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
```

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```
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DSS storage pool list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.31 Querying the Resource Statistics

Function

This API is used to query the available resources, including available clusters and total clusters, available nodes and total nodes, and total capacity (GB).

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/statistics
```

Table 5-141 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-142 Response body parameters

Parameter	Type	Description
statistics	Array of **Statistic** objects	Resource statistics

Table 5-143 Statistic

Parameter	Type	Description
name	String	Resource name • **cluster.total**: total number of clusters. • **cluster.normal**: number of available clusters. • **instance.total**: total number of nodes. • **instance.normal**: number of available nodes. • **storage.total**: total capacity (GB).
value	Double	Number of resources
unit	String	Resource unit

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/statistics
```

Example Response

Status code: 200

The number of resources is queried successfully.

```
{
  "statistics" : [ {
    "name" : "cluster.total",
    "value" : 3,
    "unit" : null
  }, {
    "name" : "cluster.normal",
    "value" : 3,
    "unit" : null
  }, {
```

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```
    "name" : "instance.total",
    "value" : 9,
    "unit" : null
  }, {
    "name" : "instance.normal",
    "value" : 9,
    "unit" : null
  }, {
    "name" : "storage.total",
    "value" : 1800,
    "unit" : "GB"
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListStatisticsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListStatisticsRequest request = new ListStatisticsRequest();
        try {
            ListStatisticsResponse response = client.listStatistics(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListStatisticsRequest()
        response = client.list_statistics(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListStatisticsRequest{}
    response, err := client.ListStatistics(request)
```

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```
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The number of resources is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.32 Performing Primary-Standby Restoration

Function

This API is used to performing active-standby restoration. In the **Unbalanced** state, the number of primary instances on some nodes increases. As a result, the load pressure is high. In this case, the cluster is normal, but the overall performance is not as good as that in a balanced state. You can perform primary-standby restoration to change the cluster status to **Available**.

NOTE

- Only8.1.1.202 and later versions support primary-standby cluster restoration.
- Cluster restoration interrupts services for a short period of time. The interruption duration depends on the service volume. You are advised to perform this operation during off-peak hours.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/clusters/{cluster_id}/switchover
```

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Table 5-144 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

None

Example Request

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/switchover
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class SwitchOverClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
```

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```
            .withAk(ak)
            .withSk(sk);

    DwsClient client = DwsClient.newBuilder()
            .withCredential(auth)
            .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
            .build();
    SwitchOverClusterRequest request = new SwitchOverClusterRequest();
    try {
        SwitchOverClusterResponse response = client.switchOverCluster(request);
        System.out.println(response.toString());
    } catch (ConnectionException e) {
        e.printStackTrace();
    } catch (RequestTimeoutException e) {
        e.printStackTrace();
    } catch (ServiceResponseException e) {
        e.printStackTrace();
        System.out.println(e.getHttpStatusCode());
        System.out.println(e.getRequestId());
        System.out.println(e.getErrorCode());
        System.out.println(e.getErrorMsg());
    }
  }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = SwitchOverClusterRequest()
        response = client.switch_over_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
```

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```
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.SwitchOverClusterRequest{}
    response, err := client.SwitchOverCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The active-standby restoration is successful.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.2.33 Removing the Read-only Status

Function

This API is used to cancel the read-only status on the management console. The read-only state may be triggered because the disk usage is too high. You need to clear the cluster data or expand the cluster capacity.

NOTE

Only clusters of version 1.7.2 or later support removal of the read-only state.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/cancel-readonly

Table 5-145 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

None

Example Request

POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/cancel-readonly

Example Response

None

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CancelReadonlyClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CancelReadonlyClusterRequest request = new CancelReadonlyClusterRequest();
        try {
            CancelReadonlyClusterResponse response = client.cancelReadonlyCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CancelReadonlyClusterRequest()
        response = client.cancel_readonly_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CancelReadonlyClusterRequest{}
    response, err := client.CancelReadonlyCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The read-only state is removed successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.34 Adding Disk Capacity

Function

With the development of customer services, disk space is more likely to become the bottleneck of storage. When other resources are sufficient, disk scale-out can help you quickly break through the storage bottleneck without interrupting services or wasting CPU and memory resources.

NOTE

- Disk capacity expansion can be performed only for standard data warehouses using SSD, stream data warehouse, or hybrid data warehouses. Only version 8.1.1.203 and later are supported.
- If you are billed pay-per-use with discount packages, after the storage capacity is expanded, the capacity outside your packages will be charged on a pay-per-use basis.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/expand-instance-storage

Table 5-146 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-147 Request body parameters

Parameter	Mandatory	Type	Description
new_size	Yes	Integer	Available storage capacity of a single node after disk scale-out (GB/node) The capacity must be greater than the valid capacity of a current node and less than or equal to the maximum capacity of a single node, which is determined by the cluster flavor. The capacity to be expanded must be a multiple of the step of a certain flavor. You can query the cluster flavor by referring to **Querying Node Types**.

Response Parameters

None

Example Request

Expand the cluster disk capacity to 200 GB on a single node.

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/expand-instance-storage

{
  "new_size" : 200
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ExpandInstanceStorageSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ExpandInstanceStorageRequest request = new ExpandInstanceStorageRequest();
        ExpandInstanceStorage body = new ExpandInstanceStorage();
        body.withNewSize(200);
        request.withBody(body);
        try {
            ExpandInstanceStorageResponse response = client.expandInstanceStorage(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
```

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```
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ExpandInstanceStorageRequest()
        request.body = ExpandInstanceStorage(
            new_size=200
        )
        response = client.expand_instance_storage(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ExpandInstanceStorageRequest{}
    request.Body = &model.ExpandInstanceStorage{
        NewSize: int32(200),
    }
    response, err := client.ExpandInstanceStorage(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Disk expanded successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.35 Modifying a Maintenance Window

Function

This API is used to change the maintenance window as required. To prevent service interruptions, you can set the maintenance window to off-peak hours.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v1.0/{project_id}/clusters/{cluster_id}/maintenance-window
```

Table 5-148 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-149 Request body parameters

Parameter	Mandatory	Type	Description
day	Yes	String	Date. The value can be **Mon**, **Tue**, **Wed**, **Thu**, **Fri**, **Sat** or **Sun**.
start_time	Yes	String	Start time, in UTC format: HH:mm, for example, 22:00 **NOTE** • The time must be on the hour. • The interval between the start time and end time must be at least four hours.
end_time	Yes	String	End time, in UTC format: HH:mm, for example, 02:00. **NOTE** • The time must be on the hour. • The interval between the start time and end time must be at least four hours.

Response Parameters

None

Example Request

Set the cluster maintenance time window (18:00-22:00 every Thursday).

```
PUT https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/maintenance-window

{
  "day" : "Thu",
  "start_time" : "18:00",
  "end_time" : "22:00"
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateMaintenanceWindowSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        UpdateMaintenanceWindowRequest request = new UpdateMaintenanceWindowRequest();
        MaintenanceWindow body = new MaintenanceWindow();
        body.withEndTime("02:00");
        body.withStartTime("22:00");
        body.withDay("Thu");
        request.withBody(body);
        try {
            UpdateMaintenanceWindowResponse response = client.updateMaintenanceWindow(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
```

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```
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = UpdateMaintenanceWindowRequest()
        request.body = MaintenanceWindow(
            end_time="02:00",
            start_time="22:00",
            day="Thu"
        )
        response = client.update_maintenance_window(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.UpdateMaintenanceWindowRequest{}
    request.Body = &model.MaintenanceWindow{
        EndTime: "02:00",
        StartTime: "22:00",
        Day: "Thu",
    }
    response, err := client.UpdateMaintenanceWindow(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
```

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```
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The maintenance window is set successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.36 Querying Cluster CN Nodes

Function

This API is used to query information about CNs in a specified cluster.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/clusters/{cluster_id}/cns
```

Table 5-150 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-151 Response body parameters

Parameter	Type	Description
min_num	Integer	Minimum number of CN nodes allowed
max_num	Integer	Maximum number of CN nodes allowed
instances	Array of **CoordinatorNode** objects	List of CN nodes

Table 5-152 CoordinatorNode

Parameter	Type	Description
id	String	Node ID
name	String	Node name
private_ip	String	Private IP address

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/cns
```

Example Response

Status code: 200

Succeeded in querying the cluster CN node.

```
{
  "min_num" : 2,
  "max_num" : 3,
  "instances" : [ {
    "id" : "e07d1bfb-6eac-4827-96e0-d10b8ca29c41",
    "name" : "demo-dws-cn-cn-1-1",
    "private_ip" : "172.16.69.106"
  } ]
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterCnSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterCnRequest request = new ListClusterCnRequest();
        try {
            ListClusterCnResponse response = client.listClusterCn(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterCnRequest()
        response = client.list_cluster_cn(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterCnRequest{}
    response, err := client.ListClusterCn(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Succeeded in querying the cluster CN node.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.37 Adding CN Nodes in Batches

Function

This API is used to add CNs in batches to a specified cluster. After a cluster is created, the number of required CNs varies with service requirements. The CN management function enables you to adjust the number of CNs in the cluster.

NOTE

- Do not perform other O&M operations when adding or deleting a CN.
- Stop services when adding or deleting a CN.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/cns/batch-create

Table 5-153 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-154 Request body parameters

Parameter	Mandatory	Type	Description
num	Yes	Integer	Total number of CNs in the cluster after the batch adding The number of CNs supported by a cluster depends on the cluster version and number of nodes. For details, see **Querying Cluster CN Nodes**, where **min_num** indicates the minimum number of CNs supported, and **max_num** indicates the maximum number of CNs supported.

Response Parameters

Status code: 200

Table 5-155 Response body parameters

Parameter	Type	Description
job_id	String	ID of the task for adding CN nodes in batches.

Example Request

Add 3CN nodes in batches:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/cns/batch-create

{
  "num" : 3
}
```

Example Response

Status code: 200

The CN nodes are successfully added in batches.

```
{
  "job_id" : "2c908185841339ce018414e9944b0020"
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class BatchCreateClusterCnSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        BatchCreateClusterCnRequest request = new BatchCreateClusterCnRequest();
        BatchCreateCn body = new BatchCreateCn();
        body.withNum(3);
        request.withBody(body);
        try {
            BatchCreateClusterCnResponse response = client.batchCreateClusterCn(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
```

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```
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = BatchCreateClusterCnRequest()
        request.body = BatchCreateCn(
            num=3
        )
        response = client.batch_create_cluster_cn(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.BatchCreateClusterCnRequest{}
    request.Body = &model.BatchCreateCn{
        Num: int32(3),
    }
    response, err := client.BatchCreateClusterCn(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The CN nodes are successfully added in batches.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.38 Deleting CN Nodes in Batches

Function

This API is used to delete CNs from a specified cluster.

After a cluster is created, the number of required CNs varies with service requirements. The CN management function enables you to adjust the number of CNs in the cluster.

NOTE

- Do not perform other O&M operations when adding or deleting a CN.
- Stop services when adding or deleting a CN.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/clusters/{cluster_id}/cns/batch-delete
```

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Table 5-156 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-157 Request body parameters

Parameter	Mandatory	Type	Description
instances	No	Array of strings	IDs of the CNs to be deleted

Response Parameters

Status code: 200

Table 5-158 Response body parameters

Parameter	Type	Description
job_id	String	ID of the task for deleting CN nodes in batches.

Example Request

Remove CN nodes (CN Node ID = b6ad3dc3-d2de-4d2c-a5df-fdde58eca8f0) in batches:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/cns/batch-delete

{
  "instances" : [ "b6ad3dc3-d2de-4d2c-a5df-fdde58eca8f0" ]
}
```

Example Response

Status code: 200

The CN nodes are successfully deleted in batches.

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```
{
  "job_id" : "2c908185841339ce018414e9944b0020"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class BatchDeleteClusterCnSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        BatchDeleteClusterCnRequest request = new BatchDeleteClusterCnRequest();
        BatchDeleteCn body = new BatchDeleteCn();
        List<String> listbodyInstances = new ArrayList<>();
        listbodyInstances.add("b6ad3dc3-d2de-4d2c-a5df-fdde58eca8f0");
        body.withInstances(listbodyInstances);
        request.withBody(body);
        try {
            BatchDeleteClusterCnResponse response = client.batchDeleteClusterCn(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = BatchDeleteClusterCnRequest()
        listInstancesbody = [
            "b6ad3dc3-d2de-4d2c-a5df-fdde58eca8f0"
        ]
        request.body = BatchDeleteCn(
            instances=listInstancesbody
        )
        response = client.batch_delete_cluster_cn(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
```

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```
        WithRegion(region.ValueOf("<YOUR REGION>")).
        WithCredential(auth).
        Build())

    request := &model.BatchDeleteClusterCnRequest{}
    var listInstancesbody = []string{
        "b6ad3dc3-d2de-4d2c-a5df-fdde58eca8f0",
    }
    request.Body = &model.BatchDeleteCn{
        Instances: &listInstancesbody,
    }
    response, err := client.BatchDeleteClusterCn(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The CN nodes are successfully deleted in batches.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.39 Querying a Cluster Parameter Group

Function

This API is used to query the parameter group associated with a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/clusters/{cluster_id}/configurations
```

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Table 5-159 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-160 Response body parameters

Parameter	Type	Description
configurations	Array of **ClusterConfiguration** objects	Parameter group details

Table 5-161 ClusterConfiguration

Parameter	Type	Description
id	String	Parameter group ID
name	String	Parameter group name
type	String	Parameter group type
status	String	Cluster parameter status • **In-Sync**: synchronized • **Applying**: in application • **Pending-Reboot**: restart for the modification to take effect • **Sync-Failure**: application failed
fail_reason	String	Cause of the parameter application failure

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Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/configurations
```

Example Response

Status code: 200

Succeeded in querying the cluster parameter group.

```
{
  "configurations" : [ {
    "id" : "509be37f-5420-40fb-89c2-0c5c9b8c90f6",
    "name" : "defaultGUCConfig",
    "type" : "GUCConfig",
    "status" : "In-Sync",
    "fail_reason" : "null"
  }, {
    "id" : "3f62172a-8258-46a3-a761-e691265d6689",
    "name" : "parameterGroupFor_3bc94408-265d-4076-8c6d-cc35ebc2c747",
    "type" : "hiddenParameterGroup",
    "status" : "In-Sync",
    "fail_reason" : "null"
  }, {
    "id" : "93cb2c86-a598-48ca-8c2c-0389f4b78511",
    "name" : "defaultOBSConfig",
    "type" : "OBSConfig",
    "status" : "In-Sync",
    "fail_reason" : "null"
  }, {
    "id" : "3f377a36-1fa2-48fe-a1fa-a8801dae01ed",
    "name" : "Default-Parameter-Template-DWS-8_2_0",
    "type" : "parameterGroup",
    "status" : "In-Sync",
    "fail_reason" : "null"
  }, {
    "id" : "d8f9ec5a-8235-4000-9433-187409738e8b",
    "name" : "security-paragroup-dws",
    "type" : "securityParameterGroup",
    "status" : "In-Sync",
    "fail_reason" : "null"
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterConfigurationsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
```

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```
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterConfigurationsRequest request = new ListClusterConfigurationsRequest();
        try {
            ListClusterConfigurationsResponse response = client.listClusterConfigurations(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterConfigurationsRequest()
        response = client.list_cluster_configurations(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterConfigurationsRequest{}
    response, err := client.ListClusterConfigurations(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying the cluster parameter group.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.2.40 Querying Cluster Parameter Settings

Function

This API is used to query the parameter group associated with a cluster.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/clusters/{cluster_id}/configurations/{configuration_id}

Table 5-162 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
configuration_id	Yes	String	Parameter group ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-163 Response body parameter

Parameter	Type	Description
configurations	Array of **ConfigurationParameter** objects	Parameter configuration parameters

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Table 5-164 ConfigurationParameter

Parameter	Type	Description
name	String	Parameter name
values	Array of **ConfigurationParameterUnit** objects	Parameter value
unit	String	Parameter unit
type	String	Parameter type. The options are as follows: • boolean • string • integer • float • list
readonly	Boolean	Whether the parameter is read-only
value_range	String	Value range
restart_required	Boolean	Whether the instance needs to be restarted
description	String	Parameter description

Table 5-165 ConfigurationParameterUnit

Parameter	Type	Description
type	String	Parameter type. The options are **CN** and **DN**.
value	String	Parameter value
default_value	String	Default parameter value.

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/configurations/2846d355-cd2a-4239-ae54-a7aef0b7963d
```

Example Response

Status code: 200

Succeeded in querying cluster parameter settings.

```
{
  "configurations" : [ {
    "name" : "enable_constraint_optimization",
    "values" : [ {
```

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```
      "type" : "cn",
      "value" : "on",
      "default_value" : "on"
    }, {
      "type" : "dn",
      "value" : "on",
      "default_value" : "on"
    } ],
    "unit" : null,
    "type" : "boolean",
    "readonly" : false,
    "value_range" : "on|off",
    "restart_required" : false,
    "description" : "Specifies whether the informational constraint optimization execution plan can be used
for an HDFS foreign table."
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterConfigurationsParameterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterConfigurationsParameterRequest request = new
ListClusterConfigurationsParameterRequest();
        try {
            ListClusterConfigurationsParameterResponse response =
client.listClusterConfigurationsParameter(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
```

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```
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterConfigurationsParameterRequest()
        response = client.list_cluster_configurations_parameter(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
```

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```
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterConfigurationsParameterRequest{}
    response, err := client.ListClusterConfigurationsParameter(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying cluster parameter settings.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.41 Modifying Parameter Settings of a Cluster

Function

This API is used to modify the parameter settings of a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v2/{project_id}/clusters/{cluster_id}/configurations/{configuration_id}
```

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Table 5-166 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
configuration_id	Yes	String	Parameter group ID

Request Parameters

Table 5-167 Request body parameters

Parameter	Mandatory	Type	Description
configurations	Yes	Array of **ConfigurationParameterValue** objects	Cluster parameter configuration list

Table 5-168 ConfigurationParameterValue

Parameter	Mandatory	Type	Description
type	Yes	String	Parameter type. The options are **CN** and **DN**.
name	Yes	String	Parameter name
value	Yes	String	Parameter value

Response Parameters

None

Example Request

Set the CN type and DN type in the **enable_constraint_optimization parameter** to **off**:

```
PUT https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/configurations/2846d355-cd2a-4239-ae54-a7aef0b7963d

{
  "configurations" : [ {
```

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```
    "type" : "cn",
    "name" : "enable_constraint_optimization",
    "value" : "off"
  }, {
    "type" : "dn",
    "name" : "enable_constraint_optimization",
    "value" : "off"
  } ]
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class UpdateConfigurationSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        UpdateConfigurationRequest request = new UpdateConfigurationRequest();
        ConfigurationParameterValues body = new ConfigurationParameterValues();
        List<ConfigurationParameterValue> listbodyConfigurations = new ArrayList<>();
        listbodyConfigurations.add(
            new ConfigurationParameterValue()
                .withType("cn")
                .withName("enable_constraint_optimization")
                .withValue("off")
        );
        listbodyConfigurations.add(
            new ConfigurationParameterValue()
                .withType("dn")
                .withName("enable_constraint_optimization")
                .withValue("off")
```

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```
        );
        body.withConfigurations(listbodyConfigurations);
        request.withBody(body);
        try {
            UpdateConfigurationResponse response = client.updateConfiguration(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = UpdateConfigurationRequest()
        listConfigurationsbody = [
            ConfigurationParameterValue(
                type="cn",
                name="enable_constraint_optimization",
                value="off"
            ),
            ConfigurationParameterValue(
                type="dn",
                name="enable_constraint_optimization",
                value="off"
            )
        ]
        request.body = ConfigurationParameterValues(
            configurations=listConfigurationsbody
        )
        response = client.update_configuration(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.UpdateConfigurationRequest{}
    var listConfigurationsbody = []model.ConfigurationParameterValue{
        {
            Type: "cn",
            Name: "enable_constraint_optimization",
            Value: "off",
        },
        {
            Type: "dn",
            Name: "enable_constraint_optimization",
            Value: "off",
        },
    }
    request.Body = &model.ConfigurationParameterValues{
        Configurations: listConfigurationsbody,
    }
    response, err := client.UpdateConfiguration(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The cluster parameter settings are modified successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.42 Querying Snapshot Statistics

Function

This API is used to query snapshot statistics.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/clusters/{cluster_id}/snapshots/statistics

Table 5-169 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-170 Response body parameters

Parameter	Type	Description
statistics	Array of **SnapshotsStatistic** objects	Snapshot statistics

Table 5-171 SnapshotsStatistic

Parameter	Type	Description
name	String	Resource statistics category • **storage.free**: Free capacity • **storage.paid**: Paid capacity • **storage.used**: Used capacity
value	Number	Resource statistics value
unit	String	Resource statistics unit

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/snapshots/statistics
```

Example Response

Status code: 200

Succeeded in querying snapshot statistics.

```
{
  "statistics" : [ {
    "name" : "storage.free",
    "value" : 300.0,
    "unit" : "GB"
  }, {
    "name" : "storage.paid",
    "value" : 0,
    "unit" : "GB"
  }, {
    "name" : "storage.used",
    "value" : 128.5,
    "unit" : "GB"
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;
```

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```
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSnapshotStatisticsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListSnapshotStatisticsRequest request = new ListSnapshotStatisticsRequest();
        try {
            ListSnapshotStatisticsResponse response = client.listSnapshotStatistics(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
```

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```
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListSnapshotStatisticsRequest()
        response = client.list_snapshot_statistics(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListSnapshotStatisticsRequest{}
    response, err := client.ListSnapshotStatistics(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying snapshot statistics.

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Status Code	Description
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.43 Querying the Nodes to Be Removed for Scale-In

Function

This API is used to query the proper number of nodes to be removed for scale-in.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/clusters/{cluster_id}/shrink-numbers

Table 5-172 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-173 Response body parameters

Parameter	Type	Description
shrink_sequence	Array of strings	The proper number of nodes to be removed.

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/shrink-numbers
```

Example Response

Status code: 200

```
{
  "shrink_sequence" : [ 3, 7 ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterScaleInNumbersSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterScaleInNumbersRequest request = new ListClusterScaleInNumbersRequest();
        try {
            ListClusterScaleInNumbersResponse response = client.listClusterScaleInNumbers(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
```

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```
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterScaleInNumbersRequest()
        response = client.list_cluster_scale_in_numbers(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
```

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```
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterScaleInNumbersRequest{}
    response, err := client.ListClusterScaleInNumbers(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying the proper number of nodes to be removed for scale-in.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.44 Querying Parameter Modification Audit Records

Function

This API is used to query parameter modification audit records.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1/{project_id}/clusters/{cluster_id}/configurations/audit-records
```

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Table 5-174 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-175 Query parameters

Parameter	Mandatory	Type	Description
action_time	No	Long	Task time
filter_by	No	String	Filter configuration information
filter	No	String	Filtering criteria
limit	No	Integer	Number of records to be queried
offset	No	Integer	Offset

Request Parameters

None

Response Parameters

Status code: 200

Table 5-176 Response body parameter

Parameter	Type	Description
records	Array of **ConfigurationRecordResp** objects	Records
count	Integer	Total number

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Table 5-177 ConfigurationRecordResp

Parameter	Type	Description
id	String	ID.
operator	String	Operation
start_time	String	Start time
end_time	String	End time
status	String	Running status
failed_reason	String	Cause of failure

Example Request

```
GET https://{Endpoint}/v1/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/configurations/audit-records
```

Example Response

Status code: 200

```
{
  "records" : [ {
    "id" : 1,
    "operator" : null,
    "start_time" : "2023-06-10T16:23:21.000Z",
    "end_time" : null,
    "status" : null,
    "failed_reason" : null
  }, {
    "id" : 2,
    "operator" : null,
    "start_time" : "2023-06-10T16:23:32.000Z",
    "end_time" : null,
    "status" : null,
    "failed_reason" : null
  } ],
  "count" : 10
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class ListConfigurationsAuditRecordsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListConfigurationsAuditRecordsRequest request = new ListConfigurationsAuditRecordsRequest();
        request.withActionTime(<action_time>L);
        request.withFilterBy("<filter_by>");
        request.withFilter("<filter>");
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListConfigurationsAuditRecordsResponse response = client.listConfigurationsAuditRecords(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListConfigurationsAuditRecordsRequest()
```

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```
        request.action_time = <action_time>
        request.filter_by = "<filter_by>"
        request.filter = "<filter>"
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_configurations_audit_records(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListConfigurationsAuditRecordsRequest{}
    actionTimeRequest:= int64(<action_time>)
    request.ActionTime = &actionTimeRequest
    filterByRequest:= "<filter_by>"
    request.FilterBy = &filterByRequest
    filterRequest:= "<filter>"
    request.Filter = &filterRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    response, err := client.ListConfigurationsAuditRecords(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The parameter modification audit records are queried.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.45 Saving Cluster Description

Function

This API is used to save cluster description.

Call Method

For details, see **Calling APIs**.

URI

POST /v1/{project_id}/clusters/{cluster_id}/description

Table 5-178 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-179 Query parameters

Parameter	Mandatory	Type	Description
namespace	No	String	Namespace

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Request Parameters

Table 5-180 Request body parameters

Parameter	Mandatory	Type	Description
description_info	Yes	String	Cluster description

Response Parameters

Status code: 200

Table 5-181 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message

Example Request

```
POST https://{Endpoint}/v1/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/description

{
  "description_info" : "desc info"
}
```

Example Response

Status code: 200

```
{
  "error_code" : "DWS.0138",
  "error_msg" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class SaveClusterDescriptionInfoSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        SaveClusterDescriptionInfoRequest request = new SaveClusterDescriptionInfoRequest();
        request.withNamespace("<namespace>");
        ClusterDescriptionInfo body = new ClusterDescriptionInfo();
        body.withDescriptionInfo("desc info");
        request.withBody(body);
        try {
            SaveClusterDescriptionInfoResponse response = client.saveClusterDescriptionInfo(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = SaveClusterDescriptionInfoRequest()
```

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```
        request.namespace = "<namespace>"
        request.body = ClusterDescriptionInfo(
            description_info="desc info"
        )
        response = client.save_cluster_description_info(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.SaveClusterDescriptionInfoRequest{}
    namespaceRequest:= "<namespace>"
    request.Namespace = &namespaceRequest
    request.Body = &model.ClusterDescriptionInfo{
        DescriptionInfo: "desc info",
    }
    response, err := client.SaveClusterDescriptionInfo(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Cluster description is saved.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.2.46 Querying an Instance

Function

This API is used to query an instance.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/instances/{instance_id}
```

Table 5-182 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
instance_id	Yes	String	Instance ID

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-183 Response body parameters

Parameter	Type	Description
configuration_status	String	Configuration status
params_group_id	String	Parameter group ID
type	String	Type
subnet_id	String	Subnet ID
role	String	Role
internal_subnet_id	String	Internal subnet ID
group	String	Group
secure_group	String	Security group
vpc	String	VPC.
azcode	String	Code
region	String	Region
cluster_id	String	Cluster ID
created	String	Time when the instance is created
updated	String	Time when the instance is updated
status	String	Running status
name	String	Name
links	Array of **LinkResp** objects	Connections
id	String	ID
flavor	**ClusterFlavorResp** object	Flavor
volume	**CompatibleInstanceVolumeResp** object	Capacity
datastore	**CompatibleDataStoreResp** object	Data warehouse
fault	**CompatibleFaultResp** object	Whether the flavor is the currently used flavor

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Parameter	Type	Description
configuration	**CompatibleConfigurationResp** object	Whether the flavor is the currently used flavor
locality	String	Location
replicas	Array of **CompatibleReplicasResp** objects	Backup
db_user	String	Database user
storage_engine	String	Storage engine
pay_model	Integer	Payment method
public_ip	String	Public IP address
traffic_ip	String	Traffic IP address

Table 5-184 ClusterFlavorResp

Parameter	Type	Description
id	String	ID
links	Array of **LinkResp** objects	Connections

Table 5-185 CompatibleInstanceVolumeResp

Parameter	Type	Description
type	String	Type
used	Float	Connections
size	Integer	Size

Table 5-186 CompatibleDataStoreResp

Parameter	Type	Description
type	String	Type
version	String	Version

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Table 5-187 CompatibleFaultResp

Parameter	Type	Description
message	String	Information
created	String	Creator
details	String	Details

Table 5-188 CompatibleConfigurationResp

Parameter	Type	Description
id	String	ID
name	String	Name
links	Array of **LinkResp** objects	Connections

Table 5-189 CompatibleReplicasResp

Parameter	Type	Description
id	String	ID
name	String	Name
links	Array of **LinkResp** objects	Connections

Table 5-190 LinkResp

Parameter	Type	Description
rel	String	Association
href	String	Connections

Example Request

```
GET https://{Endpoint}/v1/89cd04f168b84af6be287f71730fdb4b/instances/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90
```

Example Response

Status code: 200

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```
{
  "configuration_status" : "In-Sync",
  "params_group_id" : "53cb2c86-a598-58ca-8c2c-0389f4b78912",
  "type" : "dws-cn",
  "subnet_id" : "43cb2c86-a598-59ca-8c2c-0380f4b78613",
  "role" : "Standalone",
  "internal_subnet_id" : "73cb3c86-a598-59ca-8c2c-0380f4b78659",
  "group" : "cn-1",
  "secure_group" : null,
  "vpc" : "62cb2c86-a598-58ca-8c2c-0389f4b78954",
  "azcode" : "cn-north-854a",
  "region" : "cn-north-854",
  "cluster_id" : "85cb3c86-a598-59ca-8c2c-0380f4b78613",
  "created" : "2023-02-24T02:25:36",
  "updated" : "2023-02-24T09:25:36",
  "status" : null,
  "name" : "test-dws-cn-cn-1-1",
  "links" : [ {
    "rel" : "self",
    "href" : null
  }, {
    "rel" : "bookmark",
    "href" : null
  } ],
  "id" : "13cb2c86-a598-48ca-8c2c-0389f4b78963",
  "flavor" : {
    "id" : "46cb2c86-a598-48ca-8c2c-0389f4b78545",
    "links" : [ {
      "rel" : "self",
      "href" : null
    }, {
      "rel" : "bookmark",
      "href" : null
    } ]
  },
  "volume" : null,
  "datastore" : {
    "type" : "dws3.0",
    "version" : "9.0.0"
  },
  "fault" : null,
  "configuration" : {
    "id" : "56cb2c86-a598-48ca-8c2c-0389f4b78549",
    "name" : "test",
    "links" : [ {
      "rel" : "self",
      "href" : null
    }, {
      "rel" : "bookmark",
      "href" : null
    } ]
  },
  "locality" : null,
  "replicas" : null,
  "db_user" : "admin",
  "storage_engine" : null,
  "pay_model" : 0,
  "public_ip" : null,
  "traffic_ip" : "192.168.13.132"
}
```


SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowInstanceSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShowInstanceRequest request = new ShowInstanceRequest();
        try {
            ShowInstanceResponse response = client.showInstance(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShowInstanceRequest()
        response = client.show_instance(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShowInstanceRequest{}
    response, err := client.ShowInstance(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The instance is queried.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3 Snapshot Management

5.3.1 Creating a Snapshot

Function

This API is used to create a snapshot for a specified cluster.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/snapshots
```

Table 5-191 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Request Parameters

Table 5-192 Request body parameters

Parameter	Mandatory	Type	Description
snapshot	Yes	**Snapshot** object	Snapshot object

Table 5-193 Snapshot

Parameter	Mandatory	Type	Description
name	Yes	String	Snapshot name, which must be unique and start with a letter. It consists of 4 to 64 characters. The value is case-insensitive and can contain letters, digits, hyphens (-), and underscores (_) only.
cluster_id	Yes	String	ID of the cluster for which you want to create a snapshot. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
description	No	String	Snapshot description. If no value is specified, the description is empty. Enter a maximum of 256 characters. The following special characters are not allowed: !<>'=&"

Response Parameters

Status code: 200

Table 5-194 Response body parameters

Parameter	Type	Description
snapshot	**SnapshotResp** object	Snapshot object

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Table 5-195 SnapshotResp

Parameter	Type	Description
id	String	Snapshot ID

Example Request

Create a manual snapshot named **snapshot-3** for the cluster whose ID is "44b277eb-39be-4921-be31-3d61b43651d7":

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/snapshots

{
  "snapshot" : {
    "name" : "snapshot-3",
    "cluster_id" : "44b277eb-39be-4921-be31-3d61b43651d7",
    "description" : "Snapshot-3 description"
  }
}
```

Example Response

Status code: 200

The snapshot is created successfully.

```
{
  "snapshot" : {
    "id" : "2a4d0f86-67cd-408a-8b66-017454fb7793"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateSnapshotSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");
```

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```
        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CreateSnapshotRequest request = new CreateSnapshotRequest();
        CreateSnapshotRequestBody body = new CreateSnapshotRequestBody();
        Snapshot snapshotbody = new Snapshot();
        snapshotbody.withName("snapshot-3")
            .withClusterId("44b277eb-39be-4921-be31-3d61b43651d7")
            .withDescription("Snapshot-3 description");
        body.withSnapshot(snapshotbody);
        request.withBody(body);
        try {
            CreateSnapshotResponse response = client.createSnapshot(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CreateSnapshotRequest()
        snapshotbody = Snapshot(
            name="snapshot-3",
            cluster_id="44b277eb-39be-4921-be31-3d61b43651d7",
            description="Snapshot-3 description"
        )
        request.body = CreateSnapshotRequestBody(
            snapshot=snapshotbody
        )
        response = client.create_snapshot(request)
```

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```
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CreateSnapshotRequest{}
    descriptionSnapshot:= "Snapshot-3 description"
    snapshotbody := &model.Snapshot{
        Name: "snapshot-3",
        ClusterId: "44b277eb-39be-4921-be31-3d61b43651d7",
        Description: &descriptionSnapshot,
    }
    request.Body = &model.CreateSnapshotRequestBody{
        Snapshot: snapshotbody,
    }
    response, err := client.CreateSnapshot(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The snapshot is created successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.2 Querying the Snapshot List

Function

This API is used to query the snapshot list.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/snapshots
```

Table 5-196 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-197 Response body parameter

Parameter	Type	Description
snapshots	Array of **Snapshots** objects	List of snapshot objects
count	Integer	Total number of snapshot objects

Table 5-198 Snapshots

Parameter	Type	Description
id	String	Snapshot ID
name	String	Snapshot name
description	String	Snapshot description
started	String	Time when a snapshot starts to be created. Format: ISO8601: YYYY-MM-DDThh:mm:ssZ
finished	String	Time when a snapshot is complete. Format: ISO8601: YYYY-MM-DDThh:mm:ssZ
size	Double	Snapshot size, in GB
status	String	Snapshot status • **CREATING** • **AVAILABLE** • **UNAVAILABLE**
type	String	Snapshot type • **MANUAL** • **AUTOMATED**
cluster_id	String	ID of the cluster for which snapshots are created.

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/snapshots
```

Example Response

Status code: 200

The snapshot list is queried successfully.

```
{
  "snapshots" : [ {
    "id" : "2a4d0f86-67cd-408a-8b66-017454fb7793",
    "name" : "snapshot-1",
```

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```
  "description" : "",
  "started" : "2016-08-23T03:59:23Z",
  "finished" : "2016-08-23T04:01:40Z",
  "size" : 500,
  "status" : "AVAILABLE",
  "type" : "MANUAL",
  "cluster_id" : "4f87d3c4-9e33-482f-b962-e23b30d1a18c"
 }, {
  "id" : "4af11460-06ec-48a4-b3ad-0e3bbdcd8ab1",
  "name" : "snapshot-2",
  "description" : "",
  "started" : "2016-08-23T18:20:00Z",
  "finished" : "2016-08-23T18:22:12Z",
  "size" : "500,",
  "status" : "AVAILABLE",
  "type" : "MANUAL",
  "cluster_id" : "4f87d3c4-9e33-482f-b962-e23b30d1a18c"
 } ],
 "count" : 2
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSnapshotsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListSnapshotsRequest request = new ListSnapshotsRequest();
        try {
            ListSnapshotsResponse response = client.listSnapshots(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
```

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```
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListSnapshotsRequest()
        response = client.list_snapshots(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListSnapshotsRequest{}
    response, err := client.ListSnapshots(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The snapshot list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.3 Querying a Snapshot Policy

Function

This API is used to query a snapshot policy.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/snapshot-policies
```

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Table 5-199 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-200 Response body parameters

Parameter	Type	Description
keep_day	String	Retention days
backup_strategies	Array of **BackupStrategyDetail** objects	Backup policy
device_name	String	Backup device
server_ips	Array of strings	Service IP address
server_port	String	Service port
backup_param	String	Backup parameters

Table 5-201 BackupStrategyDetail

Parameter	Type	Description
policy_id	String	Policy ID
policy_name	String	Policy name
backup_strategy	String	Backup execution policy

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Parameter	Type	Description
backup_type	String	Backup Type: • **full** • **increment**
backup_level	String	Backup level • cluster: cluster level.
next_fire_time	String	Next triggering time
update_time	String	Update time

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/snapshot-policies
```

Example Response

```
{
  "keep_day": 3,
  "backup_strategies": [
    {
      "policy_id": "20c8ab14-9201-4d79-bb7c-5c42d1af84b1",
      "policy_name": "test_1031_02-default-full-strategy",
      "backup_strategy": "0 0 2 ? * 1",
      "backup_type": "full",
      "backup_level": "cluster",
      "next_fire_time": "1667700000000",
      "update_time": "2022-10-31T02:54:54"
    },
    {
      "policy_id": "a3c9e2fc-37aa-4088-b0d0-c49dcbb0d2c2",
      "policy_name": "test_1031_02-default-increment-strategy",
      "backup_strategy": "0 56 2/8 ? * 2,3,4,5,6,7",
      "backup_type": "increment",
      "backup_level": "cluster",
      "next_fire_time": "1667213760000",
      "update_time": "2022-10-31T02:54:54"
    }
  ],
  "device_name": "obs",
  "server_ips": null,
  "server_port": null,
  "backup_param": ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
```

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```
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSnapshotPolicySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListSnapshotPolicyRequest request = new ListSnapshotPolicyRequest();
        try {
            ListSnapshotPolicyResponse response = client.listSnapshotPolicy(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
```

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```
        request = ListSnapshotPolicyRequest()
        response = client.list_snapshot_policy(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListSnapshotPolicyRequest{}
    response, err := client.ListSnapshotPolicy(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying the snapshot policy.
400	Request error.

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Status Code	Description
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.4 Querying Snapshot Details

Function

This API is used to query snapshot details using snapshot IDs.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/snapshots/{snapshot_id}

Table 5-202 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
snapshot_id	Yes	String	Snapshot ID.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-203 Response body parameters

Parameter	Type	Description
snapshot	**SnapshotDetail** object	Snapshot detail parameters

Table 5-204 SnapshotDetail

Parameter	Type	Description
id	String	Snapshot ID
name	String	Snapshot name
description	String	Snapshot description
started	String	Time when a snapshot starts to be created. Format: ISO8601: YYYY-MM-DDThh:mm:ssZ
finished	String	Time when a snapshot is complete. Format: ISO8601: YYYY-MM-DDThh:mm:ssZ
size	Double	Snapshot size, in GB
status	String	Snapshot status: • **CREATING** • **AVAILABLE** • **UNAVAILABLE**
type	String	Snapshot type • **MANUAL** • **AUTOMATED**
cluster_id	String	ID of the cluster for which the snapshot is created
cluster_name	String	Name of the cluster for which the snapshot is created
backup_key	String	Key generated during backup.
prior_backup_key	String	Backup key of the previous snapshot used by the incremental backup The value **FULL** indicates a full snapshot.
base_backup_key	String	Backup key of a full snapshot
backup_device	String	Backup media
total_backup_size	Long	Accumulated size of a snapshot, from the full backup to the incremental backup. Unit: KB

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Parameter	Type	Description
base_backup_name	String	Name of a full snapshot
support_inplace_restore	Boolean	Whether data can be restored to the original cluster
fine_grained_backup	Boolean	Whether the backup is a fine-grained backup
fine_grained_backup_detail	**FineGrainedSnapshotDetail** object	Fine-grained backup information
guest_agent_version	String	GuestAgent version
cluster_status	String	Cluster status • **AVAILABLE** • **UNAVAILABLE** • **FROZEN**
bak_expected_start_time	String	Estimated snapshot start time
bak_keep_day	Integer	Backup retention days
bak_period	String	Cluster policy
db_user	String	Backup user
datastore	**DataStore** object	Database version
progress	String	Backup progress
backup_level	String	Backup level • cluster • schema

Table 5-205 FineGrainedSnapshotDetail

Parameter	Type	Description
database	String	Database backup
schema_list	Array of String	Backup schema set
table_list	Array of String	Backup table set

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Table 5-206 DataStore

Parameter	Type	Description
type	String	Database type
version	String	Database version

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/snapshots/b5c45780-1006-49e3-b2d5-b3229975bbc7
```

Example Response

Status code: 200

The snapshot details are queried successfully.

```
{
  "snapshot" : {
    "id" : "2a4d0f86-67cd-408a-8b66-017454fb7793",
    "name" : "snapshot-1",
    "description" : "snapshot description",
    "started" : "2016-08-23T03:59:23Z",
    "finished" : "2016-08-23T04:01:40Z",
    "size" : 500,
    "status" : "AVAILABLE",
    "type" : "MANUAL",
    "cluster_id" : "4f87d3c4-9e33-482f-b962-e23b30d1a18c"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSnapshotDetailsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
```

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```
            .withAk(ak)
            .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
            .withCredential(auth)
            .withRegion(DwsRegion.valueOf("cn-north-4"))
            .build();
        ListSnapshotDetailsRequest request = new ListSnapshotDetailsRequest();
        try {
            ListSnapshotDetailsResponse response = client.listSnapshotDetails(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListSnapshotDetailsRequest()
        response = client.list_snapshot_details(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
```

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```
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListSnapshotDetailsRequest{}
    response, err := client.ListSnapshotDetails(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The snapshot details are queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.3.5 Deleting a Manual Snapshot

Function

This API is used to delete a manual snapshot.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v1.0/{project_id}/snapshots/{snapshot_id}
```

Table 5-207 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
snapshot_id	Yes	String	Snapshot ID

Request Parameters

None

Response Parameters

None

Example Request

```
DELETE https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/snapshots/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90
```

Example Response

```
status CODE 202
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
```

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```
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteSnapshotSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteSnapshotRequest request = new DeleteSnapshotRequest();
        try {
            DeleteSnapshotResponse response = client.deleteSnapshot(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteSnapshotRequest()
        response = client.delete_snapshot(request)
```

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```
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteSnapshotRequest{}
    response, err := client.DeleteSnapshot(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
202	The snapshot is deleted successfully.
400	Request error.
401	Authentication failed.

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Status Code	Description
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.6 Deleting a Snapshot Policy

Function

This API is used to delete a snapshot policy.

Call Method

For details, see **Calling APIs**.

URI

DELETE /v1.0/{project_id}/clusters/{cluster_id}/snapshot-policies/{id}

Table 5-208 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
id	Yes	String	Snapshot policy ID

Request Parameters

None

Response Parameters

None

Example Request

DELETE https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/snapshot-policies/4db196c8-32fc-4bf1-bf57-05980bbda9a4

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Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteSnapshotPolicySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteSnapshotPolicyRequest request = new DeleteSnapshotPolicyRequest();
        try {
            DeleteSnapshotPolicyResponse response = client.deleteSnapshotPolicy(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *
```

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```
if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteSnapshotPolicyRequest()
        response = client.delete_snapshot_policy(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteSnapshotPolicyRequest{}
    response, err := client.DeleteSnapshotPolicy(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in deleting the snapshot policy.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.7 Restoring a Cluster

Function

This API is used to restore a cluster using its snapshot.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/snapshots/{snapshot_id}/actions
```

Table 5-209 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
snapshot_id	Yes	String	ID of the snapshot to be restored

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Request Parameters

Table 5-210 Request body parameters

Parameter	Mandatory	Type	Description
restore	Yes	**Restore** object	Object to be restored

Table 5-211 Restore

Parameter	Mandatory	Type	Description
name	Yes	String	Cluster name, which must be unique. The cluster name must contain 4 to 64 characters, which must start with a letter. Only letters, digits, hyphens (-), and underscores (_) are allowed.
subnet_id	No	String	Subnet ID, which is used for configuring cluster network. The default value is the same as that of the original cluster.
security_group_id	No	String	ID of a security group, which is used for configuring cluster network. The default value is the same as that of the original cluster.
vpc_id	No	String	VPC ID, which is used for configuring cluster network. The default value is the same as that of the original cluster.
availability_zone	No	String	AZ of a cluster. The default value is the same as that of the original cluster.
port	No	Integer	Service port of a cluster. The value ranges from 8000 to 30000. The default value is **8000**. Minimum value: **8000** Maximum value: **30000**
public_ip	No	**PublicIp** object	Public IP address. If the parameter is not specified, public connection is not used by default.

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Parameter	Mandatory	Type	Description
enterprise_project_id	No	String	Enterprise project. The default enterprise project ID is **0**.

Table 5-212 PublicIp

Parameter	Mandatory	Type	Description
public_bind_type	Yes	String	Binding type of an EIP. The value can be one of the following: • **auto_assign** • **not_use** • **bind_existing**
eip_id	No	String	EIP ID

Response Parameters

Status code: 200

Table 5-213 Response body parameter

Parameter	Type	Description
cluster	**Cluster** object	Cluster object

Table 5-214 Cluster

Parameter	Type	Description
id	String	Cluster ID

Example Request

Restore the snapshot to the new cluster **dws-1**. The new cluster is in AZ **az1.dc1**, the database port is **8000**, and the subnet ID, security group ID, VPC ID, public IP address, and enterprise ID are specified:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/snapshots/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/actions

{
  "restore" : {
    "name" : "dws-1",
    "subnet_id" : "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
    "security_group_id" : "dc3ec145-9029-4b39-b5a3-ace5a01f772b",
```

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```
    "vpc_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
    "availability_zone" : "az1.dc1",
    "port" : 8000,
    "public_ip" : {
      "public_bind_type" : "auto_assign",
      "eip_id" : ""
    },
    "enterprise_project_id" : "aca4e50a-266f-4786-827c-f8d6cc3fbada"
  }
}
```

Example Response

Status code: 200

The cluster is restored successfully.

```
{
  "cluster" : {
    "id" : "7d85f602-a948-4a30-afd4-e84f47471c15"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class RestoreClusterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        RestoreClusterRequest request = new RestoreClusterRequest();
        RestoreClusterRequestBody body = new RestoreClusterRequestBody();
        PublicIp publicIpRestore = new PublicIp();
        publicIpRestore.withPublicBindType("auto_assign")
            .withEipId("");
        Restore restorebody = new Restore();
        restorebody.withName("dws-1")
```

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```
            .withSubnetId("374eca02-cfc4-4de7-8ab5-dbebf7d9a720")
            .withSecurityGroupId("dc3ec145-9029-4b39-b5a3-ace5a01f772b")
            .withVpcId("85b20d7e-9eb7-4b2a-98f3-3c8843ea3574")
            .withAvailabilityZone("az1.dc1")
            .withPort(8000)
            .withPublicIp(publicIpRestore)
            .withEnterpriseProjectId("aca4e50a-266f-4786-827c-f8d6cc3fbada");
        body.withRestore(restorebody);
        request.withBody(body);
        try {
            RestoreClusterResponse response = client.restoreCluster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = RestoreClusterRequest()
        publicIpRestore = PublicIp(
            public_bind_type="auto_assign",
            eip_id=""
        )
        restorebody = Restore(
            name="dws-1",
            subnet_id="374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
            security_group_id="dc3ec145-9029-4b39-b5a3-ace5a01f772b",
            vpc_id="85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
            availability_zone="az1.dc1",
            port=8000,
            public_ip=publicIpRestore,
            enterprise_project_id="aca4e50a-266f-4786-827c-f8d6cc3fbada"
        )
        request.body = RestoreClusterRequestBody(
            restore=restorebody
```

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```
        )
        response = client.restore_cluster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.RestoreClusterRequest{}
    eipIdPublicIp:= ""
    publicIpRestore := &model.PublicIp{
        PublicBindType: "auto_assign",
        EipId: &eipIdPublicIp,
    }
    subnetIdRestore:= "374eca02-cfc4-4de7-8ab5-dbebf7d9a720"
    securityGroupIdRestore:= "dc3ec145-9029-4b39-b5a3-ace5a01f772b"
    vpcIdRestore:= "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574"
    availabilityZoneRestore:= "az1.dc1"
    portRestore:= int32(8000)
    enterpriseProjectIdRestore:= "aca4e50a-266f-4786-827c-f8d6cc3fbada"
    restorebody := &model.Restore{
        Name: "dws-1",
        SubnetId: &subnetIdRestore,
        SecurityGroupId: &securityGroupIdRestore,
        VpcId: &vpcIdRestore,
        AvailabilityZone: &availabilityZoneRestore,
        Port: &portRestore,
        PublicIp: publicIpRestore,
        EnterpriseProjectId: &enterpriseProjectIdRestore,
    }
    request.Body = &model.RestoreClusterRequestBody{
        Restore: restorebody,
    }
    response, err := client.RestoreCluster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
```

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```
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster is restored successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.8 Checking the Name of the Table to Be Restored

Function

This API is used to check the name of the table to be restored.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1/{project_id}/snapshots/{snapshot_id}/table-restore-check
```

Table 5-215 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
snapshot_id	Yes	String	Snapshot ID

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Request Parameters

Table 5-216 Request body parameters

Parameter	Mandatory	Type	Description
case_sensitive	Yes	Boolean	Indicates whether the name is case sensitive.
database	Yes	String	Database name
restore_table_list	Yes	Array of **TableDetail** objects	Source table information
target_table_list	Yes	Array of **TableDetail** objects	Destination table information

Table 5-217 TableDetail

Parameter	Mandatory	Type	Description
schema_name	Yes	String	Schema name
table_name	Yes	String	Table name

Response Parameters

Status code: 200

Table 5-218 Response body parameters

Parameter	Type	Description
check_table_name_result	**CheckTableNameResult** object	Check results.

Table 5-219 CheckTableNameResult

Parameter	Type	Description
database	String	Database name
restore_table_list	Array of strings	Information about the source table in a restoration.

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Parameter	Type	Description
target_table_list	Array of strings	Information about the destination table in a restoration.

Example Request

```
POST https://{Endpoint}/v2/0536cdee2200d5912f7cc00b877980f1/snapshots/c719b1a7-c85c-4cb5-a721-7694908c2c11/table-restore-check

{
  "case_sensitive" : true,
  "database" : "postgres",
  "restore_table_list" : [
     {
       "schema_name" : "postgres",
       "table_name" : "public"
     }
  ],
  "target_table_list" : [
    {
       "schema_name" : "postgres",
       "table_name" : "public"
    }
  ]
}
```

Example Response

Status code: 200

Succeeded in checking the name of the table to be restored.

```
{
  "check_table_name_result" : {
    "database" : "postgres",
    "restore_table_list" : null,
    "target_table_list" : null
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class CheckTableRestoreSolution {
```

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```
    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CheckTableRestoreRequest request = new CheckTableRestoreRequest();
        CheckTableRestoreRequestBody body = new CheckTableRestoreRequestBody();
        List<TableDetail> listbodyTargetTableList = new ArrayList<>();
        listbodyTargetTableList.add(
            new TableDetail()
                .withSchemaName("postgres")
                .withTableName("public")
        );
        List<TableDetail> listbodyRestoreTableList = new ArrayList<>();
        listbodyRestoreTableList.add(
            new TableDetail()
                .withSchemaName("postgres")
                .withTableName("public")
        );
        body.withTargetTableList(listbodyTargetTableList);
        body.withRestoreTableList(listbodyRestoreTableList);
        body.withDatabase("postgres");
        body.withCaseSensitive(true);
        request.withBody(body);
        try {
            CheckTableRestoreResponse response = client.checkTableRestore(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
```

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```
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CheckTableRestoreRequest()
        listTargetTableListbody = [
            TableDetail(
                schema_name="postgres",
                table_name="public"
            )
        ]
        listRestoreTableListbody = [
            TableDetail(
                schema_name="postgres",
                table_name="public"
            )
        ]
        request.body = CheckTableRestoreRequestBody(
            target_table_list=listTargetTableListbody,
            restore_table_list=listRestoreTableListbody,
            database="postgres",
            case_sensitive=True
        )
        response = client.check_table_restore(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())
```

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```
    request := &model.CheckTableRestoreRequest{}
    var listTargetTableListbody = []model.TableDetail{
        {
            SchemaName: "postgres",
            TableName: "public",
        },
    }
    var listRestoreTableListbody = []model.TableDetail{
        {
            SchemaName: "postgres",
            TableName: "public",
        },
    }
    request.Body = &model.CheckTableRestoreRequestBody{
        TargetTableList: listTargetTableListbody,
        RestoreTableList: listRestoreTableListbody,
        Database: "postgres",
        CaseSensitive: true,
    }
    response, err := client.CheckTableRestore(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in checking the name of the table to be restored.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

5.3.9 Restoring a Table

Function

This API is used to restore a table.

Call Method

For details, see **Calling APIs**.

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URI

POST /v1/{project_id}/snapshots/{snapshot_id}/table-restore

Table 5-220 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
snapshot_id	Yes	String	Snapshot ID

Request Parameters

Table 5-221 Request body parameters

Parameter	Mandatory	Type	Description
case_sensitive	Yes	Boolean	Indicates whether the name is case sensitive.
database	Yes	String	Database name
restore_table_list	Yes	Array of **TableDetail** objects	Source table information
target_table_list	Yes	Array of **TableDetail** objects	Destination table information

Table 5-222 TableDetail

Parameter	Mandatory	Type	Description
schema_name	Yes	String	Schema name
table_name	Yes	String	Table name

Response Parameters

Status code: 200

Table 5-223 Response body parameters

Parameter	Type	Description
job_id	String	Job ID

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Example Request

```
POST https://{Endpoint}/v2/0536cdee2200d5912f7cc00b877980f1/snapshots/c719b1a7-c85c-4cb5-a721-7694908c2c11/table-restore

{
  "case_sensitive" : true,
  "database" : "postgres",
  "restore_table_list" : [ {
    "schema_name" : "postgres",
    "table_name" : "public"
  } ],
  "target_table_list" : [ {
    "schema_name" : "postgres",
    "table_name" : "public"
  } ]
}
```

Example Response

Status code: 200

The table is restored successfully.

```
{
  "job_id" : "2c9081c0894918c301894e503ef21b68"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class RestoreTableSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);
```

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```
        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        RestoreTableRequest request = new RestoreTableRequest();
        RestoreTableRequestBody body = new RestoreTableRequestBody();
        List<TableDetail> listbodyTargetTableList = new ArrayList<>();
        listbodyTargetTableList.add(
            new TableDetail()
                .withSchemaName("postgres")
                .withTableName("public")
        );
        List<TableDetail> listbodyRestoreTableList = new ArrayList<>();
        listbodyRestoreTableList.add(
            new TableDetail()
                .withSchemaName("postgres")
                .withTableName("public")
        );
        body.withTargetTableList(listbodyTargetTableList);
        body.withRestoreTableList(listbodyRestoreTableList);
        body.withDatabase("postgres");
        body.withCaseSensitive(true);
        request.withBody(body);
        try {
            RestoreTableResponse response = client.restoreTable(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = RestoreTableRequest()
        listTargetTableListbody = [
            TableDetail(
```

```
            schema_name="postgres",
            table_name="public"
        )
    ]
    listRestoreTableListbody = [
        TableDetail(
            schema_name="postgres",
            table_name="public"
        )
    ]
    request.body = RestoreTableRequestBody(
        target_table_list=listTargetTableListbody,
        restore_table_list=listRestoreTableListbody,
        database="postgres",
        case_sensitive=True
    )
    response = client.restore_table(request)
    print(response)
except exceptions.ClientRequestException as e:
    print(e.status_code)
    print(e.request_id)
    print(e.error_code)
    print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.RestoreTableRequest{}
    var listTargetTableListbody = []model.TableDetail{
        {
            SchemaName: "postgres",
            TableName: "public",
        },
    }
    var listRestoreTableListbody = []model.TableDetail{
        {
            SchemaName: "postgres",
            TableName: "public",
        },
    }
```

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```
    request.Body = &model.RestoreTableRequestBody{
        TargetTableList: listTargetTableListbody,
        RestoreTableList: listRestoreTableListbody,
        Database: "postgres",
        CaseSensitive: true,
    }
    response, err := client.RestoreTable(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The table is restored successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	The service was unavailable.

5.3.10 Obtaining Available Regions of a Cross-Region Snapshot

Function

This API is used to obtain the available regions of a cross-region snapshot.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1/{project_id}/snapshots/cross-regions
```

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Table 5-224 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-225 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Pagination offset. The default value is **0**.
limit	No	Integer	Page size. The default value is **10**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-226 Response body parameters

Parameter	Type	Description
regions	Array of **SnapshotRegion** objects	Region list
count	Integer	Total number

Table 5-227 SnapshotRegion

Parameter	Type	Description
region_id	String	Region ID.

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/snapshots/cross-regions
```

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Example Response

Status code: 200

The available regions of the cross-region snapshot are obtained successfully.

```
{
  "regions" : [ {
    "region_id" : "cn-north-7"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSnapshotCrossRegionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListSnapshotCrossRegionRequest request = new ListSnapshotCrossRegionRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListSnapshotCrossRegionResponse response = client.listSnapshotCrossRegion(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
```

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```
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListSnapshotCrossRegionRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_snapshot_cross_region(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
```

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```
        WithCredential(auth).
        Build())

    request := &model.ListSnapshotCrossRegionRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListSnapshotCrossRegion(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The available regions of the cross-region snapshot are obtained successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	The service was unavailable.

5.3.11 Configuring Cross-Region Backup

Function

This API is used to configure cross-region backup.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1/{project_id}/snapshots/cross-region-policies
```

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Table 5-228 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-229 Request body parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
destination_project_id	Yes	String	Destination project ID
destination_region	Yes	String	Destination region
status	Yes	Boolean	Status
back_keep_day	Yes	Integer	Retention days

Response Parameters

None

Example Request

```
POST https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/snapshots/cross-region-policies

{
  "cluster_id" : "4aed8622-e99c-4b60-bd35-1ccde7c26ad0",
  "destination_project_id" : "xxx",
  "destination_region" : "xxx",
  "status" : true,
  "back_keep_day" : 3
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteSnapshotCrossRegionPolicySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteSnapshotCrossRegionPolicyRequest request = new DeleteSnapshotCrossRegionPolicyRequest();
        request.withClusterId("<cluster_id>");
        try {
            DeleteSnapshotCrossRegionPolicyResponse response = client.deleteSnapshotCrossRegionPolicy(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
```

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```
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteSnapshotCrossRegionPolicyRequest()
        request.cluster_id = "<cluster_id>"
        response = client.delete_snapshot_cross_region_policy(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteSnapshotCrossRegionPolicyRequest{}
    request.ClusterId = "<cluster_id>"
    response, err := client.DeleteSnapshotCrossRegionPolicy(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Cross-region backup is configured successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	The service was unavailable.

5.3.12 Querying All Cross-Region Snapshot Configurations

Function

This API is used to query all cross-region snapshot configurations.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/snapshots/cross-region-policies

Table 5-230 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-231 Query parameters

Parameter	Mandatory	Type	Description
cluster_id	No	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
offset	No	Integer	Pagination offset.
limit	No	Integer	Number of records displayed on each page.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-232 Response body parameters

Parameter	Type	Description
cross_region_configs	Array of **CrossRegionSnapshotConfig** objects	Cross-region configuration information.
count	Integer	Total number

Table 5-233 CrossRegionSnapshotConfig

Parameter	Type	Description
cluster_id	String	Cluster ID
cluster_name	String	Cluster name
source_region	String	Source region
source_project_id	String	Source project ID
destination_region	String	Destination region
destination_project_id	String	Destination project ID
status	Boolean	**Status**: • **true**: Enable • **false**: Disable
back_keep_day	Integer	Backup data storage period
total_size	Long	Total size

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/snapshots/cross-region-policies
```

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Example Response

Status code: 200

The configurations of all cross-region snapshot are queried successfully.

```
{
  "cross_region_configs" : [ {
    "cluster_id" : "4aed8622-e99c-4b60-bd35-1ccde7c26ad0",
    "cluster_name" : "dwstest-821-100",
    "source_region" : null,
    "source_project_id" : null,
    "destination_region" : null,
    "destination_project_id" : null,
    "status" : null,
    "back_keep_day" : 3,
    "total_size" : null
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSnapshotCrossRegionPolicySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListSnapshotCrossRegionPolicyRequest request = new ListSnapshotCrossRegionPolicyRequest();
        request.withClusterId("<cluster_id>");
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListSnapshotCrossRegionPolicyResponse response = client.listSnapshotCrossRegionPolicy(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
```

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```
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListSnapshotCrossRegionPolicyRequest()
        request.cluster_id = "<cluster_id>"
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_snapshot_cross_region_policy(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
```

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```
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListSnapshotCrossRegionPolicyRequest{}
    clusterIdRequest:= "<cluster_id>"
    request.ClusterId = &clusterIdRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListSnapshotCrossRegionPolicy(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The configurations of all cross-region snapshot are queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	The service was unavailable.

5.3.13 Deleting Cross-Region Backup Configurations

Function

This API is used to delete cross-region backup configurations.

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Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v1/{project_id}/snapshots/cross-region-policies
```

Table 5-234 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-235 Query parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

None

Example Request

```
DELETE https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/snapshots/cross-region-policies?
cluster=4aed8622-e99c-4b60-bd35-1ccde7c26ad0
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
```

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```
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteSnapshotCrossRegionPolicySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteSnapshotCrossRegionPolicyRequest request = new DeleteSnapshotCrossRegionPolicyRequest();
        request.withClusterId("<cluster_id>");
        try {
            DeleteSnapshotCrossRegionPolicyResponse response = client.deleteSnapshotCrossRegionPolicy(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()
```

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```
    try:
        request = DeleteSnapshotCrossRegionPolicyRequest()
        request.cluster_id = "<cluster_id>"
        response = client.delete_snapshot_cross_region_policy(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteSnapshotCrossRegionPolicyRequest{}
    request.ClusterId = "<cluster_id>"
    response, err := client.DeleteSnapshotCrossRegionPolicy(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Cross-region backup configuration deleted successfully.

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Status Code	Description
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	The service was unavailable.

5.3.14 Copying a Snapshot

Function

This API is used to copy an automated snapshot.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/snapshots/{snapshot_id}/linked-copy

Table 5-236 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
snapshot_id	Yes	String	Snapshot ID

Request Parameters

Table 5-237 Request body parameters

Parameter	Mandatory	Type	Description
backup_name	Yes	String	Snapshot name, which must be unique and start with a letter. It consists of 4 to 64 characters. The value is case-insensitive and can contain letters, digits, hyphens (-), and underscores (_) only.

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Parameter	Mandatory	Type	Description
description	No	String	Snapshot description. If no value is specified, the description is empty. Enter a maximum of 256 characters. The following special characters are not allowed: !<>'=&"

Response Parameters

Table 5-238 Parameters in the response body

Parameter	Type	Description
snapshot_id	String	ID of the snapshot to be copied.

Example Request

Replicate an automated snapshot named **test1**:

```
POST https://{Endpoint} /v1.0/89cd04f168b84af6be287f71730fdb4b/snapshots/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/linked-copy
{
  "backup_name": "test1",
  "description": ""
}
```

Example Response

Status code: 200

```
{
    "snapshot_id":"52adf601-67f7-4639-bf71-061a61482869"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class CopySnapshotSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CopySnapshotRequest request = new CopySnapshotRequest();
        LinkCopyReq body = new LinkCopyReq();
        body.withDescription("");
        body.withBackupName("test1");
        request.withBody(body);
        try {
            CopySnapshotResponse response = client.copySnapshot(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CopySnapshotRequest()
        request.body = LinkCopyReq(
```

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```
            description="",
            backup_name="test1"
        )
        response = client.copy_snapshot(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CopySnapshotRequest{}
    descriptionLinkCopyReq:= ""
    request.Body = &model.LinkCopyReq{
        Description: &descriptionLinkCopyReq,
        BackupName: "test1",
    }
    response, err := client.CopySnapshot(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The snapshot is copied successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.15 Querying the Cluster Snapshot List

Function

This API is used to query the cluster snapshot list.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/clusters/{cluster_id}/snapshots

Table 5-239 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-240 Query parameters

Parameter	Mandatory	Type	Description
sort_key	No	String	Collation columns. Each collation column must correspond to a collation rule. Optional columns: **name**, **clusterName**, and **startTime**
sort_dir	No	String	Collation rule • ASC • DESC
offset	No	Integer	Offset, which indicates the sequence number of the record from which the query starts.
limit	No	Integer	Number of records to be queried

Request Parameters

None

Response Parameters

Status code: 200

Table 5-241 Response body parameters

Parameter	Type	Description
snapshots	Array of **Snapshots** objects	List of snapshot objects
count	Integer	Total number of snapshot objects
project_id	String	Project ID
cluster_id	String	Cluster ID

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Table 5-242 Snapshots

Parameter	Type	Description
id	String	Snapshot ID
name	String	Snapshot name
description	String	Snapshot description
started	String	Time when a snapshot starts to be created. Format: ISO8601: YYYY-MM-DDThh:mm:ssZ
updated	String	Time when the snapshot record is updated. The format is ISO8601: YYYY-MM-DDThh:mm:ssZ.
size	Double	Snapshot size, in GB
status	String	Snapshot status: • **CREATING** • **AVAILABLE** • **UNAVAILABLE** • **RESTORING**
type	String	Snapshot type Where, • **MANUAL** indicates a manual snapshot. • **AUTO** indicates an automatic snapshot.
cluster_id	String	ID of the cluster for which the snapshot is created.
cluster_name	String	Name of the cluster for which the snapshot is created
backup_key	String	Key generated during backup
prior_backup_key	String	Backup key of the previous snapshot used by the incremental backup The value **FULL** indicates a full snapshot.
base_backup_key	String	Backup key of a full snapshot
backup_device	String	Backup media
total_backup_size	Long	Accumulated size of a snapshot, from the full backup to the incremental backup. Unit: KB
base_backup_name	String	Name of a full snapshot
support_inplace_restore	Boolean	Whether data can be restored to the original cluster

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Parameter	Type	Description
fine_grained_backup	Boolean	Whether the backup is a fine-grained backup
fine_grained_backup_detail	FineGrainedSnapshotDetail object	Fine-grained backup information
guest_agent_version	String	GuestAgent version
cluster_status	String	Cluster status • **AVAILABLE** • **UNAVAILABLE** • **FROZEN**
bak_expected_start_time	String	Estimated snapshot start time
bak_keep_day	Integer	Backup retention days
bak_period	String	Cluster policy
db_user	String	Backup user
datastore	DataStore object	Database version
progress	String	Backup progress
backup_level	String	Backup level • cluster • schema

Table 5-243 FineGrainedSnapshotDetail

Parameter	Type	Description
database	String	Database backup
schema_list	Array of String	Backup schema set
table_list	Array of String	Backup table set

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Table 5-244 DataStore

Parameter	Type	Description
type	String	Database type
version	String	Database version

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/snapshots?sort_key=name&sort_dir=desc&offset=10&limit=5
```

Example Response

Status code: 200

The snapshot list is queried successfully.

```
{
   "snapshots": [
      {
         "datastore": {
            "type": "dws",
            "version": "8.1.3.200"
         },
         "description": "",
         "id": "02413539-6556-434c-a795-a44e9db7262d",
         "cluster_id": "1446b166-b73f-4096-b9bd-9a30afe3071f",
         "cluster_name": "ysj-1101-0917",
         "name": "kz-001",
         "size": 206400,
         "status": "COMPLETED",
         "updated": "2022-11-01T02:15:26",
         "type":"AUTO",
         "backup_key": "20221101_021217",
         "prior_backup_key": "FULL",
         "base_backup_key": "20221101_021217",
         "backup_device": "OBS",
         "total_backup_size": 206400,
         "base_backup_name": "kz-001",
         "support_inplace_restore": true,
         "fine_grained_backup": false,
         "fine_grained_backup_detail": {},
         "guest_agent_version": "8.2.0.1",
         "cluster_status": "AVAILABLE",
         "bak_expected_start_time": "1667295060000",
         "bak_keep_day": 3,
         "bak_period": "0 31 1/8 ? * 2,3,4,5,6,7",
         "db_user": "dbadmin"
      }
   ],
   "project_id": "4cf650fd46704908aa071b4df2453e1e",
   "cluster_id": "1446b166-b73f-4096-b9bd-9a30afe3071f",
   "count": 1
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterSnapshotsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterSnapshotsRequest request = new ListClusterSnapshotsRequest();
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        request.withSortKey("<sort_key>");
        request.withSortDir("<sort_dir>");
        try {
            ListClusterSnapshotsResponse response = client.listClusterSnapshots(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this
```

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```
example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterSnapshotsRequest()
        request.limit = <limit>
        request.offset = <offset>
        request.sort_key = "<sort_key>"
        request.sort_dir = "<sort_dir>"
        response = client.list_cluster_snapshots(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterSnapshotsRequest{}
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    sortKeyRequest:= "<sort_key>"
    request.SortKey = &sortKeyRequest
    sortDirRequest:= "<sort_dir>"
    request.SortDir = &sortDirRequest
    response, err := client.ListClusterSnapshots(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
```

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```
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The snapshot list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.3.16 Adding a Snapshot Policy

Function

This API is used to add a snapshot policy.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v2/{project_id}/clusters/{cluster_id}/snapshot-policies
```

Table 5-245 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-246 Request body parameters

Parameter	Mandatory	Type	Description
keep_day	No	Integer	Retention days
backup_strategies	No	**BackupStrategyDetail** object	Policy name. This parameter is mandatory when you add a policy.
device_name	No	String	Backup device
server_port	No	String	Port
backup_param	No	String	Backup parameters
server_ips	No	Array of strings	IP address of the backup media

Table 5-247 BackupStrategyDetail

Parameter	Mandatory	Type	Description
policy_id	No	String	Policy ID
policy_name	No	String	Policy name. This parameter is mandatory when you add a backup policy. • The policy name must be unique, consist of 4 to 92 characters, and start with a letter. It is case-insensitive and can contain only letters, digits, hyphens (-), and underscores (_).
backup_strategy	No	String	Execution policy. This parameter is mandatory when you add a backup policy.
backup_type	No	String	Backup type. This parameter is mandatory when you add a backup policy. • **increment** • **full**

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Parameter	Mandatory	Type	Description
backup_level	No	String	Backup level. This parameter is mandatory when you add a backup policy. • cluster
next_fire_time	No	String	Next triggering time
update_time	No	String	Update time.

Response Parameters

None

Example Request

add a cluster-level full snapshot policy named **test** and set the snapshot policy to be triggered at 03:00 every Monday to Sunday:

```
PUT https://{Endpoint} /v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/snapshot-policies
{
  "backup_strategies": [
    {
      "policy_name": "test",
      "backup_level": "cluster",
      "backup_type": "full",
      "backup_strategy": "0 0 3 ? * 1,2,3,4,5,6,7"
    }
  ]
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateSnapshotPolicySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
```

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```
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CreateSnapshotPolicyRequest request = new CreateSnapshotPolicyRequest();
        BackupPolicy body = new BackupPolicy();
        request.withBody(body);
        try {
            CreateSnapshotPolicyResponse response = client.createSnapshotPolicy(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CreateSnapshotPolicyRequest()
        request.body = BackupPolicy(
        )
        response = client.create_snapshot_policy(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
```

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```
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CreateSnapshotPolicyRequest{}
    request.Body = &model.BackupPolicy{
    }
    response, err := client.CreateSnapshotPolicy(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The snapshot policy is added successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.

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Status Code	Description
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.4 Event Management

5.4.1 Querying the Event List

Function

This API is used to query events.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/events

Table 5-248 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-249 Query parameters

Parameter	Mandatory	Type	Description
offset	No	String	Current page. The default value is **1**, and the maximum value is **10000**.
limit	No	String	Number of displayed records. A maximum of 1000 pieces are supported.

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-250 Response body parameters

Parameter	Type	Description
events	Array of **EventResponse** objects	Event object list
count	Integer	Total events

Table 5-251 EventResponse

Parameter	Type	Description
category	String	Event type
description	String	Event description
event_id	String	Event ID
name	String	Event definition name
display_name	String	Event display name
name_space	String	Service
severity	String	Event severity
source_type	String	Event source type
occur_time	Long	Time
project_id	String	Project ID
source_id	String	Event source ID
source_name	String	Event source name
status	Integer	Status
subject	String	Event subject
context	String	Event information

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/events
```

Example Response

The event list is queried successfully.

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```
{
  "events" : [ {
    "category" : "management",
"description": " Cluster %s deleted successfully."
    "name" : "deleteClusterSuccess",
    "severity" : "normal",
    "status" : 2,
"subject": "DWS event notification",
"context": "Cluster test-ty-820-1006 deleted successfully."
    "event_id" : "f63ccf96-e3e0-474a-835a-fd1a779f68bd",
"display_name": "Cluster deleted successfully."
    "name_space" : "dws",
    "source_type" : "cluster",
    "occur_time" : 1664331248330,
    "project_id" : "4cf650fd46704908aa071b4df2453e1e",
    "source_id" : "9defa0ce-b11c-47b2-abbc-5cad09ced772",
    "source_name" : "test-ty-820-1006"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListEventsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListEventsRequest request = new ListEventsRequest();
        try {
            ListEventsResponse response = client.listEvents(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
```

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```
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListEventsRequest()
        response = client.list_events(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListEventsRequest{}
    response, err := client.ListEvents(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The event list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.4.2 Querying Event Configurations

Function

This API is used to query event configurations.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/event-specs
```

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Table 5-252 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-253 Query parameters

Parameter	Mandatory	Type	Description
spec_name	No	String	Event configuration name.
category	No	String	Event type
severity	No	String	Event severity
source_type	No	String	Event source type
tag	No	String	Tag
offset	No	String	Current page. The default value is **1**, and the maximum value is **10000**.
limit	No	String	Number of displayed records. A maximum of 1000 pieces are supported.

Request Parameters

None

Response Parameters

Table 5-254 Parameters in the response body

Parameter	Type	Description
count	Integer	Total number of event configurations.
event_specs	Array of **EventSpecResponse** objects	Event configuration list

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Table 5-255 EventSpecResponse

Parameter	Type	Description
id	String	Event configuration ID
name	String	Event configuration definition name
display_name	String	Event configuration display name
description	String	Event configuration description
subject	String	Event
category	String	Event type
severity	String	Event severity
source_type	String	Event source type
name_space	String	Service

Example Request

```
https://{Endpoint}/v2/{project_id}/event-specs
```

Example Response

Status code: 200

The cluster query event is configured successfully.

```
{
  "event_specs" : [ {
    "id" : "fa6e1502-9d08-48c7-900c-26d3b5bd6078",
    "name" : "configureMRSExtDataSourcesSuccess",
"description": "Succeeded in configuring the MRS data source for the cluster %s."
"subject": "DWS event notification"
    "category" : "management",
    "severity" : "normal",
"display_name": "MRS data source configured successfully."
    "source_type" : "cluster",
    "name_space" : "dws"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
```

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```
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListEventSpecsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListEventSpecsRequest request = new ListEventSpecsRequest();
        request.withSpecName("<spec_name>");
        request.withCategory("<category>");
        request.withSeverity("<severity>");
        request.withSourceType("<source_type>");
        request.withTag("<tag>");
        try {
            ListEventSpecsResponse response = client.listEventSpecs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
```

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```
        .build()

    try:
        request = ListEventSpecsRequest()
        request.spec_name = "<spec_name>"
        request.category = "<category>"
        request.severity = "<severity>"
        request.source_type = "<source_type>"
        request.tag = "<tag>"
        response = client.list_event_specs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListEventSpecsRequest{}
    specNameRequest:= "<spec_name>"
    request.SpecName = &specNameRequest
    categoryRequest:= "<category>"
    request.Category = &categoryRequest
    severityRequest:= "<severity>"
    request.Severity = &severityRequest
    sourceTypeRequest:= "<source_type>"
    request.SourceType = &sourceTypeRequest
    tagRequest:= "<tag>"
    request.Tag = &tagRequest
    response, err := client.ListEventSpecs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The event configuration list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.4.3 Querying Subscribed Events

Function

This API is used to query subscribed events.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/event-subs
```

Table 5-256 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Table 5-257 Query parameters

Parameter	Mandatory	Type	Description
offset	No	String	Current page. The default value is **1**, and the maximum value is **10000**.
limit	No	String	Number of displayed records. A maximum of 1000 pieces are supported.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-258 Response body parameters

Parameter	Type	Description
count	Integer	Total number of event subscriptions.
event_subscriptions	Array of **EventSubscriptionResponse** objects	Event subscription list

Table 5-259 EventSubscriptionResponse

Parameter	Type	Description
id	String	Subscription ID
name	String	Subscription name
source_type	String	Event source type
source_id	String	Event source ID
category	String	Event type
severity	String	Event severity
tag	String	Tag
enable	Integer	Whether to enable subscription • **1**: enable • **0**: disable

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Parameter	Type	Description
project_id	String	Project ID
name_space	String	Service
notification_target	String	Address for the message notification topic
notification_target_name	String	Message notification topic name
notification_target_type	String	Message notification type
language	String	Language
time_zone	String	Time zone

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/event-subs
```

Example Response

Status code: 200

The cluster query event is configured successfully.

```
{
  "event_subscriptions" : [ {
    "id" : "4d62f33b-b9ee-41d3-b1bc-67e54b2239f9",
    "name" : "00",
    "category" : "",
    "severity" : "",
    "tag" : "",
    "enable" : 1,
    "language" : "zh-cn",
    "source_type" : "",
    "source_id" : "",
    "project_id" : "4cf650fd46704908aa071b4df2453e1e",
    "name_space" : "DWS",
    "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:CGS",
    "notification_target_name" : "CGS",
    "notification_target_type" : "SMN",
    "time_zone" : "GMT+08:00"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
```

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```
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListEventSubsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListEventSubsRequest request = new ListEventSubsRequest();
        try {
            ListEventSubsResponse response = client.listEventSubs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()
```

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```
    try:
        request = ListEventSubsRequest()
        response = client.list_event_subs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListEventSubsRequest{}
    response, err := client.ListEventSubs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The event subscription list is queried successfully.
400	Request error.

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Status Code	Description
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.4.4 Creating an Event Subscription

Function

This API is used to add a subscribed event.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/event-subs

Table 5-260 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-261 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Event subscription name
source_type	No	String	The following event source types are supported: • cluster • backup • disaster-recovery

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Parameter	Mandatory	Type	Description
source_id	No	String	Event source ID
category	No	String	The following event types are supported: • management • monitor • security • system alarm Enumerated value: Use commas (,) to separate multiple enumerated values.
severity	No	String	The event severity can be **normal** or **warning**.
tag	No	String	Tag
enable	No	Integer	Whether to enable subscription • **1**: enable • **0**: disable
notification_target	Yes	String	Message notification address
notification_target_name	Yes	String	Message notification topic name
notification_target_type	Yes	String	The message notification type can only be SMN.
time_zone	No	String	Time zone

Response Parameters

Status code: 200

Table 5-262 Response body parameters

Parameter	Type	Description
id	String	Subscription ID
name	String	Subscription name
source_type	String	Event source type
source_id	String	Event source ID
category	String	Event type

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Parameter	Type	Description
severity	String	Event severity
tag	String	Tag
enable	Integer	Whether to enable subscription • **1**: enable • **0**: disable
project_id	String	Project ID
name_space	String	Service
notification_target	String	Address for the message notification topic
notification_target_name	String	Message notification topic
notification_target_type	String	Message notification type
language	String	Language
time_zone	String	Time zone

Example Request

To enable the "normal" and "warning" event subscription named **zrf-test-66** and select the message topic **dws-test-nodelete** whose address is **urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete**:

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/event-subs

{
  "severity" : "normal,warning",
  "source_id" : "",
  "source_type" : "",
  "tag" : "",
  "category" : "",
  "enable" : 1,
  "name" : "zrf-test-66",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

Example Response

Status code: 200

```
{
  "id" : "41eb162b-cd3b-4c66-88d0-0c2c17fdfc2b",
  "name" : "zrf-test-66",
  "category" : "",
  "severity" : "normal,warning",
  "tag" : "",
```

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```
  "enable" : 1,
  "language" : "zh-cn",
  "source_type" : "",
  "source_id" : "",
  "project_id" : "4cf650fd46704908aa071b4df2453e1e",
  "name_space" : "DWS",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateEventSubSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CreateEventSubRequest request = new CreateEventSubRequest();
        EventSubRequest body = new EventSubRequest();
        body.withTimeZone("GMT+08:00");
        body.withNotificationTargetType("SMN");
        body.withNotificationTargetName("dws-test-nodelete");
        body.withNotificationTarget("urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete");
        body.withEnable(1);
        body.withTag("");
        body.withSeverity("normal,warning");
        body.withCategory("");
        body.withSourceId("");
        body.withSourceType("");
        body.withName("zrf-test-66");
        request.withBody(body);
        try {
            CreateEventSubResponse response = client.createEventSub(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
```

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```
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CreateEventSubRequest()
        request.body = EventSubRequest(
            time_zone="GMT+08:00",
            notification_target_type="SMN",
            notification_target_name="dws-test-nodelete",
            notification_target="urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
            enable=1,
            tag="",
            severity="normal,warning",
            category="",
            source_id="",
            source_type="",
            name="zrf-test-66"
        )
        response = client.create_event_sub(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
```

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```
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CreateEventSubRequest{}
    timeZoneEventSubRequest:= "GMT+08:00"
    enableEventSubRequest:= int32(1)
    tagEventSubRequest:= ""
    severityEventSubRequest:= "normal,warning"
    categoryEventSubRequest:= ""
    sourceIdEventSubRequest:= ""
    sourceTypeEventSubRequest:= ""
    request.Body = &model.EventSubRequest{
        TimeZone: &timeZoneEventSubRequest,
        NotificationTargetType: "SMN",
        NotificationTargetName: "dws-test-nodelete",
        NotificationTarget: "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
        Enable: &enableEventSubRequest,
        Tag: &tagEventSubRequest,
        Severity: &severityEventSubRequest,
        Category: &categoryEventSubRequest,
        SourceId: &sourceIdEventSubRequest,
        SourceType: &sourceTypeEventSubRequest,
        Name: "zrf-test-66",
    }
    response, err := client.CreateEventSub(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The event subscription is created successfully.

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Status Code	Description
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.4.5 Updating a Subscribed Event

Function

This API is used to update a subscribed event.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v2/{project_id}/event-subs/{event_sub_id}
```

Table 5-263 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
event_sub_id	Yes	String	Event subscription ID

Request Parameters

Table 5-264 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Event subscription name

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Parameter	Mandatory	Type	Description
source_type	No	String	The following event source types are supported: • cluster • backup • disaster-recovery
source_id	No	String	Event source ID
category	No	String	The following event types are supported: • management • monitor • security • system alarm Enumerated value: Use commas (,) to separate multiple enumerated values.
severity	No	String	The event severity can be **normal** or **warning**.
tag	No	String	Tag
enable	No	Integer	Whether to enable subscription • **1**: enable • **0**: disable
notification_target	Yes	String	Message notification address
notification_target_name	Yes	String	Message notification topic
notification_target_type	Yes	String	The message notification type can only be SMN.

Response Parameters

Status code: 200

Table 5-265 Response body parameters

Parameter	Type	Description
id	String	Subscription ID
name	String	Subscription name

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Parameter	Type	Description
source_type	String	Event source type
source_id	String	Event source ID
category	String	Event type
severity	String	Event severity
tag	String	Tag
enable	Integer	Whether to enable subscription • **1**: enable • **0**: disable
project_id	String	Project ID
name_space	String	Service
notification_target	String	Address for the message notification topic
notification_target_name	String	Message notification topic
notification_target_type	String	Message notification type
language	String	Language
time_zone	String	Time zone

Example Request

Update the **zrf-test-66** event subscription. Change the event type to **normal** and **warning**, and change the address of the SMN message topic **dws-test-nodelete** to **urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete**:

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/event-subs/41eb162b-cd3b-4c66-88d0-0c2c17fdfc2b

{
  "severity" : "normal,warning",
  "source_id" : "",
  "source_type" : "",
  "tag" : "",
  "category" : "",
  "enable" : 1,
  "name" : "zrf-test-66",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN"
}
```

Example Response

Status code: 200

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```
{
  "id" : "41eb162b-cd3b-4c66-88d0-0c2c17fdfc2b",
  "name" : "zrf-test-66",
  "category" : "",
  "severity" : "normal,warning",
  "tag" : "",
  "enable" : 1,
  "language" : "zh-cn",
  "source_type" : "",
  "source_id" : "",
  "project_id" : "4cf650fd46704908aa071b4df2453e1e",
  "name_space" : "DWS",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateEventSubSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        UpdateEventSubRequest request = new UpdateEventSubRequest();
        EventSubUpdateRequest body = new EventSubUpdateRequest();
        body.withNotificationTargetType("SMN");
        body.withNotificationTargetName("dws-test-nodelete");
        body.withNotificationTarget("urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete");
        body.withEnable(1);
        body.withTag("");
        body.withSeverity("normal,warning");
        body.withCategory("");
        body.withSourceId("");
        body.withSourceType("");
        body.withName("zrf-test-66");
```

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```
        request.withBody(body);
        try {
            UpdateEventSubResponse response = client.updateEventSub(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = UpdateEventSubRequest()
        request.body = EventSubUpdateRequest(
            notification_target_type="SMN",
            notification_target_name="dws-test-nodelete",
            notification_target="urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
            enable=1,
            tag="",
            severity="normal,warning",
            category="",
            source_id="",
            source_type="",
            name="zrf-test-66"
        )
        response = client.update_event_sub(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main
```

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```
import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.UpdateEventSubRequest{}
    enableEventSubUpdateRequest:= int32(1)
    tagEventSubUpdateRequest:= ""
    severityEventSubUpdateRequest:= "normal,warning"
    categoryEventSubUpdateRequest:= ""
    sourceIdEventSubUpdateRequest:= ""
    sourceTypeEventSubUpdateRequest:= ""
    request.Body = &model.EventSubUpdateRequest{
        NotificationTargetType: "SMN",
        NotificationTargetName: "dws-test-nodelete",
        NotificationTarget: "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
        Enable: &enableEventSubUpdateRequest,
        Tag: &tagEventSubUpdateRequest,
        Severity: &severityEventSubUpdateRequest,
        Category: &categoryEventSubUpdateRequest,
        SourceId: &sourceIdEventSubUpdateRequest,
        SourceType: &sourceTypeEventSubUpdateRequest,
        Name: "zrf-test-66",
    }
    response, err := client.UpdateEventSub(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Event subscription updated successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
501	The service was unavailable.

5.4.6 Deleting a Subscribed Event

Function

This API is used to delete a subscribed event.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/event-subs/{event_sub_id}
```

Table 5-266 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
event_sub_id	Yes	String	Event subscription ID

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-267 Response body parameter

Parameter	Type	Description
id	String	Subscription ID
name	String	Subscription name
source_type	String	Event source type
source_id	String	Event source ID
category	String	Event type
severity	String	Event severity
tag	String	Tag
enable	Integer	Whether to enable subscription • **1**: enable • **0**: disable
project_id	String	Project ID
name_space	String	Service
notification_target	String	Address for the message notification topic
notification_target_name	String	Message notification topic
notification_target_type	String	Message notification type
language	String	Language
time_zone	String	Time zone

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/event-subs/41eb162b-cd3b-4c66-88d0-0c2c17fdfc2b
```

Example Response

Status code: 200

```
{
  "id" : "41eb162b-cd3b-4c66-88d0-0c2c17fdfc2b",
  "name" : "zrf-test-66",
  "category" : "",
  "severity" : "normal,warning",
  "tag" : "",
  "enable" : 1,
  "language" : "zh-cn",
  "source_type" : "",
  "source_id" : "",
  "project_id" : "4cf650fd46704908aa071b4df2453e1e",
  "name_space" : "DWS",
```

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```
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteEventSubSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteEventSubRequest request = new DeleteEventSubRequest();
        try {
            DeleteEventSubResponse response = client.deleteEventSub(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
```

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```
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteEventSubRequest()
        response = client.delete_event_sub(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteEventSubRequest{}
    response, err := client.DeleteEventSub(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The event subscription is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.5 Data Source

5.5.1 Querying a Data Source

Function

This API is used to query a data source.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/clusters/{cluster_id}/ext-data-sources

Table 5-268 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-269 Response body parameters

Parameter	Type	Description
data_sources	Array of **ExtDataSource** objects	Data source list
project_id	String	Project ID
cluster_id	String	Cluster ID
type	String	Data source type, which can be: • OBS as the data source • MRS Data Source
count	Integer	Total number

Table 5-270 ExtDataSource

Parameter	Type	Description
id	String	Data source configuration ID
name	String	Data source name.
type	String	Data source type
connect_info	String	Connected database
user_name	String	MRS username or OBS agency name
version	String	Data source version
configure_status	String	Configuration status
status	String	Running status
data_source_id	String	Data source ID
created	String	Data source creation time
updated	String	Data source update time

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Parameter	Type	Description
data_source_updated	String	Data source update time
extend_properties	Map<String,String>	Extended information
description	String	Description
fail_reason	String	Cause of failure

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/ext-data-sources?type=OBS
```

Example Response

```
{
   "data_sources": [
      {
         "id": "8010dbc0-c1d2-48d6-87eb-3229f9195fed",
         "name": "tes54",
         "type": "OBS",
         "connect_info": "gaussdb",
         "user_name": "DWSAccessOBS",
         "configure_status": "300",
         "created": "2022-10-30T07:38:33",
         "extend_properties": {
         },
         "description": "xxx",
         "fail_reason": ""
      }
   ],
   "project_id": "0536cdee2200d5912f7cc00b877980f1",
   "cluster_id": "a07cb2f7-b17e-4d95-923b-a33d0c884d37",
   "type": "OBS",
   "count": 5
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListDataSourceSolution {

    public static void main(String[] args) {
```

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```
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListDataSourceRequest request = new ListDataSourceRequest();
        try {
            ListDataSourceResponse response = client.listDataSource(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListDataSourceRequest()
        response = client.list_data_source(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListDataSourceRequest{}
    response, err := client.ListDataSource(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The data source is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.5.2 Creating a Data Source

Function

This API is used to create a data source.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/ext-data-sources

Table 5-271 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-272 Request body parameters

Parameter	Mandatory	Type	Description
data_source_id	No	String	Data source ID This parameter is mandatory when the data source is MRS.
type	Yes	String	Data source type. The options are as follows: • OBS • MRS
data_source_name	Yes	String	Data source name. The value can contain 1 to 64 characters, including uppercase letters, lowercase letters, numbers, and underscores (_).

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Parameter	Mandatory	Type	Description
user_name	Yes	String	Username The value can contain 2 to 20 characters, including uppercase letters, lowercase letters, numbers, and underscores (_). If the data source is OBS, set this parameter to the OBS agency name.
user_pwd	No	String	Password This parameter is mandatory when the data source is MRS.
description	No	String	Description. A maximum of 256 characters, excluding <>'=&
reboot	No	Boolean	Whether to restart
connect_info	No	String	Connected database This parameter is mandatory when the data source is OBS.

Response Parameters

Table 5-273 Parameters in the response body

Parameter	Type	Description
id	String	Data source configuration ID
job_id	String	ID of the task for creating a data source.

Example Request

Create an OBS data source named **test154** and set the username to **DWSAccessOBS**, and connect it to GaussDB:

```
POST https://{Endpoint} /v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/ext-data-sources
{
  "type": "OBS",
  "data_source_name": "test154",
  "user_name": "DWSAccessOBS",
  "connect_info": "gaussdb",
  "description": "xxx"
}
```

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Example Response

Status code: 200

```
{
  "id" : "d303f19c-fbd1-4716-ae04-07d1ff358f22",
  "job_id" : "2c9081c88418ed420184197c8bc80001"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateDataSourceSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CreateDataSourceRequest request = new CreateDataSourceRequest();
        ExtDataSourceReq body = new ExtDataSourceReq();
        body.withConnectInfo("gaussdb");
        body.withDescription("xxx");
        body.withUserName("DWSAccessOBS");
        body.withDataSourceName("test154");
        body.withType("OBS");
        request.withBody(body);
        try {
            CreateDataSourceResponse response = client.createDataSource(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
```

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```
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CreateDataSourceRequest()
        request.body = ExtDataSourceReq(
            connect_info="gaussdb",
            description="xxx",
            user_name="DWSAccessOBS",
            data_source_name="test154",
            type="OBS"
        )
        response = client.create_data_source(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
```

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```
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CreateDataSourceRequest{}
    connectInfoExtDataSourceReq:= "gaussdb"
    descriptionExtDataSourceReq:= "xxx"
    request.Body = &model.ExtDataSourceReq{
        ConnectInfo: &connectInfoExtDataSourceReq,
        Description: &descriptionExtDataSourceReq,
        UserName: "DWSAccessOBS",
        DataSourceName: "test154",
        Type: "OBS",
    }
    response, err := client.CreateDataSource(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The data source is successfully created.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.5.3 Updating a Data Source

Function

This API is used to update a data source.

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Call Method

For details, see **Calling APIs**.

URI

PUT /v1.0/{project_id}/clusters/{cluster_id}/ext-data-sources/{ext_data_source_id}

Table 5-274 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
ext_data_source_id	Yes	String	Data source configuration ID

Request Parameters

Table 5-275 Request body parameters

Parameter	Mandatory	Type	Description
reconfigure	Yes	**ReConfigure** object	Configuration information

Table 5-276 ReConfigure

Parameter	Mandatory	Type	Description
reboot	No	Boolean	Whether to restart
agency	No	String	Agency name

Response Parameters

Table 5-277 Response parameters

Parameter	Type	Description
job_id	String	ID of the task for updating a data source.

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Example Request

Change the agency name to **DWSAccessOBS** for the data source whose ID is **d303f19c-fbd1-4716-ae04-07d1ff358f22**:

```
PUT https://{Endpoint} /v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/ext-data-sources/d303f19c-fbd1-4716-ae04-07d1ff358f22
{
  "reconfigure":{
      "reboot": false,
      "agency": "DWSAccessOBS"
   }
}
```

Example Response

Status code: 200

```
{
  "job_id" : "2c9081c88418ed420184197c8bc80001"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateDataSourceSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        UpdateDataSourceRequest request = new UpdateDataSourceRequest();
        ReconfigureExtDataSourceActionReq body = new ReconfigureExtDataSourceActionReq();
        request.withBody(body);
        try {
            UpdateDataSourceResponse response = client.updateDataSource(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
```

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```
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = UpdateDataSourceRequest()
        request.body = ReconfigureExtDataSourceActionReq(
        )
        response = client.update_data_source(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
```

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```
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.UpdateDataSourceRequest{}
    request.Body = &model.ReconfigureExtDataSourceActionReq{
    }
    response, err := client.UpdateDataSource(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The request for updating the data source is sent.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.5.4 Deleting a Data Source

Function

This API is used to delete a data source.

Call Method

For details, see **Calling APIs**.

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URI

```
DELETE /v1.0/{project_id}/clusters/{cluster_id}/ext-data-sources/{ext_data_source_id}
```

Table 5-278 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID For details about how to obtain the ID, see **Obtaining the Cluster ID**.
ext_data_source_id	Yes	String	Data source configuration ID

Request Parameters

None

Response Parameters

Table 5-279 Response parameters

Parameter	Type	Description
job_id	String	ID of the task for updating a data source.

Example Request

```
DELETE https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/ext-data-sources/d303f19c-fbd1-4716-ae04-07d1ff358f22
```

Example Response

Status code: 200

```
{
  "job_id" : "2c9081c88418ed420184197c8bc80001"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;
```

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```
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteDataSourceSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteDataSourceRequest request = new DeleteDataSourceRequest();
        try {
            DeleteDataSourceResponse response = client.deleteDataSource(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
```

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```
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteDataSourceRequest()
        response = client.delete_data_source(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteDataSourceRequest{}
    response, err := client.DeleteDataSource(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The data source is deleted.

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Status Code	Description
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.6 Audit logs

5.6.1 Querying Logs

Function

This API is used to query audit logs.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/clusters/{cluster_id}/audit-log-records

Table 5-280 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-281 Response body parameters

Parameter	Type	Description
records	Array of **AuditDumpRecord** objects	Audit log list
cluster_id	String	Cluster ID
count	Integer	Total number

Table 5-282 AuditDumpRecord

Parameter	Type	Description
cluster_id	String	Cluster ID
exector_time	String	Execution time
begin_time	String	Start time
end_time	String	End time
bucket_name	String	Bucket name
location_prefix	String	OBS path
result	String	Result status
failed_reason	String	Cause of failure

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/audit-log-records
```

Example Response

```
{
  "records": [
    {
      "result": "RUNNING",
      "cluster_id": "a07cb2f7-b17e-4d95-923b-a33d0c884d37",
      "exector_time": "2022-10-31T09:11:31",
      "begin_time": "2022-10-31T09:09:55",
      "end_time": "2022-10-31T09:19:55",
      "bucket_name": "dws-demo",
      "location_prefix": "test"
    }
  ],
  "count": 1,
  "cluster_id": "a07cb2f7-b17e-4d95-923b-a33d0c884d37"
}
```

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SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAuditLogSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListAuditLogRequest request = new ListAuditLogRequest();
        try {
            ListAuditLogResponse response = client.listAuditLog(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
```

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```
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListAuditLogRequest()
        response = client.list_audit_log(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListAuditLogRequest{}
    response, err := client.ListAuditLog(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The audit log records are queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	The requested resource was not found.
500	Internal server error.
503	The service was unavailable.

5.7 Resource Management

5.7.1 Setting the Resource Management Switch

Function

This API is used to set the resource management switch.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/workload

Table 5-283 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-284 Request body parameters

Parameter	Mandatory	Type	Description
workload_status	No	**WorkloadStatus** object	Resource management status

Table 5-285 WorkloadStatus

Parameter	Mandatory	Type	Description
workload_switch	Yes	String	Switch. The value can be **on** or **off**.
max_concurrency_num	No	String	Maximum concurrency. The value is an integer ranging from **-1** to **2147483647**. The value **-1**/**0** indicates that the parameter is not limited.

Response Parameters

Table 5-286 Parameters in the response body

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Status description.

Example Request

Enable resource management and set the maximum concurrency to 5.

```
POST https://{Endpoint} /v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/workload
{
  "workload_status":{
        "workload_switch":"on",
        "max_concurrency_num":"5"
    }
}
```

Example Response

Status code: 200

Resource management is set successfully.

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```
{
    "workload_res_code": 0,
    "workload_res_str": "Success to modify the resource manager config."
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateClusterWorkloadSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CreateClusterWorkloadRequest request = new CreateClusterWorkloadRequest();
        WorkloadStatusReq body = new WorkloadStatusReq();
        request.withBody(body);
        try {
            CreateClusterWorkloadResponse response = client.createClusterWorkload(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
```

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```
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CreateClusterWorkloadRequest()
        request.body = WorkloadStatusReq(
        )
        response = client.create_cluster_workload(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CreateClusterWorkloadRequest{}
    request.Body = &model.WorkloadStatusReq{
    }
    response, err := client.CreateClusterWorkload(request)
    if err == nil {
```

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```
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Resource management is set successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.7.2 Querying the Resource Management Status

Function

This API is used to query the resource management status.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/workload
```

Table 5-287 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-288 Response body parameters

Parameter	Type	Description
workload_status	**WorkloadStatus** object	Resource management status
workload_res_code	Integer	Status code
workload_res_str	String	Status description

Table 5-289 WorkloadStatus

Parameter	Type	Description
workload_switch	String	Switch of resource management Valid values are as follows: • on: The function is enabled. • off: The function is disabled.
max_concurrency_num	String	Maximum concurrency

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload
```

Example Response

```
{
    "workload_res_code": 0,
    "workload_res_str": "Success get workload manager status",
    "workload_status": {
```

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```
        "workload_switch": "on",
        "max_concurrency_num": 60
    }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterWorkloadSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterWorkloadRequest request = new ListClusterWorkloadRequest();
        try {
            ListClusterWorkloadResponse response = client.listClusterWorkload(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
```

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```
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterWorkloadRequest()
        response = client.list_cluster_workload(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterWorkloadRequest{}
    response, err := client.ListClusterWorkload(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying the resource management status.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.7.3 Querying Resource Statistics

Function

This API is used to query resource statistics.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/resource-statistics

Table 5-290 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-291 Query parameters

Parameter	Mandatory	Type	Description
namespace	No	String	Namespace

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-292 Response body parameters

Parameter	Type	Description
cluster_statistics	StatusStatistics object	Cluster resource statistics.
node_statistics	StatusStatistics object	Node resource statistics.

Table 5-293 StatusStatistics

Parameter	Type	Description
active	Long	Active resources
total	Long	Total resources

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/resource-statistics
```

Example Response

Status code: 200

Resource statistics queried successfully.

```
{
  "cluster_statistics" : {
    "active" : 2,
    "total" : 2
  },
  "node_statistics" : {
    "active" : 6,
    "total" : 36
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;
```

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```
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowResourceStatisticsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ShowResourceStatisticsRequest request = new ShowResourceStatisticsRequest();
        request.withNamespace("<namespace>");
        try {
            ShowResourceStatisticsResponse response = client.showResourceStatistics(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
```

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```
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ShowResourceStatisticsRequest()
        request.namespace = "<namespace>"
        response = client.show_resource_statistics(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ShowResourceStatisticsRequest{}
    namespaceRequest:= "<namespace>"
    request.Namespace = &namespaceRequest
    response, err := client.ShowResourceStatistics(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Resource statistics queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

5.7.4 Creating a Resource Pool

Function

This API is used to create a resource pool.

Call Method

For details, see **Calling APIs**.

URI

PUT /v2/{project_id}/clusters/{cluster_id}/workload/queues

Table 5-294 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-295 Request body parameters

Parameter	Mandatory	Type	Description
workload_queue	Yes	**WorkloadQueue** object	Resource pool objects

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Table 5-296 WorkloadQueue

Parameter	Mandatory	Type	Description
workload_queue_name	Yes	String	Resource pool name The value must start with a lowercase letter and contain 3 to 28 characters, including only lowercase letters, numbers, and underscores (_).
logical_cluster_name	No	String	Name of a logical cluster In non-logical cluster mode, leave this parameter blank. In logical cluster mode, it is the logical cluster name.
workload_resource_item_list	Yes	Array of **WorkloadResource** objects	Resource configuration queue

Table 5-297 WorkloadResource

Parameter	Mandatory	Type	Description
resource_name	Yes	String	Resource name • **memory**: memory resource (%) • **Tablespace**: storage resource (MB) • **activestatements**: query concurrency • **cpu_limit**: dedicated limit • **cpu_share**: CPU share **NOTE** When adding a resource pool, you need to set all resource types. **cpu_limit** is supported only by clusters later than 8.1.3.

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Parameter	Mandatory	Type	Description
resource_value	Yes	Integer	Resource attribute value • The value of **memory** ranges from 0 to 100. The value **0** indicates that the memory is not controlled. • The value of **tablespace** ranges from **-1** to **2147483647**. The value **-1** indicates that the tablespace is not limited. Note: The value depends on the actual storage resources. • The value of **activestatements** ranges from **-1** to **2147483647**, where **-1**/**0** indicates no limit. • The value of **cpu_limit** ranges from **1** to **99**. If cpu_limit is set to 0, there is no restriction. • The value of **cpu_share** ranges from 1 to 99. If cpu_share is not specified, the default value 20 is used. • If cpu_limit and cpu_share can be set at the same time, cpu_limit takes precedence over cpu_share.

Response Parameters

Table 5-298 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Status description.

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Example Request

Add resource pool **test11**. Set the shared quota to **12**%, memory resource to **0** (unlimited), storage resource to **-1** (unlimited), and query concurrency to **10**.

```
PUT https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues
{
  "workload_queue": {
    "workload_queue_name": "test11",
    "workload_resource_item_list": [
      {
        "resource_name": "memory",
        "resource_value": "0"
      },
      {
        "resource_name": "tablespace",
        "resource_value": "-1"
      },
      {
        "resource_name": "activestatements",
        "resource_value": "10"
      },
      {
        "resource_name": "cpu_limit",
        "resource_value": 0

      },
      {
        "resource_name": "cpu_share",
        "resource_value": 12
      }
    ],
    "logical_cluster_name": ""
  }
}
```

Example Response

Status code: 200

The resource pool is added successfully.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : "Success to create the resource pool."
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
```

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```
import java.util.ArrayList;

public class AddWorkloadQueueSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        AddWorkloadQueueRequest request = new AddWorkloadQueueRequest();
        WorkloadQueueReq body = new WorkloadQueueReq();
        List<WorkloadResource> listWorkloadQueueWorkloadResourceItemList = new ArrayList<>();
        listWorkloadQueueWorkloadResourceItemList.add(
            new WorkloadResource()
                .withResourceName("memory")
                .withResourceValue(0)
        );
        listWorkloadQueueWorkloadResourceItemList.add(
            new WorkloadResource()
                .withResourceName("tablespace")
                .withResourceValue(-1)
        );
        listWorkloadQueueWorkloadResourceItemList.add(
            new WorkloadResource()
                .withResourceName("activestatements")
                .withResourceValue(10)
        );
        listWorkloadQueueWorkloadResourceItemList.add(
            new WorkloadResource()
                .withResourceName("cpu_limit")
                .withResourceValue(0)
        );
        listWorkloadQueueWorkloadResourceItemList.add(
            new WorkloadResource()
                .withResourceName("cpu_share")
                .withResourceValue(12)
        );
        WorkloadQueue workloadQueuebody = new WorkloadQueue();
        workloadQueuebody.withWorkloadQueueName("test11")
            .withLogicalClusterName("")
            .withWorkloadResourceItemList(listWorkloadQueueWorkloadResourceItemList);
        body.withWorkloadQueue(workloadQueuebody);
        request.withBody(body);
        try {
            AddWorkloadQueueResponse response = client.addWorkloadQueue(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
```

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```
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = AddWorkloadQueueRequest()
        listWorkloadResourceItemListWorkloadQueue = [
            WorkloadResource(
                resource_name="memory",
                resource_value=0
            ),
            WorkloadResource(
                resource_name="tablespace",
                resource_value=-1
            ),
            WorkloadResource(
                resource_name="activestatements",
                resource_value=10
            ),
            WorkloadResource(
                resource_name="cpu_limit",
                resource_value=0
            ),
            WorkloadResource(
                resource_name="cpu_share",
                resource_value=12
            )
        ]
        workloadQueuebody = WorkloadQueue(
            workload_queue_name="test11",
            logical_cluster_name="",
            workload_resource_item_list=listWorkloadResourceItemListWorkloadQueue
        )
        request.body = WorkloadQueueReq(
            workload_queue=workloadQueuebody
        )
        response = client.add_workload_queue(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.AddWorkloadQueueRequest{}
    var listWorkloadResourceItemListWorkloadQueue = []model.WorkloadResource{
        {
            ResourceName: "memory",
            ResourceValue: int32(0),
        },
        {
            ResourceName: "tablespace",
            ResourceValue: int32(-1),
        },
        {
            ResourceName: "activestatements",
            ResourceValue: int32(10),
        },
        {
            ResourceName: "cpu_limit",
            ResourceValue: int32(0),
        },
        {
            ResourceName: "cpu_share",
            ResourceValue: int32(12),
        },
    }
    logicalClusterNameWorkloadQueue:= ""
    workloadQueuebody := &model.WorkloadQueue{
        WorkloadQueueName: "test11",
        LogicalClusterName: &logicalClusterNameWorkloadQueue,
        WorkloadResourceItemList: listWorkloadResourceItemListWorkloadQueue,
    }
    request.Body = &model.WorkloadQueueReq{
        WorkloadQueue: workloadQueuebody,
    }
    response, err := client.AddWorkloadQueue(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
```

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```
  }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource pool is added successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.7.5 Deleting a Resource Pool

Function

This API is used to delete a resource pool.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/clusters/{cluster_id}/workload/queues
```

Table 5-299 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-300 Query parameters

Parameter	Mandatory	Type	Description
logical_cluster_name	No	String	Name of a logical cluster This field is mandatory in logical cluster mode.
workload_queue_name	Yes	String	Resource pool name

Request Parameters

None

Response Parameters

Table 5-301 Parameters in the response body

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
DELETE https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/workload/queues?logical_cluster_name=lc_test&workload_queue_name=queue1
```

Example Response

Status code: 200

The resource pool is deleted successfully.

```
{
    "workload_res_code": 0,
"workload_res_str": "Resource pool deleted successfully."
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
```

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```
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteWorkloadQueueSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteWorkloadQueueRequest request = new DeleteWorkloadQueueRequest();
        request.withLogicalClusterName("<logical_cluster_name>");
        request.withWorkloadQueueName("<workload_queue_name>");
        try {
            DeleteWorkloadQueueResponse response = client.deleteWorkloadQueue(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()
```

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```
    try:
        request = DeleteWorkloadQueueRequest()
        request.logical_cluster_name = "<logical_cluster_name>"
        request.workload_queue_name = "<workload_queue_name>"
        response = client.delete_workload_queue(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteWorkloadQueueRequest{}
    logicalClusterNameRequest:= "<logical_cluster_name>"
    request.LogicalClusterName = &logicalClusterNameRequest
    request.WorkloadQueueName = "<workload_queue_name>"
    response, err := client.DeleteWorkloadQueue(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The resource pool is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.7.6 Querying the Resource Pool List

Function

This API is used to query the resource pool list.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/workload/queues
```

Table 5-302 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-303 Query parameters

Parameter	Mandatory	Type	Description
logical_cluster_name	No	String	Logical cluster name This field is mandatory in logical cluster mode.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-304 Response body parameters

Parameter	Type	Description
workload_queue_name_list	Array of strings	Resource pool name
workload_res_code	Integer	Response code. The value **0** indicates success.
workload_res_str	String	Response description

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues
```

Example Response

```
{
   "workload_res_code": 0,
   "workload_res_str": "Success get workload manager queue name list",
   "workload_queue_name_list": [
      "test1"
   ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
```

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```
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListWorkloadQueueSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListWorkloadQueueRequest request = new ListWorkloadQueueRequest();
        try {
            ListWorkloadQueueResponse response = client.listWorkloadQueue(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()
```

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```
    try:
        request = ListWorkloadQueueRequest()
        response = client.list_workload_queue(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListWorkloadQueueRequest{}
    response, err := client.ListWorkloadQueue(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource pool list is queried successfully.
400	Request error.

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Status Code	Description
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.7.7 Obtaining Resource Pool Details

Function

This API is used to obtain detailed information about a resource pool.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/workload/queues/{queue_name}

Table 5-305 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
queue_name	Yes	String	Resource pool name

Table 5-306 Query parameters

Parameter	Mandatory	Type	Description
logical_cluster_name	No	String	Logical cluster name In non-logical cluster mode, leave this parameter blank. In logical cluster mode, it is the logical cluster name.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-307 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Result description
workload_queue	**WorkloadQueueItem** object	Resource pool details.

Table 5-308 WorkloadQueueItem

Parameter	Type	Description
queue_name	String	Resource pool name
logical_cluster_name	String	Name of the logical cluster
short_query_optimize	String	Specifies whether to enable short query acceleration for the resource pool.
short_query_concurrency_num	Integer	Number of concurrent short queries in the resource pool.
resource_item_list	Array of **WorkloadResourceItem** objects	Resource configuration queue

Table 5-309 WorkloadResourceItem

Parameter	Type	Description
resource_name	String	Resource name
resource_value	Integer	Resource attribute value

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Parameter	Type	Description
value_unit	String	Resource attribute unit
resource_description	String	Additional resource description

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues/resource1
```

Example Response

Status code: 200

The resource pool details are obtained successfully.

```
{
  "workload_queue" : {
    "queue_name" : "resource1",
    "logical_cluster_name" : "",
    "short_query_optimize" : "t",
    "short_query_concurrency_num" : -1,
    "resource_item_list" : [ {
      "resource_name" : "cpu",
      "resource_value" : 1,
      "value_unit" : null,
      "resource_description" : null
    } ]
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowWorkloadQueueSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");
```

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```
        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ShowWorkloadQueueRequest request = new ShowWorkloadQueueRequest();
        try {
            ShowWorkloadQueueResponse response = client.showWorkloadQueue(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ShowWorkloadQueueRequest()
        response = client.show_workload_queue(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
```

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```
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ShowWorkloadQueueRequest{}
    response, err := client.ShowWorkloadQueue(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource pool details are obtained successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

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5.7.8 Updating Configuration Information of a Resource Pool

Function

This API is used to update the resource configuration information of a resource pool.

Call Method

For details, see **Calling APIs**.

URI

PUT /v2/{project_id}/clusters/{cluster_id}/workload/queues/{queue_name}/resources

Table 5-310 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
queue_name	Yes	String	Resource pool name

Request Parameters

Table 5-311 Request body parameters

Parameter	Mandatory	Type	Description
workload_queue	Yes	**WorkloadQueueInfo** object	Resource pool

Table 5-312 WorkloadQueueInfo

Parameter	Mandatory	Type	Description
workload_queue_name	Yes	String	Resource pool name
logical_cluster_name	No	String	Name of the logical cluster

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Parameter	Mandatory	Type	Description
resource_item_list	Yes	Array of **WorkloadResourceItem** objects	Resource configuration queue

Table 5-313 WorkloadResourceItem

Parameter	Mandatory	Type	Description
resource_name	Yes	String	Resource name
resource_value	Yes	Integer	Resource attribute value
value_unit	No	String	Resource attribute unit
resource_description	No	String	Additional resource description

Response Parameters

Status code: 200

Table 5-314 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
PUT https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues/{queue_name}/resources

{
  "workload_queue" : {
    "workload_queue_name" : "test11",
    "resource_item_list" : [ {
      "resource_name" : "memory",
      "resource_value" : "0"
    }, {
      "resource_name" : "tablespace",
      "resource_value" : "-1"
    }, {
      "resource_name" : "activestatements",
      "resource_value" : "10"
```

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```
    }, {
      "resource_name" : "cpu_limit",
      "resource_value" : 0
    }, {
      "resource_name" : "cpu_share",
      "resource_value" : 12
    } ],
    "logical_cluster_name" : ""
  }
}
```

Example Response

Status code: 200

Resource pool resource configuration information updated successfully.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class UpdateQueueResourcesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        UpdateQueueResourcesRequest request = new UpdateQueueResourcesRequest();
        WorkloadQueueRequest body = new WorkloadQueueRequest();
        List<WorkloadResourceItem> listWorkloadQueueResourceItemList = new ArrayList<>();
        listWorkloadQueueResourceItemList.add(
            new WorkloadResourceItem()
                .withResourceName("memory")
```

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```
                .withResourceValue(0)
        );
        listWorkloadQueueResourceItemList.add(
            new WorkloadResourceItem()
                .withResourceName("tablespace")
                .withResourceValue(-1)
        );
        listWorkloadQueueResourceItemList.add(
            new WorkloadResourceItem()
                .withResourceName("activestatements")
                .withResourceValue(10)
        );
        listWorkloadQueueResourceItemList.add(
            new WorkloadResourceItem()
                .withResourceName("cpu_limit")
                .withResourceValue(0)
        );
        listWorkloadQueueResourceItemList.add(
            new WorkloadResourceItem()
                .withResourceName("cpu_share")
                .withResourceValue(12)
        );
        WorkloadQueueInfo workloadQueuebody = new WorkloadQueueInfo();
        workloadQueuebody.withWorkloadQueueName("test11")
            .withLogicalClusterName("")
            .withResourceItemList(listWorkloadQueueResourceItemList);
        body.withWorkloadQueue(workloadQueuebody);
        request.withBody(body);
        try {
            UpdateQueueResourcesResponse response = client.updateQueueResources(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()
```

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```
    try:
        request = UpdateQueueResourcesRequest()
        listResourceItemListWorkloadQueue = [
            WorkloadResourceItem(
                resource_name="memory",
                resource_value=0
            ),
            WorkloadResourceItem(
                resource_name="tablespace",
                resource_value=-1
            ),
            WorkloadResourceItem(
                resource_name="activestatements",
                resource_value=10
            ),
            WorkloadResourceItem(
                resource_name="cpu_limit",
                resource_value=0
            ),
            WorkloadResourceItem(
                resource_name="cpu_share",
                resource_value=12
            )
        ]
        workloadQueuebody = WorkloadQueueInfo(
            workload_queue_name="test11",
            logical_cluster_name="",
            resource_item_list=listResourceItemListWorkloadQueue
        )
        request.body = WorkloadQueueRequest(
            workload_queue=workloadQueuebody
        )
        response = client.update_queue_resources(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
```

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```
        WithRegion(region.ValueOf("<YOUR REGION>")).
        WithCredential(auth).
        Build())

    request := &model.UpdateQueueResourcesRequest{}
    var listResourceItemListWorkloadQueue = []model.WorkloadResourceItem{
        {
            ResourceName: "memory",
            ResourceValue: int32(0),
        },
        {
            ResourceName: "tablespace",
            ResourceValue: int32(-1),
        },
        {
            ResourceName: "activestatements",
            ResourceValue: int32(10),
        },
        {
            ResourceName: "cpu_limit",
            ResourceValue: int32(0),
        },
        {
            ResourceName: "cpu_share",
            ResourceValue: int32(12),
        },
    }
    logicalClusterNameWorkloadQueue:= ""
    workloadQueuebody := &model.WorkloadQueueInfo{
        WorkloadQueueName: "test11",
        LogicalClusterName: &logicalClusterNameWorkloadQueue,
        ResourceItemList: listResourceItemListWorkloadQueue,
    }
    request.Body = &model.WorkloadQueueRequest{
        WorkloadQueue: workloadQueuebody,
    }
    response, err := client.UpdateQueueResources(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Resource pool resource configuration information updated successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.

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Status Code	Description
500	Internal server error.
503	Service unavailable.

5.7.9 Associating a Resource Pool with a User

Function

This API is used to associate a user to a resource pool.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/workload/queues/{queue_name}/users/batch-create

Table 5-315 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
queue_name	Yes	String	Resource pool name

Request Parameters

Table 5-316 Request body parameters

Parameter	Mandatory	Type	Description
queue_name	Yes	String	Resource pool name
user_list	Yes	Array of **user_list** objects	List of resource pool users.

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Table 5-317 user_list

Parameter	Mandatory	Type	Description
user_name	No	String	Username

Response Parameters

Status code: 200

Table 5-318 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues/resource1/users/batch-create

{
  "queue_name" : "test11",
  "user_list" : [ {
    "user_name" : "user_batch"
  } ]
}
```

Example Response

Status code: 200

The user bound to the resource pool is successfully added.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : "Success to associate users."
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
```

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```
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class AddQueueUserListSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        AddQueueUserListRequest request = new AddQueueUserListRequest();
        WorkloadQueueUserReq body = new WorkloadQueueUserReq();
        List<WorkloadQueueUserReqUserList> listbodyUserList = new ArrayList<>();
        listbodyUserList.add(
            new WorkloadQueueUserReqUserList()
                .withUserName("user_batch")
        );
        body.withUserList(listbodyUserList);
        body.withQueueName("test11");
        request.withBody(body);
        try {
            AddQueueUserListResponse response = client.addQueueUserList(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = AddQueueUserListRequest()
        listUserListbody = [
            WorkloadQueueUserReqUserList(
                user_name="user_batch"
            )
        ]
        request.body = WorkloadQueueUserReq(
            user_list=listUserListbody,
            queue_name="test11"
        )
        response = client.add_queue_user_list(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.AddQueueUserListRequest{}
    userNameUserList:= "user_batch"
    var listUserListbody = []model.WorkloadQueueUserReqUserList{
        {
            UserName: &userNameUserList,
        },
    }
    request.Body = &model.WorkloadQueueUserReq{
        UserList: listUserListbody,
        QueueName: "test11",
```

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```
    }
    response, err := client.AddQueueUserList(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The user is successfully bound to the resource pool.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.10 Obtaining the List of Users Bound to a Resource Pool

Function

This API is used to obtain the list of users bound to a resource pool.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/workload/queues/{queue_name}/users
```

Table 5-319 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
queue_name	Yes	String	Resource pool name

Table 5-320 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Number of records to be queried
offset	No	Integer	Offset

Request Parameters

None

Response Parameters

Status code: 200

Table 5-321 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Result description
queue_name	String	Resource pool name
user_list	Array of **WorkloadQueueUser** objects	List of resource pool users.
count	Integer	Total number of records

Table 5-322 WorkloadQueueUser

Parameter	Type	Description
user_name	String	Username

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Parameter	Type	Description
occupy_resource_list	Array of **OccupyResource** objects	Plan execution stage
exec_result	Integer	Execution result
exec_log	String	Execution log

Table 5-323 OccupyResource

Parameter	Type	Description
resource_name	String	Resource name
resource_value	Integer	Resource attribute value
value_unit	String	Resource attribute unit
resource_description	String	Additional resource description

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues/resource1/users
```

Example Response

Status code: 200

The list of users bound to the resource pool is obtained successfully.

```
{
  "queue_name" : "rs1",
  "user_list" : [ {
    "user_name" : "user_batch",
    "occupy_resource_list" : [ {
      "resource_name" : "memory_used",
      "resource_value" : 0,
      "value_unit" : "M",
      "resource_description" : ""
    } ]
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListWorkloadQueueUsersSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListWorkloadQueueUsersRequest request = new ListWorkloadQueueUsersRequest();
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListWorkloadQueueUsersResponse response = client.listWorkloadQueueUsers(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
```

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```
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListWorkloadQueueUsersRequest()
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_workload_queue_users(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListWorkloadQueueUsersRequest{}
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    response, err := client.ListWorkloadQueueUsers(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The list of users bound to the resource pool is obtained successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.11 Unbinding a User from a Resource Pool

Function

This API is used to disassociate a user from a resource pool.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/workload/queues/{queue_name}/users/batch-delete

Table 5-324 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
queue_name	Yes	String	Resource pool name

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Request Parameters

Table 5-325 Request body parameters

Parameter	Mandatory	Type	Description
queue_name	Yes	String	Resource pool name
user_list	Yes	Array of **user_list** objects	List of resource pool users

Table 5-326 user_list

Parameter	Mandatory	Type	Description
user_name	No	String	Username

Response Parameters

Status code: 200

Table 5-327 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/queues/resource1/users/batch-delete

{
  "queue_name" : "test11",
  "user_list" : [ {
    "user_name" : "user_batch"
  } ]
}
```

Example Response

Status code: 200

The user bound to the resource pool is deleted successfully.

```
{
  "workload_res_code" : 0,
```

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```
  "workload_res_str" : ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class DeleteQueueUserListSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DeleteQueueUserListRequest request = new DeleteQueueUserListRequest();
        WorkloadQueueUserReq body = new WorkloadQueueUserReq();
        List<WorkloadQueueUserReqUserList> listbodyUserList = new ArrayList<>();
        listbodyUserList.add(
            new WorkloadQueueUserReqUserList()
                .withUserName("user_batch")
        );
        body.withUserList(listbodyUserList);
        body.withQueueName("test11");
        request.withBody(body);
        try {
            DeleteQueueUserListResponse response = client.deleteQueueUserList(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DeleteQueueUserListRequest()
        listUserListbody = [
            WorkloadQueueUserReqUserList(
                user_name="user_batch"
            )
        ]
        request.body = WorkloadQueueUserReq(
            user_list=listUserListbody,
            queue_name="test11"
        )
        response = client.delete_queue_user_list(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DeleteQueueUserListRequest{}
    userNameUserList:= "user_batch"
    var listUserListbody = []model.WorkloadQueueUserReqUserList{
        {
            UserName: &userNameUserList,
        },
    }
    request.Body = &model.WorkloadQueueUserReq{
        UserList: listUserListbody,
        QueueName: "test11",
    }
    response, err := client.DeleteQueueUserList(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The user bound to the resource pool is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.12 Creating a Resource Management Plan

Function

This API is used to add a resource management plan.

Call Method

For details, see **Calling APIs**.

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URI

POST /v2/{project_id}/clusters/{cluster_id}/workload/plans

Table 5-328 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-329 Request body parameters

Parameter	Mandatory	Type	Description
plan_name	Yes	String	Name of a resource management plan. The value must start with a lowercase letter and contain 3 to 28 characters, including only letters, digits, and underscores (_).
logical_cluster_name	No	String	Name of a logical cluster

Response Parameters

Table 5-330 Parameters in the response body

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Status description.

Example Request

Add the resource management plan **test2**:

POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans

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```
{
  "plan_name":"test2"
}
```

Example Response

Status code: 200

The resource management plan is created successfully.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : "success added workload plan"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateWorkloadPlanSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CreateWorkloadPlanRequest request = new CreateWorkloadPlanRequest();
        WorkloadPlanReq body = new WorkloadPlanReq();
        body.withPlanName("test2");
        request.withBody(body);
        try {
            CreateWorkloadPlanResponse response = client.createWorkloadPlan(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
```

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```
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CreateWorkloadPlanRequest()
        request.body = WorkloadPlanReq(
            plan_name="test2"
        )
        response = client.create_workload_plan(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CreateWorkloadPlanRequest{}
    request.Body = &model.WorkloadPlanReq{
        PlanName: "test2",
    }
    response, err := client.CreateWorkloadPlan(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan is created successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.7.13 Querying the Resource Management Plan List

Function

This API is used to query all resource management plans in a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/workload/plans
```

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Table 5-331 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-332 Query parameters

Parameter	Mandatory	Type	Description
logical_cluster_name	No	String	Logical cluster name In non-logical cluster mode, leave this parameter blank. In logical cluster mode, it is the logical cluster name.
limit	No	Integer	Number of records to be queried
offset	No	Integer	Offset

Request Parameters

None

Response Parameters

Status code: 200

Table 5-333 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Result description
plan_list	Array of **WorkloadPlanInfo** objects	Resource pool name
count	Integer	Total number of records

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Table 5-334 WorkloadPlanInfo

Parameter	Type	Description
status	Integer	Plan Status
project_id	String	Project ID.
cluster_id	String	Cluster ID
plan_id	String	Plan ID
plan_name	String	Plan name
current_stage	String	Current plan stage
logical_cluster_name	String	Name of the logical cluster
stage_list	Array of **PlanStage** objects	List of plan stages

Table 5-335 PlanStage

Parameter	Type	Description
month	String	Month of the plan
day	String	Date of the plan
plan_id	String	Plan ID
stage_id	String	Plan stage ID
stage_name	String	Plan stage name
start_time	String	Plan start time
end_time	String	Plan end time
next_valid_time	String	Next validation time
queue_list	Array of **QueueResourceItem** objects	Resource queue list

Table 5-336 QueueResourceItem

Parameter	Type	Description
queue_name	String	Resource pool name

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Parameter	Type	Description
queue_resources	Array of **WorkloadResourceItem** objects	Resource configuration queue

Table 5-337 WorkloadResourceItem

Parameter	Type	Description
resource_name	String	Resource name
resource_value	Integer	Resource attribute value
value_unit	String	Resource attribute unit
resource_description	String	Additional resource description

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans
```

Example Response

Status code: 200

The resource management plan list is queried successfully.

```
{
  "plan_list" : [ {
    "status" : 0,
    "cluster_id" : "862201cd-f822-4dbc-ae3b-c7b9d080eea6",
    "project_id" : "0536cdee2200d5912f7cc00b877980f1",
    "plan_id" : "dde42d0c-38f7-4592-841d-5a16c5512408",
    "plan_name" : "plan1",
    "current_stage" : null,
    "logical_cluster_name" : null,
    "stage_list" : null
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
```

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```
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListWorkloadPlansSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListWorkloadPlansRequest request = new ListWorkloadPlansRequest();
        request.withLogicalClusterName("<logical_cluster_name>");
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListWorkloadPlansResponse response = client.listWorkloadPlans(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \
```

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```
    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListWorkloadPlansRequest()
        request.logical_cluster_name = "<logical_cluster_name>"
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_workload_plans(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListWorkloadPlansRequest{}
    logicalClusterNameRequest:= "<logical_cluster_name>"
    request.LogicalClusterName = &logicalClusterNameRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    response, err := client.ListWorkloadPlans(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.14 Starting a Resource Management Plan

Function

This API is used to start a resource management plan.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/start

Table 5-338 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-339 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a/start
```

Example Response

Status code: 200

The resource management plan is started.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class StartWorkloadPlanSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
```

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```
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        StartWorkloadPlanRequest request = new StartWorkloadPlanRequest();
        try {
            StartWorkloadPlanResponse response = client.startWorkloadPlan(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = StartWorkloadPlanRequest()
        response = client.start_workload_plan(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main
```

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```
import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.StartWorkloadPlanRequest{}
    response, err := client.StartWorkloadPlan(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan is started.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.7.15 Viewing Plan Execution Logs

Function

This API is used to view plan execution logs.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/logs

Table 5-340 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID

Table 5-341 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Number of records to be queried
offset	No	Integer	Offset

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-342 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Result description
plan_logs	Array of PlanLog objects	Resource pool name
count	Integer	Total number of records.

Table 5-343 PlanLog

Parameter	Type	Description
exec_time	String	Execution time
stage_info	String	Execute the plan phase
exec_result	Integer	Execution result
exec_log	String	Execution log

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a/logs
```

Example Response

Status code: 200

The resource management plan list is queried successfully.

```
{
  "plan_logs" : [ {
    "exec_time" : "2023-08-23 13:28:50",
    "stage_info" : "stage1",
    "exec_result" : 0,
    "exec_log" : "2023-08-23 13:28:47.661892+00:00 UTC |INFO| start change stage."
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;
```

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```
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListPlanExecLogsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListPlanExecLogsRequest request = new ListPlanExecLogsRequest();
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListPlanExecLogsResponse response = client.listPlanExecLogs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \
```

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```
    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListPlanExecLogsRequest()
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_plan_exec_logs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListPlanExecLogsRequest{}
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    response, err := client.ListPlanExecLogs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The resource management plan list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.16 Querying Details About a Resource Management Plan

Function

This API is used to query details about a resource management plan.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}
```

Table 5-344 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID.

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-345 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Result description
workload_plan	**WorkloadPlanInfo** object	Queue details

Table 5-346 WorkloadPlanInfo

Parameter	Type	Description
status	Integer	Plan Status Valid values are as follows: • 1: The plan is running. • 0: The plan is not started.
project_id	String	Project ID
cluster_id	String	Cluster ID
plan_id	String	Plan ID
plan_name	String	Plan name
current_stage	String	Current plan stage
logical_cluster_name	String	Name of the logical cluster
stage_list	Array of **PlanStage** objects	List of plan stages

Table 5-347 PlanStage

Parameter	Type	Description
month	String	Month of the plan
day	String	Date of the plan
plan_id	String	Plan ID

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Parameter	Type	Description
stage_id	String	Plan stage ID
stage_name	String	Plan stage name
start_time	String	Plan start time
end_time	String	Plan end time
next_valid_time	String	Next validation time
queue_list	Array of **QueueResourceItem** objects	Resource queue list

Table 5-348 QueueResourceItem

Parameter	Type	Description
queue_name	String	Resource pool name
queue_resources	Array of **WorkloadResourceItem** objects	Resource configuration queue

Table 5-349 WorkloadResourceItem

Parameter	Type	Description
resource_name	String	Resource name
resource_value	Integer	Resource attribute value
value_unit	String	Resource attribute unit
resource_description	String	Additional resource description

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a
```

Example Response

Status code: 200

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Details about a resource management plan are queried successfully.

```
{
  "workload_plan" : {
    "status" : 0,
    "cluster_id" : "862201cd-f822-4dbc-ae3b-c7b9d080eea6",
    "project_id" : "0536cdee2200d5912f7cc00b877980f1",
    "plan_id" : "dde42d0c-38f7-4592-841d-5a16c5512408",
    "plan_name" : "plan1",
    "current_stage" : "",
    "logical_cluster_name" : "",
    "stage_list" : [ {
      "month" : 4,
      "day" : 4,
      "plan_id" : "dde42d0c-38f7-4592-841d-5a16c5512408",
      "stage_id" : "00bc8bc5-c885-42e5-b205-80547d3f94c4",
      "stage_name" : "stage2",
      "start_time" : "00:00:00",
      "end_time" : "00:00:00",
      "next_valid_time" : "2024-04-04 00:00:00",
      "queue_list" : [ {
        "queue_name" : "resouce1",
        "queue_resources" : [ {
          "resource_name" : "cpu",
          "resource_value" : 1,
          "value_unit" : "%",
          "resource_description" : "Workload Queue Memory Percent"
        } ]
      } ]
    } ]
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowWorkloadPlanSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
```

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```
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShowWorkloadPlanRequest request = new ShowWorkloadPlanRequest();
        try {
            ShowWorkloadPlanResponse response = client.showWorkloadPlan(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShowWorkloadPlanRequest()
        response = client.show_workload_plan(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security
```

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```
risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShowWorkloadPlanRequest{}
    response, err := client.ShowWorkloadPlan(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Details about a resource management plan are queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.17 Stopping a Resource Management Plan

Function

This API is used to stop a resource management plan.

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Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/stop
```

Table 5-350 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-351 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a/stop
```

Example Response

Status code: 200

The resource management plan is stopped.

```
{
  "workload_res_code" : 0,
```

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```
 "workload_res_str" : ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class StopWorkloadPlanSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        StopWorkloadPlanRequest request = new StopWorkloadPlanRequest();
        try {
            StopWorkloadPlanResponse response = client.stopWorkloadPlan(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *
```

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```
if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = StopWorkloadPlanRequest()
        response = client.stop_workload_plan(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.StopWorkloadPlanRequest{}
    response, err := client.StopWorkloadPlan(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan is stopped.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.18 Deleting a Resource Management Plan

Function

This API is used to delete a resource management plan.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}
```

Table 5-352 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-353 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
DELETE https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a
```

Example Response

Status code: 200

Resource management plan deleted successfully.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : "success deleted workload plan"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteWorkloadPlanSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
```

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```
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteWorkloadPlanRequest request = new DeleteWorkloadPlanRequest();
        try {
            DeleteWorkloadPlanResponse response = client.deleteWorkloadPlan(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteWorkloadPlanRequest()
        response = client.delete_workload_plan(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main
```

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```
import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteWorkloadPlanRequest{}
    response, err := client.DeleteWorkloadPlan(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

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5.7.19 Adding a Resource Management Plan Stage

Function

This API is used to add a resource management plan phase.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/stages

Table 5-354 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID

Request Parameters

Table 5-355 Request body parameters

Parameter	Mandatory	Type	Description
workload_plan_stage	No	**workload_plan_stage** object	Resource management plan stage details

Table 5-356 workload_plan_stage

Parameter	Mandatory	Type	Description
day	No	String	Date
month	No	String	Month
stage_name	No	String	Plan
start_time	No	String	Start time
end_time	No	String	End time

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Parameter	Mandatory	Type	Description
queue_list	No	Array of **QueueResourceItem** objects	Resource queue

Table 5-357 QueueResourceItem

Parameter	Mandatory	Type	Description
queue_name	Yes	String	Resource pool name
queue_resources	Yes	Array of **WorkloadResourceItem** objects	Resource configuration queue

Table 5-358 WorkloadResourceItem

Parameter	Mandatory	Type	Description
resource_name	Yes	String	Resource name
resource_value	Yes	Integer	Resource attribute value
value_unit	No	String	Resource attribute unit
resource_description	No	String	Additional resource description

Response Parameters

Status code: 200

Table 5-359 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

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Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0591129f-4970-44e7-b213-f7bce797de87/stages

{
  "workload_plan_stage" : {
    "day" : "1,2",
    "month" : "6",
    "stage_name" : "stage1",
    "start_time" : "00:00:00",
    "end_time" : "00:00:00",
    "queue_list" : [ {
      "queue_name" : "pool1",
      "queue_resources" : [ {
        "resource_name" : "cpu",
        "resource_value" : 20,
        "value_unit" : null,
        "resource_description" : null
      }, {
        "resource_name" : "cpu_limit",
        "resource_value" : 0,
        "value_unit" : null,
        "resource_description" : null
      }, {
        "resource_name" : "memory",
        "resource_value" : 0,
        "value_unit" : null,
        "resource_description" : null
      }, {
        "resource_name" : "concurrency",
        "resource_value" : 10,
        "value_unit" : null,
        "resource_description" : null
      }, {
        "resource_name" : "shortQueryConcurrencyNum",
        "resource_value" : -1,
        "value_unit" : null,
        "resource_description" : null
      } ]
    } ]
  }
}
```

Example Response

Status code: 200

The resource management plan stage is added successfully.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
```

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```
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class AddWorkloadPlanStageSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        AddWorkloadPlanStageRequest request = new AddWorkloadPlanStageRequest();
        WorkloadPlanStageReq body = new WorkloadPlanStageReq();
        List<WorkloadResourceItem> listQueueListQueueResources = new ArrayList<>();
        listQueueListQueueResources.add(
            new WorkloadResourceItem()
                .withResourceName("cpu")
                .withResourceValue(20)
        );
        listQueueListQueueResources.add(
            new WorkloadResourceItem()
                .withResourceName("cpu_limit")
                .withResourceValue(0)
        );
        listQueueListQueueResources.add(
            new WorkloadResourceItem()
                .withResourceName("memory")
                .withResourceValue(0)
        );
        listQueueListQueueResources.add(
            new WorkloadResourceItem()
                .withResourceName("concurrency")
                .withResourceValue(10)
        );
        listQueueListQueueResources.add(
            new WorkloadResourceItem()
                .withResourceName("shortQueryConcurrencyNum")
                .withResourceValue(-1)
        );
        List<QueueResourceItem> listWorkloadPlanStageQueueList = new ArrayList<>();
        listWorkloadPlanStageQueueList.add(
            new QueueResourceItem()
                .withQueueName("pool1")
                .withQueueResources(listQueueListQueueResources)
        );
        WorkloadPlanStageReqWorkloadPlanStage workloadPlanStagebody = new WorkloadPlanStageReqWorkloadPlanStage();
        workloadPlanStagebody.withDay("1,2")
            .withMonth("6")
            .withStageName("stage1")
            .withStartTime("00:00:00")
            .withEndTime("00:00:00")
            .withQueueList(listWorkloadPlanStageQueueList);
```

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```
        body.withWorkloadPlanStage(workloadPlanStagebody);
        request.withBody(body);
        try {
            AddWorkloadPlanStageResponse response = client.addWorkloadPlanStage(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = AddWorkloadPlanStageRequest()
        listQueueResourcesQueueList = [
            WorkloadResourceItem(
                resource_name="cpu",
                resource_value=20
            ),
            WorkloadResourceItem(
                resource_name="cpu_limit",
                resource_value=0
            ),
            WorkloadResourceItem(
                resource_name="memory",
                resource_value=0
            ),
            WorkloadResourceItem(
                resource_name="concurrency",
                resource_value=10
            ),
            WorkloadResourceItem(
                resource_name="shortQueryConcurrencyNum",
                resource_value=-1
            )
        ]
        listQueueListWorkloadPlanStage = [
```

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```
            QueueResourceItem(
                queue_name="pool1",
                queue_resources=listQueueResourcesQueueList
            )
        ]
        workloadPlanStagebody = WorkloadPlanStageReqWorkloadPlanStage(
            day="1,2",
            month="6",
            stage_name="stage1",
            start_time="00:00:00",
            end_time="00:00:00",
            queue_list=listQueueListWorkloadPlanStage
        )
        request.body = WorkloadPlanStageReq(
            workload_plan_stage=workloadPlanStagebody
        )
        response = client.add_workload_plan_stage(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.AddWorkloadPlanStageRequest{}
    var listQueueResourcesQueueList = []model.WorkloadResourceItem{
        {
            ResourceName: "cpu",
            ResourceValue: int32(20),
        },
        {
            ResourceName: "cpu_limit",
            ResourceValue: int32(0),
        },
        {
            ResourceName: "memory",
            ResourceValue: int32(0),
```

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```
        },
        {
            ResourceName: "concurrency",
            ResourceValue: int32(10),
        },
        {
            ResourceName: "shortQueryConcurrencyNum",
            ResourceValue: int32(-1),
        },
    }
    var listQueueListWorkloadPlanStage = []model.QueueResourceItem{
        {
            QueueName: "pool1",
            QueueResources: listQueueResourcesQueueList,
        },
    }
    dayWorkloadPlanStage:= "1,2"
    monthWorkloadPlanStage:= "6"
    stageNameWorkloadPlanStage:= "stage1"
    startTimeWorkloadPlanStage:= "00:00:00"
    endTimeWorkloadPlanStage:= "00:00:00"
    workloadPlanStagebody := &model.WorkloadPlanStageReqWorkloadPlanStage{
        Day: &dayWorkloadPlanStage,
        Month: &monthWorkloadPlanStage,
        StageName: &stageNameWorkloadPlanStage,
        StartTime: &startTimeWorkloadPlanStage,
        EndTime: &endTimeWorkloadPlanStage,
        QueueList: &listQueueListWorkloadPlanStage,
    }
    request.Body = &model.WorkloadPlanStageReq{
        WorkloadPlanStage: workloadPlanStagebody,
    }
    response, err := client.AddWorkloadPlanStage(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan stage is added successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

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5.7.20 Querying Details About a Resource Management Plan Stage

Function

This API is used to query details about a resource management plan stage.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/stages/{stage_id}

Table 5-360 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID
stage_id	Yes	String	Plan stage ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-361 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Status code
workload_res_str	String	Result description
workload_plan_stage	**PlanStage** object	Plan phase details

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Table 5-362 PlanStage

Parameter	Type	Description
month	String	Month of the plan
day	String	Date of the plan
plan_id	String	Plan ID
stage_id	String	Plan stage ID
stage_name	String	Plan stage name
start_time	String	Plan start time
end_time	String	Plan end time
next_valid_time	String	Next validation time
queue_list	Array of **QueueResourceItem** objects	Resource queue list

Table 5-363 QueueResourceItem

Parameter	Type	Description
queue_name	String	Resource pool name
queue_resources	Array of **WorkloadResourceItem** objects	Resource configuration queue

Table 5-364 WorkloadResourceItem

Parameter	Type	Description
resource_name	String	Resource name
resource_value	Integer	Resource attribute value
value_unit	String	Resource attribute unit
resource_description	String	Additional resource description

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Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a/stages/00bc8bc5-c885-42e5-b205-80547d3f94c4
```

Example Response

Status code: 200

Details about the resource management plan phase are queried successfully.

```
{
  "workload_plan_stage" : {
    "month" : 4,
    "day" : 4,
    "plan_id" : "dde42d0c-38f7-4592-841d-5a16c5512408",
    "stage_id" : "00bc8bc5-c885-42e5-b205-80547d3f94c4",
    "stage_name" : "stage2",
    "start_time" : "00:00:00",
    "end_time" : "00:00:00",
    "next_valid_time" : "2024-04-04 00:00:00",
    "queue_list" : [ {
      "queue_name" : "resouce1",
      "queue_resources" : [ {
        "resource_name" : "cpu",
        "resource_value" : 1,
        "value_unit" : null,
        "resource_description" : null
      } ]
    } ]
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowWorkloadPlanStageSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);
```

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```
        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ShowWorkloadPlanStageRequest request = new ShowWorkloadPlanStageRequest();
        try {
            ShowWorkloadPlanStageResponse response = client.showWorkloadPlanStage(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ShowWorkloadPlanStageRequest()
        response = client.show_workload_plan_stage(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)
```

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```
func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ShowWorkloadPlanStageRequest{}
    response, err := client.ShowWorkloadPlanStage(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Details about the resource management plan phase are queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.21 Deleting a Resource Management Plan Stage

Function

This API is used to delete a resource management plan stage.

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Call Method

For details, see **Calling APIs**.

URI

DELETE /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/stages/{stage_id}

Table 5-365 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID
stage_id	Yes	String	Plan stage ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-366 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

DELETE https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0c2145ad-4d76-4abe-bd1b-cdbe9128478a/stages/00bc8bc5-c885-42e5-b205-80547d3f94c4

Example Response

Status code: 200

The resource management plan stage is deleted successfully.

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```
{
  "workload_res_code" : 0,
  "workload_res_str" : "success deleted workload plan stage"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteWorkloadPlanStageSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DeleteWorkloadPlanStageRequest request = new DeleteWorkloadPlanStageRequest();
        try {
            DeleteWorkloadPlanStageResponse response = client.deleteWorkloadPlanStage(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
```

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```
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DeleteWorkloadPlanStageRequest()
        response = client.delete_workload_plan_stage(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DeleteWorkloadPlanStageRequest{}
    response, err := client.DeleteWorkloadPlanStage(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The resource management plan stage is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.22 Switch to Another Resource Management Plan Stage

Function

This API is used to switch to anther resource management plan stage.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/workload/plans/{plan_id}/stage-switch

Table 5-367 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
plan_id	Yes	String	Plan ID

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Request Parameters

Table 5-368 Request body parameters

Parameter	Mandatory	Type	Description
stage_id	Yes	String	Plan stage ID

Response Parameters

Status code: 200

Table 5-369 Response body parameters

Parameter	Type	Description
workload_res_code	Integer	Response code
workload_res_str	String	Response message

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/workload/plans/0591129f-4970-44e7-b213-f7bce797de87/stage-switch

{
  "stage_id" : "0c2145ad-4d76-4abe-bd1b-cdbe9128478a"
}
```

Example Response

Status code: 200

Resource management plan stage switched.

```
{
  "workload_res_code" : 0,
  "workload_res_str" : ""
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
```

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```
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class SwitchPlanStageSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        SwitchPlanStageRequest request = new SwitchPlanStageRequest();
        WorkloadPlanStageIdReq body = new WorkloadPlanStageIdReq();
        body.withStageId("0c2145ad-4d76-4abe-bd1b-cdbe9128478a");
        request.withBody(body);
        try {
            SwitchPlanStageResponse response = client.switchPlanStage(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()
```

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```
    try:
        request = SwitchPlanStageRequest()
        request.body = WorkloadPlanStageIdReq(
            stage_id="0c2145ad-4d76-4abe-bd1b-cdbe9128478a"
        )
        response = client.switch_plan_stage(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.SwitchPlanStageRequest{}
    request.Body = &model.WorkloadPlanStageIdReq{
        StageId: "0c2145ad-4d76-4abe-bd1b-cdbe9128478a",
    }
    response, err := client.SwitchPlanStage(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Resource management plan stage switched.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.23 Querying Cluster Schema Space Information

Function

This API is used to query space information of a cluster schema.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/databases/{database_name}/schemas

Table 5-370 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
database_name	Yes	String	Database name

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Table 5-371 Query parameters

Parameter	Mandatory	Type	Description
sort_key	No	String	Sorting field
sort_dir	No	String	Sorting rule
keywords	No	String	Keyword entered for search
limit	No	Integer	Number of records to be queried
offset	No	Integer	Offset

Request Parameters

None

Response Parameters

Status code: 200

Table 5-372 Response body parameters

Parameter	Type	Description
schemas	Array of SchemaInfo objects	Schema information list
count	Integer	Total number of records

Table 5-373 SchemaInfo

Parameter	Type	Description
schema_name	String	Schema name
database_name	String	Database name
total_value	Integer	Total space used by schemas in the cluster
perm_space	Integer	Schema space threshold
skew_percent	Double	Skew ratio
min_value	Integer	Minimum value
max_value	Integer	Maximum value
min_dn	String	Minimum number of DNs

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Parameter	Type	Description
max_dn	String	Maximum number of CNs
dn_num	Integer	Number of DNs

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/databases/gaussdb/schemas
```

Example Response

Status code: 200

Shema space information retrieved.

```
{
  "schemas" : [ {
    "schema_name" : "gs_logical_cluster",
    "database_name" : "gaussdb",
    "total_value" : 0,
    "perm_space" : -1,
    "skew_percent" : 0.0,
    "min_value" : 0,
    "max_value" : 0,
    "min_dn" : "dn_6001_6002",
    "max_dn" : "",
    "dn_num" : 3
  } ],
  "count" : 2
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListSchemasSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");
```

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```
        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListSchemasRequest request = new ListSchemasRequest();
        request.withSortKey("<sort_key>");
        request.withSortDir("<sort_dir>");
        request.withKeywords("<keywords>");
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListSchemasResponse response = client.listSchemas(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListSchemasRequest()
        request.sort_key = "<sort_key>"
        request.sort_dir = "<sort_dir>"
        request.keywords = "<keywords>"
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_schemas(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
```

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```
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListSchemasRequest{}
    sortKeyRequest:= "<sort_key>"
    request.SortKey = &sortKeyRequest
    sortDirRequest:= "<sort_dir>"
    request.SortDir = &sortDirRequest
    keywordsRequest:= "<keywords>"
    request.Keywords = &keywordsRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    response, err := client.ListSchemas(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Shema space information retrieved.

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Status Code	Description
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.7.24 Updating the Space Limit of a Schema

Function

This API is used to update the space limit of a schema.

Call Method

For details, see **Calling APIs**.

URI

PUT /v2/{project_id}/clusters/{cluster_id}/databases/{database_name}/schemas

Table 5-374 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
database_name	Yes	String	Database name

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Request Parameters

Table 5-375 Request body parameters

Parameter	Mandatory	Type	Description
schema_name	Yes	String	Schema space name
perm_space	Yes	String	Schema space threshold

Response Parameters

Status code: 200

Table 5-376 Response body parameters

Parameter	Type	Description
ret_code	Integer	Response code

Example Request

```
PUT https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/databases/gaussdb/schemas

{
  "schema_name" : "gs_logical_cluster",
  "perm_space" : 10240
}
```

Example Response

Status code: 200

Schema space limit updated.

```
{
  "ret_code" : 0
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class UpdateSchemasSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        UpdateSchemasRequest request = new UpdateSchemasRequest();
        WorkloadSchemaReq body = new WorkloadSchemaReq();
        body.withPermSpace("10240");
        body.withSchemaName("gs_logical_cluster");
        request.withBody(body);
        try {
            UpdateSchemasResponse response = client.updateSchemas(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
```

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```
        request = UpdateSchemasRequest()
        request.body = WorkloadSchemaReq(
            perm_space="10240",
            schema_name="gs_logical_cluster"
        )
        response = client.update_schemas(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.UpdateSchemasRequest{}
    request.Body = &model.WorkloadSchemaReq{
        PermSpace: "10240",
        SchemaName: "gs_logical_cluster",
    }
    response, err := client.UpdateSchemas(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Schema space limit updated.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.8 Alarm Management

5.8.1 Querying Alarm Configurations

Function

This API is used to query alarm configurations.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/alarm-configs

Table 5-377 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-378 Query parameters

Parameter	Mandatory	Type	Description
offset	No	String	Current page. The default value is **1**, and the maximum value is **10000**.

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Parameter	Mandatory	Type	Description
limit	No	String	Number of displayed records. A maximum of 1000 pieces are supported.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-379 Response body parameters

Parameter	Type	Description
count	Integer	Total number of alarm configurations
alarm_configs	Array of **AlarmConfig Response** objects	Alarm configuration list

Table 5-380 AlarmConfigResponse

Parameter	Type	Description
id	String	Alarm configuration ID
alarm_id	String	Alarm ID
alarm_name	String	Alarm name
name_space	String	Service
alarm_level	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
is_user_visible	String	Whether it is visible to users
is_converge	String	Whether to cover the prior alarm
converge_time	Integer	Coverage time

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Parameter	Type	Description
is_maintain_visible	String	Whether O&M is visible

Example Request

```
https://{Endpoint}/v2/{project_id}/alarm-configs
```

Example Response

Status code: 200

```
{
  "alarm_configs" : [ {
    "id" : "fd02e440-b4e2-4d2c-8d98-4d80224cf848",
    "alarm_id" : "DWS_2000000021_1",
"alarm_name": "File handle usage exceeds the threshold",
    "name_space" : "dws",
    "alarm_level" : "urgent",
    "is_user_visible" : "1",
    "is_converge" : "0",
    "converge_time" : 0,
    "is_maintain_visible" : "0"
  } ],
  "count" : 1
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAlarmConfigsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
```

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```
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListAlarmConfigsRequest request = new ListAlarmConfigsRequest();
        try {
            ListAlarmConfigsResponse response = client.listAlarmConfigs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListAlarmConfigsRequest()
        response = client.list_alarm_configs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
```

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```
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListAlarmConfigsRequest{}
    response, err := client.ListAlarmConfigs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The alarm configuration is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.8.2 Querying Alarm Details List

Function

This API is used to query the alarm details list.

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Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/alarms

Table 5-381 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-382 Query parameters

Parameter	Mandatory	Type	Description
time_zone	Yes	String	Time zone
offset	No	String	Current page The default value is **1**, and the maximum value is **10000**.
limit	No	String	Number of displayed records. A maximum of 1000 pieces are supported.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-383 Response body parameter

Parameter	Type	Description
count	Integer	Total number of alarm details
alarm_details	Array of **AlarmDetailResponse** objects	Alarm detail list

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Table 5-384 AlarmDetailResponse

Parameter	Type	Description
alarm_id	String	Alarm definition ID
alarm_name	String	Alarm name
alarm_level	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
alarm_source	String	Alarm service
alarm_message	String	Alarm message
alarm_location	String	Alarm location
resource_id	String	ID of the alarm source
resource_id_name	String	Alarm source name
alarm_generate_date	String	Alarm date
alarm_status	String	Alarm status

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/alarms?time_zone=GMT
```

Example Response

Status code: 200

```
{
  "alarm_details" : [ {
    "alarm_id" : "DWS_01010",
"alarm_name": "Cluster status is abnormal.",
    "alarm_level" : "1",
    "alarm_source" : "DWS",
    "alarm_message" : "CloudService=DWS, resourceId: 5e76e8e2-d0cf-4b64-9d9a-aadbb04b54f7,
resourceIdName: z30013507-evs-09, domain_name=EI_dws_lwx565140,
domain_id=0676610f3a0a4c2c80c50bea7ddf18c1,
res_domain_name=op_svc_dws_0676610f3a0a4c2c80c50bea7ddf18c1",
"alarm_location": "cluster_id: 5e76e8e2-d0cf-4b64-9d9a-aadbb04b54f7, cluster_name: z30013507-evs-09:
cluster_type: dws, domain_name:  EI_dws_demo,domain_id: 0676610f3a0a4c2c80c50bea7ddf18c1,",
    "resource_id" : "5e76e8e2-d0cf-4b64-9d9a-aadbb04b54f7",
    "resource_id_name" : "z30013507-evs-09",
    "alarm_generate_date" : "2022-10-27 08:11:29",
    "alarm_status" : "0"
  } ],
  "count" : 1
}
```

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SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAlarmDetailSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListAlarmDetailRequest request = new ListAlarmDetailRequest();
        request.withTimeZone("<time_zone>");
        request.withOffset("<offset>");
        request.withLimit("<limit>");
        try {
            ListAlarmDetailResponse response = client.listAlarmDetail(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
```

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```
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListAlarmDetailRequest()
        request.time_zone = "<time_zone>"
        request.offset = "<offset>"
        request.limit = "<limit>"
        response = client.list_alarm_detail(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListAlarmDetailRequest{}
    request.TimeZone = "<time_zone>"
    offsetRequest:= "<offset>"
    request.Offset = &offsetRequest
    limitRequest:= "<limit>"
    request.Limit = &limitRequest
    response, err := client.ListAlarmDetail(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
```

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```
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The alarm details list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.8.3 Querying the Alarm Statistics List

Function

This API is used to query the alarm statistics list.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/alarm-statistic
```

Table 5-385 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Table 5-386 Query parameters

Parameter	Mandatory	Type	Description
time_zone	Yes	String	Time zone

Request Parameters

None

Response Parameters

Status code: 200

Table 5-387 Response body parameter

Parameter	Type	Description
alarm_statistics	Array of **AlarmStatisticResponse** objects	Alarm statistics list.

Table 5-388 AlarmStatisticResponse

Parameter	Type	Description
date	String	Date
urgent	String	Urgent
important	String	Important
minor	String	Minor
prompt	String	Prompt

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/alarm-statistic?time_zone=GMT
```

Example Response

Status code: 200

```
{
  "alarm_statistics" : [ {
    "date" : "2022-10-21",
    "urgent" : 0,
    "important" : 0,
    "minor" : 0,
    "prompt" : 0
```

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```
 }, {
   "date" : "2022-10-22",
   "urgent" : 0,
   "important" : 0,
   "minor" : 0,
   "prompt" : 0
 }, {
   "date" : "2022-10-23",
   "urgent" : 0,
   "important" : 0,
   "minor" : 0,
   "prompt" : 0
 }, {
   "date" : "2022-10-24",
   "urgent" : 0,
   "important" : 0,
   "minor" : 0,
   "prompt" : 0
 }, {
   "date" : "2022-10-25",
   "urgent" : 0,
   "important" : 0,
   "minor" : 0,
   "prompt" : 0
 }, {
   "date" : "2022-10-26",
   "urgent" : 0,
   "important" : 0,
   "minor" : 0,
   "prompt" : 0
 }, {
   "date" : "2022-10-27",
   "urgent" : 17,
   "important" : 0,
   "minor" : 0,
   "prompt" : 0
 } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAlarmStatisticSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");
```

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```
        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListAlarmStatisticRequest request = new ListAlarmStatisticRequest();
        request.withTimeZone("<time_zone>");
        try {
            ListAlarmStatisticResponse response = client.listAlarmStatistic(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListAlarmStatisticRequest()
        request.time_zone = "<time_zone>"
        response = client.list_alarm_statistic(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
```

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```
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListAlarmStatisticRequest{}
    request.TimeZone = "<time_zone>"
    response, err := client.ListAlarmStatistic(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The alarm statistics list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.8.4 Querying the Alarm Subscription List

Function

This API is used to query the alarm subscription list.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/alarm-subs

Table 5-389 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-390 Query parameters

Parameter	Mandatory	Type	Description
offset	No	String	Current page. The default value is **1**, and the maximum value is **10000**.
limit	No	String	Number of displayed records. A maximum of 1000 pieces are supported.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-391 Response body parameter

Parameter	Type	Description
count	Integer	Total number of alarm subscriptions.

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Parameter	Type	Description
alarm_subscriptions	Array of **AlarmSubscriptionResponse** objects	Alarm subscription list

Table 5-392 AlarmSubscriptionResponse

Parameter	Type	Description
id	String	Alarm subscription ID
name	String	Subscribed alarm name
enable	Integer	Whether to enable subscription: • **1**: enable • **0**: disable
alarm_level	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
project_id	String	Project ID
name_space	String	Service
notification_target	String	Message topic address
notification_target_name	String	Message topic name
notification_target_type	String	Message topic type
language	String	Language
time_zone	String	Time zone

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/alarm-subs
```

Example Response

Status code: 200

```
{
  "count" : 1,
```

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```
 "alarm_subscriptions" : [ {
   "id" : "e8d8359f-b8bd-4b80-bc4d-32c86c7c725e",
   "name" : "00",
   "enable" : 1,
   "language" : "zh-cn",
   "alarm_level" : "urgent,important,minor,prompt",
   "project_id" : "4cf650fd46704908aa071b4df2453e1e",
   "name_space" : "DWS",
   "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:CGS",
   "notification_target_name" : "CGS",
   "notification_target_type" : "SMN",
   "time_zone" : "GMT+08:00"
 } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAlarmSubsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListAlarmSubsRequest request = new ListAlarmSubsRequest();
        try {
            ListAlarmSubsResponse response = client.listAlarmSubs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
```

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```
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListAlarmSubsRequest()
        response = client.list_alarm_subs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())
```

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```
    request := &model.ListAlarmSubsRequest{}
    response, err := client.ListAlarmSubs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The alarm subscription list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.8.5 Creating an Alarm Subscription Task

Function

This API is used to create an alarm subscription task.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/alarm-subs
```

Table 5-393 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Request Parameters

Table 5-394 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Subscribed alarm name
enable	No	Integer	Whether to enable subscription: • **1**: enable • **0**: disable
alarm_level	No	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
notification_target	Yes	String	Message topic address
notification_target_name	Yes	String	Message topic name
notification_target_type	Yes	String	Message topic type. Only SMN is supported.
time_zone	Yes	String	Time zone

Response Parameters

Status code: 200

Table 5-395 Response body parameters

Parameter	Type	Description
id	String	Alarm subscription ID
name	String	Subscribed alarm name
enable	Integer	Whether to enable subscription: • **1**: enable • **0**: disable

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Parameter	Type	Description
alarm_level	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
project_id	String	Project ID.
name_space	String	Service
notification_target	String	Message topic address
notification_target_name	String	Message topic name
notification_target_type	String	Message topic type
language	String	Language
time_zone	String	Time zone

Example Request

Enable the alarm subscription **zrf-test-12** with the severity of **critical**, **major**, and **minor** and select the message topic **dws-test-nodelete** whose address is **urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete**:

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/alarm-subs

{
  "alarm_level" : "urgent,important,minor",
  "enable" : 1,
  "name" : "zrf-test-12",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

Example Response

Status code: 200

```
{
  "id" : "273ce506-dad8-411c-92f9-be5004739b40",
  "name" : "zrf-test-12",
  "enable" : 1,
  "language" : "zh-cn",
  "alarm_level" : "urgent,important,minor",
  "project_id" : "4cf650fd46704908aa071b4df2453e1e",
  "name_space" : "dws",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
```

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```
  "time_zone" : "GMT+08:00"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateAlarmSubSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CreateAlarmSubRequest request = new CreateAlarmSubRequest();
        AlarmSubRequest body = new AlarmSubRequest();
        body.withTimeZone("GMT+08:00");
        body.withNotificationTargetType("SMN");
        body.withNotificationTargetName("dws-test-nodelete");
        body.withNotificationTarget("urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete");
        body.withAlarmLevel("urgent,important,minor");
        body.withEnable(1);
        body.withName("zrf-test-12");
        request.withBody(body);
        try {
            CreateAlarmSubResponse response = client.createAlarmSub(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CreateAlarmSubRequest()
        request.body = AlarmSubRequest(
            time_zone="GMT+08:00",
            notification_target_type="SMN",
            notification_target_name="dws-test-nodelete",
            notification_target="urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
            alarm_level="urgent,important,minor",
            enable=1,
            name="zrf-test-12"
        )
        response = client.create_alarm_sub(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CreateAlarmSubRequest{}
    alarmLevelAlarmSubRequest:= "urgent,important,minor"
    enableAlarmSubRequest:= int32(1)
    request.Body = &model.AlarmSubRequest{
        TimeZone: "GMT+08:00",
        NotificationTargetType: "SMN",
        NotificationTargetName: "dws-test-nodelete",
        NotificationTarget: "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
        AlarmLevel: &alarmLevelAlarmSubRequest,
        Enable: &enableAlarmSubRequest,
        Name: "zrf-test-12",
    }
    response, err := client.CreateAlarmSub(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The alarm subscription is created successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.8.6 Updating Subscribed Alarms

Function

This API is used to update subscribed alarms.

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Call Method

For details, see **Calling APIs**.

URI

PUT /v2/{project_id}/alarm-subs/{alarm_sub_id}

Table 5-396 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
alarm_sub_id	Yes	String	Alarm subscription ID

Request Parameters

Table 5-397 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Subscribed alarm name
enable	No	Integer	Whether to enable subscription: • **1**: enable • **0**: disable
alarm_level	No	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
notification_target	Yes	String	Address for the message topic
notification_target_name	Yes	String	Message topic name
notification_target_type	Yes	String	Message topic type. Only SMN is supported.

Response Parameters

Status code: 200

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Table 5-398 Response body parameters

Parameter	Type	Description
id	String	Alarm subscription ID
name	String	Subscribed alarm name
enable	Integer	Whether to enable subscription: • **1**: enable • **0**: disable
alarm_level	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**
project_id	String	Project ID
name_space	String	Service
notification_target	String	Address for the message topic
notification_target_name	String	Message topic name
notification_target_type	String	Message topic type
language	String	Language
time_zone	String	Time zone

Example Request

Modify the alarm subscription **zrf-test-13** with the severity of **Critical, Major**, and **Minor**, and modify the message topic into **dws-test-nodelete**, and address into **urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete**:

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/alarm-subs/273ce506-dad8-411c-92f9-be5004739b40

{
  "alarm_level" : "urgent,important,minor",
  "enable" : 1,
  "name" : "zrf-test-13",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN"
}
```

Example Response

Status code: 200

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```
{
  "id" : "273ce506-dad8-411c-92f9-be5004739b40",
  "name" : "zrf-test-13",
  "enable" : 1,
  "language" : "zh-cn",
  "alarm_level" : "urgent,important,minor",
  "project_id" : "4cf650fd46704908aa071b4df2453e1e",
  "name_space" : "dws",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateAlarmSubSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        UpdateAlarmSubRequest request = new UpdateAlarmSubRequest();
        AlarmSubUpdateRequest body = new AlarmSubUpdateRequest();
        body.withNotificationTargetType("SMN");
        body.withNotificationTargetName("dws-test-nodelete");
        body.withNotificationTarget("urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete");
        body.withAlarmLevel("urgent,important,minor");
        body.withEnable(1);
        body.withName("zrf-test-13");
        request.withBody(body);
        try {
            UpdateAlarmSubResponse response = client.updateAlarmSub(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
```

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```
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = UpdateAlarmSubRequest()
        request.body = AlarmSubUpdateRequest(
            notification_target_type="SMN",
            notification_target_name="dws-test-nodelete",
            notification_target="urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
            alarm_level="urgent,important,minor",
            enable=1,
            name="zrf-test-13"
        )
        response = client.update_alarm_sub(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
```

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```
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.UpdateAlarmSubRequest{}
    alarmLevelAlarmSubUpdateRequest:= "urgent,important,minor"
    enableAlarmSubUpdateRequest:= int32(1)
    request.Body = &model.AlarmSubUpdateRequest{
        NotificationTargetType: "SMN",
        NotificationTargetName: "dws-test-nodelete",
        NotificationTarget: "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
        AlarmLevel: &alarmLevelAlarmSubUpdateRequest,
        Enable: &enableAlarmSubUpdateRequest,
        Name: "zrf-test-13",
    }
    response, err := client.UpdateAlarmSub(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Subscribed alarms are updated successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.8.7 Deleting an Alarm Subscription

Function

This API is used to delete a subscribed alarm.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/alarm-subs/{alarm_sub_id}
```

Table 5-399 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
alarm_sub_id	Yes	String	Alarm subscription ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-400 Response body parameters

Parameter	Type	Description
id	String	Alarm subscription ID
name	String	Subscribed alarm name
enable	Integer	Whether to enable subscription: • **1**: enable • **0**: disable
alarm_level	String	Alarm severity, which can be: • **urgent** • **important** • **minor** • **prompt**

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Parameter	Type	Description
project_id	String	Project ID
name_space	String	Service
notification_target	String	Address for the message topic
notification_target_name	String	Message topic name
notification_target_type	String	Message topic type
language	String	Language
time_zone	String	Time zone

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/alarm-subs/273ce506-dad8-411c-92f9-be5004739b40
```

Example Response

Status code: 200

```
{
  "id" : "273ce506-dad8-411c-92f9-be5004739b40",
  "name" : "zrf-test-13",
  "enable" : 1,
  "language" : "zh-cn",
  "alarm_level" : "urgent,important,minor",
  "project_id" : "4cf650fd46704908aa071b4df2453e1e",
  "name_space" : "dws",
  "notification_target" : "urn:smn:cn-north-7:4cf650fd46704908aa071b4df2453e1e:dws-test-nodelete",
  "notification_target_name" : "dws-test-nodelete",
  "notification_target_type" : "SMN",
  "time_zone" : "GMT+08:00"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class DeleteAlarmSubSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        DeleteAlarmSubRequest request = new DeleteAlarmSubRequest();
        try {
            DeleteAlarmSubResponse response = client.deleteAlarmSub(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = DeleteAlarmSubRequest()
        response = client.delete_alarm_sub(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
```

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```
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.DeleteAlarmSubRequest{}
    response, err := client.DeleteAlarmSub(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The alarm subscription is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.

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Status Code	Description
500	Internal server error.
503	The service was unavailable.

5.9 Connection Management

5.9.1 Applying for a Private Domain Name

Function

This API is used to apply for a domain name for a cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/dns

Table 5-401 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-402 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Domain name to be created **NOTE** A domain name can contain hyphens (-) but cannot contain underscores (_).

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Parameter	Mandatory	Type	Description
type	Yes	String	Domain name type • **public**: public network domain name • **private**: private network domain name
ttl	Yes	Integer	Caching period of the SOA record set (in seconds) • Value range: 300 to 2147483647. • The default value is **300**.

Response Parameters

None

Example Request

Apply for a public domain name **demo** for which the SOA cache duration is 300s:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/dns

{
  "name" : "demo",
  "type" : "public",
  "ttl" : 300
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateClusterDnsSolution {

    public static void main(String[] args) {
```

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```
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        CreateClusterDnsRequest request = new CreateClusterDnsRequest();
        CreateClusterDns body = new CreateClusterDns();
        body.withTtl(300);
        body.withType("public");
        body.withName("demo");
        request.withBody(body);
        try {
            CreateClusterDnsResponse response = client.createClusterDns(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = CreateClusterDnsRequest()
        request.body = CreateClusterDns(
            ttl=300,
            type="public",
```

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```
            name="demo"
        )
        response = client.create_cluster_dns(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.CreateClusterDnsRequest{}
    request.Body = &model.CreateClusterDns{
        Ttl: int32(300),
        Type: "public",
        Name: "demo",
    }
    response, err := client.CreateClusterDns(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The domain name is successfully applied for.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.2 Modifying a Cluster Domain Name

Function

This API is used to change the domain name of a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v1.0/{project_id}/clusters/{cluster_id}/dns
```

Table 5-403 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-404 Request body parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Domain name to be modified
type	Yes	String	Domain name type. • **public**: public network domain name • **private**: private network domain name
ttl	Yes	Integer	Caching period of the SOA record set (in seconds) • Value range: 300 to 2147483647 • The default value is **300**.

Response Parameters

None

Example Request

Change the SOA cache duration for the public domain name **demo** to 300s.

```
PUT https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/dns

{
  "name" : "demo",
  "type" : "public",
  "ttl" : 300
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
```

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```
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateClusterDnsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        UpdateClusterDnsRequest request = new UpdateClusterDnsRequest();
        ModifyClusterDns body = new ModifyClusterDns();
        body.withTtl(300);
        body.withType("public");
        body.withName("demo");
        request.withBody(body);
        try {
            UpdateClusterDnsResponse response = client.updateClusterDns(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
```

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```
        .build()

    try:
        request = UpdateClusterDnsRequest()
        request.body = ModifyClusterDns(
            ttl=300,
            type="public",
            name="demo"
        )
        response = client.update_cluster_dns(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.UpdateClusterDnsRequest{}
    request.Body = &model.ModifyClusterDns{
        Ttl: int32(300),
        Type: "public",
        Name: "demo",
    }
    response, err := client.UpdateClusterDns(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The cluster domain name is modified successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.3 Deleting a Cluster Domain Name

Function

This API is used to delete a cluster domain name.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v1.0/{project_id}/clusters/{cluster_id}/dns
```

Table 5-405 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-406 Query parameters

Parameter	Mandatory	Type	Description
type	Yes	String	Domain name type. Only public domain names can be deleted.

Request Parameters

None

Response Parameters

None

Example Request

```
DELETE https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/dns?type=public
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteClusterDnsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
```

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```
            .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
            .build();
        DeleteClusterDnsRequest request = new DeleteClusterDnsRequest();
        request.withType("<type>");
        try {
            DeleteClusterDnsResponse response = client.deleteClusterDns(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DeleteClusterDnsRequest()
        request.type = "<type>"
        response = client.delete_cluster_dns(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)
```

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```
func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DeleteClusterDnsRequest{}
    request.Type = "<type>"
    response, err := client.DeleteClusterDns(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster domain name is deleted successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.4 Obtaining the Available ELB List

Function

This API is used to query the list of ELBs that can be bound to a cluster.

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Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/clusters/{cluster_id}/elbs

Table 5-407 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-408 Response body parameters

Parameter	Type	Description
elbs	Array of **ClusterElbInfo** objects	ELB list

Table 5-409 ClusterElbInfo

Parameter	Type	Description
id	String	ELB ID
cluster_id	String	Cluster ID
name	String	ELB name
description	String	ELB description
vip_address	String	ELB address
vip_subnet_id	String	Subnet ID

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Parameter	Type	Description
tenant_id	String	Tenant ID
type	String	ELB type, which can be: • **Internal**: dedicated • **External**: shared
admin_state_up	Boolean	ELB status, which can be: • **ACTIVE**: in use • **PENDING_CREATE**: being created • **ERROR**: Another forwarding policy of the same listener has the same forwarding rule.
bandwidth	Integer	Binding status: • **0**: not bound • **1**: bound
vpc_id	String	VPC ID

Example Request

```
GET https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/clusters/194408fa-9d41-435c-a140-91edcf5fe519/elbs
```

Example Response

Status code: 200

ELB list

```
{
  "elbs" : [ {
    "id" : "1e6e0b66-6223-4523-bfd9-033c88b4ce9f",
    "name" : "loadbalancer5",
    "description" : "simple lb",
    "bandwidth" : 0,
    "vip_address" : "192.168.0.222",
    "admin_state_up" : true,
    "vpc_id" : "c9f1171e-dc90-4ae9-bf22-f9736983ce2d"
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
```

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```
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListElbsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListElbsRequest request = new ListElbsRequest();
        try {
            ListElbsResponse response = client.listElbs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
```

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```
        request = ListElbsRequest()
        response = client.list_elbs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListElbsRequest{}
    response, err := client.ListElbs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The ELB list is obtained successfully.
400	Request error.

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Status Code	Description
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.5 Binding an ELB to a Cluster

Function

This API is used to bind an ELB to a cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/elbs/{elb_id}

Table 5-410 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
elb_id	Yes	String	ID of the ELB to be bound to the cluster

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-411 Response body parameter

Parameter	Type	Description
job_id	String	Job ID

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/clusters/194408fa-9d41-435c-a140-91edcf5fe519/elbs/1e6e0b66-6223-4523-bfd9-033c88b4ce9f
```

Example Response

Status code: 200

```
{"job_id":"2c9081838417d8850184196d8282002b"}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class AssociateElbSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        AssociateElbRequest request = new AssociateElbRequest();
        try {
            AssociateElbResponse response = client.associateElb(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
```

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```
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = AssociateElbRequest()
        response = client.associate_elb(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.AssociateElbRequest{}
    response, err := client.AssociateElb(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The ELB is successfully bound to the cluster.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.6 Unbinding an ELB From a Cluster

Function

This API is used to unbind an ELB from a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/clusters/{cluster_id}/elbs/{elb_id}
```

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Table 5-412 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
elb_id	Yes	String	ID of the bound ELB

Request Parameters

None

Response Parameters

Status code: 200

Table 5-413 Response body parameter

Parameter	Type	Description
job_id	String	Job ID

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/clusters/194408fa-9d41-435c-a140-91edcf5fe519/elbs/1e6e0b66-6223-4523-bfd9-033c88b4ce9f
```

Example Response

Status code: 200

```
{"job_id":"2c9081838417d8850184196d8282002b"}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;
```

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```
public class DisassociateElbSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DisassociateElbRequest request = new DisassociateElbRequest();
        try {
            DisassociateElbResponse response = client.disassociateElb(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DisassociateElbRequest()
        response = client.disassociate_elb(request)
        print(response)
    except exceptions.ClientRequestException as e:
```

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```
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DisassociateElbRequest{}
    response, err := client.DisassociateElb(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The ELB is successfully unbound from the cluster.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.

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Status Code	Description
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.7 Binding an EIP to a Cluster

Function

This API is used to bind an EIP to a cluster.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/clusters/{cluster_id}/eips/{eip_id}

Table 5-414 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
eip_id	Yes	String	ID of the EIP to be bound to the cluster

Request Parameters

None

Response Parameters

None

Example Request

https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/clusters/194408fa-9d41-435c-a140-91edcf5fe519/eips/ab60b4ac-10e3-4d83-bccd-9a6a1b0ba983

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Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class AssociateEipSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        AssociateEipRequest request = new AssociateEipRequest();
        try {
            AssociateEipResponse response = client.associateEip(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *
```

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```
if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = AssociateEipRequest()
        response = client.associate_eip(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.AssociateEipRequest{}
    response, err := client.AssociateEip(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The EIP is successfully bound to the cluster.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.9.8 Unbinding an EIP from a Cluster

Function

This API is used to unbind an EIP from a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/clusters/{cluster_id}/eips/{eip_id}
```

Table 5-415 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
eip_id	Yes	String	EIP bound to the cluster

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Request Parameters

None

Response Parameters

None

Example Request

```
https://{Endpoint}/v2/4cf650fd46704908aa071b4df2453e1e/clusters/194408fa-9d41-435c-a140-91edcf5fe519/eips/ab60b4ac-10e3-4d83-bccd-9a6a1b0ba983
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DisassociateEipSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DisassociateEipRequest request = new DisassociateEipRequest();
        try {
            DisassociateEipResponse response = client.disassociateEip(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
```

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```
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DisassociateEipRequest()
        response = client.disassociate_eip(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DisassociateEipRequest{}
    response, err := client.DisassociateEip(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The EIP is unbound from the cluster successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.10 Tag Management

5.10.1 Querying Tags in a Project

Function

This API is used to query the tag list of a project.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/tags
```

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Table 5-416 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-417 Response body parameters

Parameter	Type	Description
tags	Array of **ProjectTag** objects	Tag list objects

Table 5-418 ProjectTag

Parameter	Type	Description
key	String	Key. A tag key can contain a maximum of 128 characters. It cannot be an empty string or start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/
values	Array of strings	Value. A tag value can contain a maximum of 255 characters, which can be an empty string. It cannot start or end with a space. Only letters, digits, hyphens (-), and underscores (_) are allowed. It cannot contain the following characters: =*<>\,|/

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/tags
```

Example Response

Status code: 200

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The project tags are queried successfully.

```
{
  "tags" : [ {
    "key" : "key",
    "values" : [ "value-1", "value-2" ]
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListTagsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListTagsRequest request = new ListTagsRequest();
        try {
            ListTagsResponse response = client.listTags(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8
```

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```
from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListTagsRequest()
        response = client.list_tags(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListTagsRequest{}
    response, err := client.ListTags(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
```

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```
  }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The project tags are queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.10.2 Querying Cluster Tags

Function

This API is used to query the tags of a specified cluster.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/clusters/{cluster_id}/tags
```

Table 5-419 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-420 Response body parameters

Parameter	Type	Description
tags	Array of ResourceTag objects	Tag list

Table 5-421 ResourceTag

Parameter	Type	Description
key	String	Tag key
value	String	Tag value

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/4ca46bf1-5c61-48ff-b4f3-0ad4e5e3ba90/tags
```

Example Response

Status code: 200

The cluster tags are queried successfully.

```
{
  "tags" : [ {
    "key" : "key",
    "value" : "value"
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
```

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```
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListClusterTagsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListClusterTagsRequest request = new ListClusterTagsRequest();
        try {
            ListClusterTagsResponse response = client.listClusterTags(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListClusterTagsRequest()
```

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```
        response = client.list_cluster_tags(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListClusterTagsRequest{}
    response, err := client.ListClusterTags(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster tags are queried successfully.
400	Request error.
401	Authentication failed.

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Status Code	Description
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.10.3 Adding Tags in Batches

Function

This API is used to add tags to a cluster in batches.

Call Method

For details, see **Calling APIs**.

URI

POST /v1.0/{project_id}/clusters/{cluster_id}/tags/batch-create

Table 5-422 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-423 Request body parameters

Parameter	Mandatory	Type	Description
tags	Yes	Array of **BatchCreateResourceTag** objects	Tag list

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Table 5-424 BatchCreateResourceTag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key Minimum length: **1** Maximum length: **128**
value	Yes	String	Tag value. Minimum length: **0** Maximum length: **255**

Response Parameters

None

Example Request

Add tags whose key is **key** and value is **value** in batches:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/tags/batch-create
{
   "tags": [
      {
         "key": "key",
         "value": "value"
      }
   ]
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class BatchCreateResourceTagSolution {

    public static void main(String[] args) {
```

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```
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        BatchCreateResourceTagRequest request = new BatchCreateResourceTagRequest();
        BatchCreateResourceTags body = new BatchCreateResourceTags();
        List<BatchCreateResourceTag> listbodyTags = new ArrayList<>();
        listbodyTags.add(
            new BatchCreateResourceTag()
                .withKey("key")
                .withValue("value")
        );
        body.withTags(listbodyTags);
        request.withBody(body);
        try {
            BatchCreateResourceTagResponse response = client.batchCreateResourceTag(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
```

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```
        request = BatchCreateResourceTagRequest()
        listTagsbody = [
            BatchCreateResourceTag(
                key="key",
                value="value"
            )
        ]
        request.body = BatchCreateResourceTags(
            tags=listTagsbody
        )
        response = client.batch_create_resource_tag(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.BatchCreateResourceTagRequest{}
    var listTagsbody = []model.BatchCreateResourceTag{
        {
            Key: "key",
            Value: "value",
        },
    }
    request.Body = &model.BatchCreateResourceTags{
        Tags: listTagsbody,
    }
    response, err := client.BatchCreateResourceTag(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Tags are added in batches.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.10.4 Deleting Tags in Batches

Function

This API is used to batch delete tags from a specified cluster.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1.0/{project_id}/clusters/{cluster_id}/tags/batch-delete
```

Table 5-425 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-426 Request body parameters

Parameter	Mandatory	Type	Description
tags	Yes	Array of **BatchDeleteResourceTag** objects	Tag list

Table 5-427 BatchDeleteResourceTag

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key
value	Yes	String	Tag value

Response Parameters

None

Example Request

Delete tags whose key is **key** and value is **value** in batches:

```
POST https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/clusters/b5c45780-1006-49e3-b2d5-b3229975bbc7/tags/batch-delete
{
   "tags": [
      {
         "key": "key",
         "value": "value"
      }
   ]
}
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
```

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```
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class BatchDeleteResourceTagSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        BatchDeleteResourceTagRequest request = new BatchDeleteResourceTagRequest();
        BatchDeleteResourceTags body = new BatchDeleteResourceTags();
        List<BatchDeleteResourceTag> listbodyTags = new ArrayList<>();
        listbodyTags.add(
            new BatchDeleteResourceTag()
                .withKey("key")
                .withValue("value")
        );
        body.withTags(listbodyTags);
        request.withBody(body);
        try {
            BatchDeleteResourceTagResponse response = client.batchDeleteResourceTag(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
```

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```
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = BatchDeleteResourceTagRequest()
        listTagsbody = [
            BatchDeleteResourceTag(
                key="key",
                value="value"
            )
        ]
        request.body = BatchDeleteResourceTags(
            tags=listTagsbody
        )
        response = client.batch_delete_resource_tag(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.BatchDeleteResourceTagRequest{}
    var listTagsbody = []model.BatchDeleteResourceTag{
        {
            Key: "key",
            Value: "value",
        },
    }
    request.Body = &model.BatchDeleteResourceTags{
        Tags: listTagsbody,
```

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```
    }
    response, err := client.BatchDeleteResourceTag(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Tags are deleted in batches.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.11 Quota Management

5.11.1 Querying Resource Quotas

Function

This API is used to query the GaussDB(DWS) resource quotas of a tenant.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/quotas
```

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Table 5-428 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-429 Response body parameter

Parameter	Type	Description
quotas	**QuotasResources** object	Quota list objects

Table 5-430 QuotasResources

Parameter	Type	Description
resources	Array of **QuotasResource** objects	Resource list objects

Table 5-431 QuotasResource

Parameter	Type	Description
type	String	Project resource type
used	String	Number of used resources
quota	Integer	Resource quota
unit	Integer	Resource measurement unit

Example Request

```
GET https://{Endpoint}/v1.0/89cd04f168b84af6be287f71730fdb4b/quotas
```

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Example Response

Status code: 200

Resource quotas are queried.

```
{
  "quotas" : {
    "resources" : [ {
      "type" : "instances",
      "used" : "3",
      "quota" : "100",
      "unit" : "null"
    }, {
      "type" : "core",
      "used" : "12",
      "quota" : "100",
      "unit" : "null"
    }, {
      "type" : "ram",
      "used" : "24",
      "quota" : "1000",
      "unit" : "GB"
    }, {
      "type" : "disk",
      "used" : "6",
      "quota" : "100",
      "unit" : "null"
    }, {
      "type" : "disk_capacity",
      "used" : "600",
      "quota" : "1000",
      "unit" : "GB"
    } ]
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListQuotasSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
```

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```
            .withAk(ak)
            .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
            .withCredential(auth)
            .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
            .build();
        ListQuotasRequest request = new ListQuotasRequest();
        try {
            ListQuotasResponse response = client.listQuotas(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListQuotasRequest()
        response = client.list_quotas(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
```

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```
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListQuotasRequest{}
    response, err := client.ListQuotas(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Resource quotas are queried.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12 DR Management

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5.12.1 Creating a DR Task

Function

This API is used to create a DR task.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/disaster-recoveries

Table 5-432 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

Table 5-433 Request body parameters

Parameter	Mandatory	Type	Description
disaster_recovery	Yes	**DisasterRecoveryReq** object	DR objects

Table 5-434 DisasterRecoveryReq

Parameter	Mandatory	Type	Description
name	Yes	String	DR task name, which consists 4 to 64 case-insensitive characters. The value must start with a letter and only letters, digits, hyphens (-), and underscores (_) are allowed.
dr_type	Yes	String	DR type, which contains the AZ it is in.

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Parameter	Mandatory	Type	Description
dr_sync_period	Yes	String	Synchronization period. The value ranges from 1 to 3000. Currency Unit • Minute (m) • Hour (H) • Day (d)
primary_cluster_id	Yes	String	ID of the primary cluster
standby_cluster_id	Yes	String	ID of the standby cluster
primary_obs_bucket	No	String	OBS bucket of the primary cluster
standby_obs_bucket	No	String	OBS bucket of the standby cluster

Response Parameters

Table 5-435 Response body parameters

Parameter	Type	Description
disaster_recovery	DisasterRecovery object	DR objects

Table 5-436 DisasterRecovery

Parameter	Type	Description
id	String	DR ID

Example Request

create a cross-AZ DR instance named **test_dr4** and set the data synchronization interval to 5 minutes, where the primary cluster ID is **3ef5daaa-d017-4354-80b3-8a69caf2e09** and the standby cluster ID is **e7fed7fe-f4a7-499a-afed-1fdb5c1978cb**:

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recoveries
{
  "disaster_recovery": {
    "name": "test_dr4",
    "dr_type": "az",
    "primary_cluster_id": "3ef5daaa-d017-4354-80b3-8a69caf2e094",
    "standby_cluster_id": "e7fed7fe-f4a7-499a-afed-1fdb5c1978cb",
```

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```
    "dr_sync_period": "5m",
    "primary_obs_bucket": "",
    "standby_obs_bucket": ""
  }
}
```

Example Response

Status code: 200

The DR task is created successfully.

```
{
  "disaster_recovery" : {
    "id" : "aa1a688b-4bde-44ec-931f-bd77042841fb"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class CreateDisasterRecoverySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CreateDisasterRecoveryRequest request = new CreateDisasterRecoveryRequest();
        CreateDisasterRecoveryReq body = new CreateDisasterRecoveryReq();
        request.withBody(body);
        try {
            CreateDisasterRecoveryResponse response = client.createDisasterRecovery(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
```

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```
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = CreateDisasterRecoveryRequest()
        request.body = CreateDisasterRecoveryReq(
        )
        response = client.create_disaster_recovery(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
```

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```
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CreateDisasterRecoveryRequest{}
    request.Body = &model.CreateDisasterRecoveryReq{
    }
    response, err := client.CreateDisasterRecovery(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR task is created successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.2 Enabling DR

Function

This interface is used to start DR operations. You can start a DR task that is in the **Not started**/**Startup failed**/**Stopped** state. After you start the DR task, you cannot perform operations, including restoration, scale-out, upgrade, restart, node replacement, and password update, on the production cluster or DR cluster. Backup is also not allowed on the DR cluster. Exercise caution when performing this operation. After the DR task is started, if the DR cluster is running properly and DR recovery is in progress, the cluster will be billed. Only DWS 2.0 clusters are supported.

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Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/disaster-recovery/{disaster_recovery_id}/start
```

Table 5-437 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-438 Response body parameters

Parameter	Type	Description
disaster_recovery	**DisasterRecoveryId** object	DR ID object

Table 5-439 DisasterRecoveryId

Parameter	Type	Description
id	String	DR ID

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/e59d6b86-9072-46eb-a996-13f8b44994c1/start
```

Example Response

Status code: 200

The DR enabling request is successfully delivered.

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```
{
  "disaster_recovery" : {
    "id" : "e59d6b86-9072-46eb-a996-13f8b44994c1"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class StartDisasterRecoverySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        StartDisasterRecoveryRequest request = new StartDisasterRecoveryRequest();
        try {
            StartDisasterRecoveryResponse response = client.startDisasterRecovery(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
```

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```
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = StartDisasterRecoveryRequest()
        response = client.start_disaster_recovery(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.StartDisasterRecoveryRequest{}
    response, err := client.StartDisasterRecovery(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR enabling request is successfully delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.3 Querying the DR List

Function

This API is used to query the DR list. Only DWS 2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/disaster-recoveries
```

Table 5-440 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-441 Response body parameter

Parameter	Type	Description
disaster_recovery	Array of **DisasterRecovery** objects	DR list

Table 5-442 DisasterRecovery

Parameter	Type	Description
id	String	DR ID
name	String	DR name
dr_type	String	DR type
status	String	DR status • **creating**: The VPC peering connection is being created. • **create_failed**: Creating the execution failed. • unstart: The process is not started. • **starting**: The cluster is being started. • start_failed: The startup fails. • **running**: The event is running. • stopped: The VM is being stopped. • stop_failed: The service fails to be stopped. • **stopped**: The task has been stopped. • switchovering: The DR switchover is in progress. • abnormal • **deleting**: The VPC peering connection is being deleted.
primary_cluster_id	String	ID of the primary cluster
primary_cluster_name	String	Name of the primary cluster
standby_cluster_id	String	ID of the standby cluster

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Parameter	Type	Description
standby_cluster_name	String	Name of the standby cluster
primary_cluster_role	String	Role of the primary cluster
standby_cluster_role	String	Role of the standby cluster
primary_cluster_status	String	Status of the primary cluster • **backuping**: DCS instance backup is in progress. • **stopped**: The task has been stopped. • waiting: The task is being executed in the next period. • abnormal
standby_cluster_status	String	Status of the standby cluster • **restoring**: DCS instance restoration is in progress. • **stopped**: The task has been stopped. • waiting: The task is being executed in the next period. • abnormal
primary_cluster_region	String	Region of the primary cluster
standby_cluster_region	String	Region of the standby cluster
primary_cluster_project_id	String	Project ID of the primary cluster
standby_cluster_project_id	String	Project ID of the standby cluster
last_disaster_time	String	Time of the last DR synchronization
start_time	String	Start time
create_time	String	Creation time

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recoveries
```

Example Response

```
{
  "disaster_recovery": [
```

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```
  {
    "id": "9956ee8a-2f5b-4d76-8c18-4115e2393433",
    "name": "test-dr-1026-3",
    "status": "stop_failed",
    "dr_type": "az",
    "primary_cluster_id": "f6dc1f82-8d66-4750-a5d2-569d3f72cf61",
    "primary_cluster_name": "dr_2",
    "standby_cluster_id": "fb34f3f3-f86a-446b-9f2f-e0581ba55e73",
    "standby_cluster_name": "dr_1",
    "primary_cluster_role": "primary",
    "standby_cluster_role": "standby",
    "primary_cluster_status": "waiting",
    "standby_cluster_status": "waiting",
    "primary_cluster_region": "cn-north-7",
    "standby_cluster_region": "cn-north-7",
    "primary_cluster_project_id": "0536cdee2200d5912f7cc00b877980f1",
    "standby_cluster_project_id": "0536cdee2200d5912f7cc00b877980f1",
    "last_disaster_time": "2022-10-28T02:34:16",
    "start_time": null,
    "create_time": "2022-10-26T12:04:10"
  },
  {
    "id": "a85dee93-cd49-4c52-a44b-c50b24f6caae",
    "name": "test_dis",
    "status": "creating",
    "dr_type": "az",
    "primary_cluster_id": "3ef5daaa-d017-4354-80b3-8a69caf2e094",
    "primary_cluster_name": "t1031_02",
    "standby_cluster_id": "a07cb2f7-b17e-4d95-923b-a33d0c884d37",
    "standby_cluster_name": "t1028_02",
    "primary_cluster_role": "primary",
    "standby_cluster_role": "standby",
    "primary_cluster_status": null,
    "standby_cluster_status": null,
    "primary_cluster_region": "cn-north-7",
    "standby_cluster_region": "cn-north-7",
    "primary_cluster_project_id": "0536cdee2200d5912f7cc00b877980f1",
    "standby_cluster_project_id": "0536cdee2200d5912f7cc00b877980f1",
    "last_disaster_time": null,
    "start_time": null,
    "create_time": "2022-10-31T06:17:00"
  }
 ]
}
```


SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListDisasterRecoverSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
```

```
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListDisasterRecoverRequest request = new ListDisasterRecoverRequest();
        try {
            ListDisasterRecoverResponse response = client.listDisasterRecover(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListDisasterRecoverRequest()
        response = client.list_disaster_recover(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListDisasterRecoverRequest{}
    response, err := client.ListDisasterRecover(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.12.4 Querying DR Details

Function

This API is used to query DR details.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/disaster-recovery/{disaster_recovery_id}

Table 5-443 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-444 Response body parameter

Parameter	Type	Description
disaster_recovery	**DisasterRecoveryQueryResp** object	Response body for querying DR information.

Table 5-445 DisasterRecoveryQueryResp

Parameter	Type	Description
id	String	DR ID

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Parameter	Type	Description
name	String	DR name
dr_type	String	DR type
status	String	DR status • **creating**: The VPC peering connection is being created. • **create_failed**: Creating the execution failed. • unstart: The process is not started. • **starting**: The cluster is being started. • start_failed: The startup fails. • **running**: The event is running. • stopped: The VM is being stopped. • stop_failed: The service fails to be stopped. • **stopped**: The task has been stopped. • switchovering: The DR switchover is in progress. • abnormal • **deleting**: The VPC peering connection is being deleted.
primary_cluster	**DisasterRecoveryCluster** object	Primary cluster
standby_cluster	**DisasterRecoveryCluster** object	Standby cluster
dr_sync_period	String	DR synchronization period
start_time	String	DR start time
create_time	String	DR creation time

Table 5-446 DisasterRecoveryCluster

Parameter	Type	Description
id	String	ID of the DR cluster
name	String	Name of the DR cluster
cluster_az	String	AZ of the DR cluster
role	String	Role of the DR cluster

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Parameter	Type	Description
region	String	Region where the DR cluster is located
status	String	Status of the DR cluster • **restoring**: DCS instance restoration is in progress. • **stopped**: The task has been stopped. • waiting: The task is being executed in the next period. • abnormal
progress	String	DR progress
last_success_time	String	Last DR time
obs_bucket_name	String	OBS bucket name

Example Request

```
https://{Endpoint}/v2/0536cdee2200d5912f7cc00b877980f1/disaster-recovery/b303b78d-438c-41dd-aaf6-c98eea1fc2a6
```

Example Response

Status code: 200

The DR information is queried successfully.

```
{
  "disaster_recovery": {
    "id": "b303b78d-438c-41dd-aaf6-c98eea1fc2a6",
    "name": "dws-it-02",
    "status": "running",
    "dr_type": "region",
    "primary_cluster": {
      "id": "3de21046-e65e-4fcf-86bf-583115b39c27",
      "name": "dws-203-primary",
      "cluster_az": "cn-north-7c",
      "role": "primary",
      "region": "cn-north-7",
      "status": "waiting",
      "progress": "100",
      "last_success_time": "2023-04-29T06:39:56",
      "obs_bucket_name": null
    },
    "standby_cluster": {
      "id": "5d946c51-9ffa-49e3-9129-2bea4d23d3fd",
      "name": "dws-205-standby",
      "cluster_az": null,
      "role": "standby",
      "region": "cn-north-208",
      "status": "waiting",
      "progress": "100",
      "last_success_time": "2023-04-29T06:39:56",
      "obs_bucket_name": null
    },
   "dr_sync_period": "3H",
```

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```
    "start_time": "2023-04-28T09:23:38",
    "create_time": "2023-04-28T08:51:54"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowDisasterDetailSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShowDisasterDetailRequest request = new ShowDisasterDetailRequest();
        try {
            ShowDisasterDetailResponse response = client.showDisasterDetail(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
```

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```
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShowDisasterDetailRequest()
        response = client.show_disaster_detail(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShowDisasterDetailRequest{}
    response, err := client.ShowDisasterDetail(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR information is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.5 Querying DR Progress

Function

This API is used to query the cluster DR progress. (The returned parameter values are for reference only. The actual values need to be analyzed based on service running.)

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/disaster-recovery/{disaster_recovery_id}/show-progress

Table 5-447 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

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Request Parameters

None

Response Parameters

Table 5-448 Response body parameter

Parameter	Type	Description
disaster_recovery_progress	**ClusterDisasterRecovery** Object	Cluster DR details.

Table 5-449 ClusterDisasterRecovery

Parameter	Type	Description
primary_cluster	**ClusterRecoveryProgress** Object	DR progress of the primary cluster
standby_cluster	**ClusterRecoveryProgress** Object	DR progress of the standby cluster
latest_barrier_time	String	Time when the disaster occurs
last_recovery_spend	Long	Time consumed for restoring the previous backup set, in seconds.
recovery_point_object	Long	Target data recovery time, in seconds.
recovery_time_object	Long	Target service recovery time, in seconds.

Table 5-450 ClusterRecoveryProgress

Parameter	Type	Description
key	String	DR ID.
action_type	String	Action.
unrestore_keys	String	ID of the backup set to be restored.
action_start_time	String	Start time of the current action.

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Parameter	Type	Description
action_end_time	String	End time of the current action.

Example Request

```
GET https://{Endpoint}/v1/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/
2a4d0f86-67cd-408a-8b66-017454fb7793/show-progress
```

Example Response

Status code: 200

Cluster DR details are queried successfully.

```
{
  "disaster_recovery_progress":{
    "primary_cluster": {
      "key": "20230327_201637",
      "action_type": "Backup",
      "unrestore_keys": "N/A",
      "action_start_time": "2023-03-27 20:16:34",
      "action_end_time": "2023-03-27 20:17:00"
    },
    "standby_cluster": {
      "key": "20230327_201637",
      "action_type": "Restore",
      "unrestore_keys": "20230327_201637,20230327_201638,20230327_201639",
      "action_start_time": "2023-03-27 20:18:27",
      "action_end_time": "2023-03-27 20:24:40"
    },
    "latest_barrier_time": "2023-03-28 10:24:40",
    "last_recovery_spend": 30,
    "recovery_point_object": 50886,
    "recovery_time_object": 600
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowDisasterProgressSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
```

```
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShowDisasterProgressRequest request = new ShowDisasterProgressRequest();
        try {
            ShowDisasterProgressResponse response = client.showDisasterProgress(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShowDisasterProgressRequest()
        response = client.show_disaster_progress(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShowDisasterProgressRequest{}
    response, err := client.ShowDisasterProgress(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.12.6 Querying the List of Available DR Clusters

Function

This API is used to query the list of available DR clusters.

Call Method

For details, see **Calling APIs**.

URI

GET /v2/{project_id}/disaster-recovery-clusters

Table 5-451 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-452 Query parameters

Parameter	Mandatory	Type	Description
primary_cluster_id	Yes	String	ID of the primary cluster
primary_spec_id	No	String	ID of the primary cluster.
primary_cluster_dn_num	No	String	Number of DNs in the primary cluster.
standby_region	No	String	Region where the standby cluster is located.
standby_project_id	No	String	Project ID of the standby cluster
standby_az_code	Yes	String	AZ where the standby cluster is located.
dr_type	No	String	DR type.
datastore_type	No	String	Data warehouse type.
datastore_version	No	String	Data warehouse version.

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-453 Response body parameter

Parameter	Type	Description
disaster_recovery_clusters	Array of **DisasterRecoveryClusterVo** objects	List of available DR clusters.

Table 5-454 DisasterRecoveryClusterVo

Parameter	Type	Description
id	String	Cluster ID
name	String	Cluster name

Example Request

```
https://{Endpoint}/v2/0536cdee2200d5912f7cc00b877980f1/disaster-recovery-clusters?primary_cluster_id=3de21046-e65e-4fcf-86bf-583115b39c27&standby_az_code=cn-north-7a&standby_region=&dr_type=&standby_project_id=
```

Example Response

Status code: 200

Request succeeded.

```
{
  "disaster_recovery_clusters" : [ ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
```

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```
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListAvailableDisasterClustersSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListAvailableDisasterClustersRequest request = new ListAvailableDisasterClustersRequest();
        request.withPrimaryClusterId("<primary_cluster_id>");
        request.withPrimarySpecId("<primary_spec_id>");
        request.withPrimaryClusterDnNum("<primary_cluster_dn_num>");
        request.withStandbyRegion("<standby_region>");
        request.withStandbyProjectId("<standby_project_id>");
        request.withStandbyAzCode("<standby_az_code>");
        request.withDrType("<dr_type>");
        request.withDatastoreType("<datastore_type>");
        request.withDatastoreVersion("<datastore_version>");
        try {
            ListAvailableDisasterClustersResponse response = client.listAvailableDisasterClusters(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \
```

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```
    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListAvailableDisasterClustersRequest()
        request.primary_cluster_id = "<primary_cluster_id>"
        request.primary_spec_id = "<primary_spec_id>"
        request.primary_cluster_dn_num = "<primary_cluster_dn_num>"
        request.standby_region = "<standby_region>"
        request.standby_project_id = "<standby_project_id>"
        request.standby_az_code = "<standby_az_code>"
        request.dr_type = "<dr_type>"
        request.datastore_type = "<datastore_type>"
        request.datastore_version = "<datastore_version>"
        response = client.list_available_disaster_clusters(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListAvailableDisasterClustersRequest{}
    request.PrimaryClusterId = "<primary_cluster_id>"
    primarySpecIdRequest:= "<primary_spec_id>"
    request.PrimarySpecId = &primarySpecIdRequest
    primaryClusterDnNumRequest:= "<primary_cluster_dn_num>"
    request.PrimaryClusterDnNum = &primaryClusterDnNumRequest
    standbyRegionRequest:= "<standby_region>"
    request.StandbyRegion = &standbyRegionRequest
    standbyProjectIdRequest:= "<standby_project_id>"
    request.StandbyProjectId = &standbyProjectIdRequest
    request.StandbyAzCode = "<standby_az_code>"
    drTypeRequest:= "<dr_type>"
```

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```
    request.DrType = &drTypeRequest
    datastoreTypeRequest:= "<datastore_type>"
    request.DatastoreType = &datastoreTypeRequest
    datastoreVersionRequest:= "<datastore_version>"
    request.DatastoreVersion = &datastoreVersionRequest
    response, err := client.ListAvailableDisasterClusters(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Request succeeded.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.7 Updating DR Configurations

Function

This API is used to update DR configurations. Only DR tasks in the **Not started** or **Stopped** state can be modified. The new configuration takes effect after DR is restarted.

Call Method

For details, see **Calling APIs**.

URI

```
PUT /v2/{project_id}/disaster-recovery/{disaster_recovery_id}
```

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Table 5-455 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

Table 5-456 Request body parameters

Parameter	Mandatory	Type	Description
disaster_recovery	No	**UpdateDisasterRecoveryReq** object	DR configurations

Table 5-457 UpdateDisasterRecoveryReq

Parameter	Mandatory	Type	Description
dr_sync_period	No	String	DR synchronization period
send_request	No	Integer	Whether to send a request. Minimum value: **0** Maximum value: **1**
primary_to_role	No	String	Role of the primary cluster
reset_action	No	String	DR action
standby_to_role	No	String	Role of the standby cluster
dr_status	No	String	DR status

Response Parameters

Status code: 200

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Table 5-458 Response body parameter

Parameter	Type	Description
disaster_recovery	DisasterRecoveryId object	DR ID object

Table 5-459 DisasterRecoveryId

Parameter	Type	Description
id	String	DR ID

Example Request

Change the cluster DR synchronization period to 3 hours, the primary cluster to **primary**, the standby cluster to **standby**, and the DR action to **DR_RUNNING**:

```
https://{Endpoint}/v2/0536cdee2200d5912f7cc00b877980f1/disaster-recovery/b303b78d-438c-41dd-aaf6-c98eea1fc2a6

{
  "disaster_recovery" : {
    "dr_sync_period" : "3H",
    "send_request" : 0,
    "primary_to_role" : "primary",
    "standby_to_role" : "standby",
    "reset_action" : "DR_RUNNING",
    "dr_status" : "running"
  }
}
```

Example Response

Status code: 200

DR configuration updated successfully.

```
{
  "disaster_recovery" : {
    "id" : "xxxx"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
```

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```
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateDisasterInfoSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        UpdateDisasterInfoRequest request = new UpdateDisasterInfoRequest();
        UpdateDisasterRecoveryRequest body = new UpdateDisasterRecoveryRequest();
        UpdateDisasterRecoveryReq disasterRecoverybody = new UpdateDisasterRecoveryReq();
        disasterRecoverybody.withDrSyncPeriod("3H")
            .withSendRequest(0)
            .withPrimaryToRole("primary")
            .withResetAction("DR_RUNNING")
            .withStandbyToRole("standby")
            .withDrStatus("running");
        body.withDisasterRecovery(disasterRecoverybody);
        request.withBody(body);
        try {
            UpdateDisasterInfoResponse response = client.updateDisasterInfo(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = UpdateDisasterInfoRequest()
        disasterRecoverybody = UpdateDisasterRecoveryReq(
            dr_sync_period="3H",
            send_request=0,
            primary_to_role="primary",
            reset_action="DR_RUNNING",
            standby_to_role="standby",
            dr_status="running"
        )
        request.body = UpdateDisasterRecoveryRequest(
            disaster_recovery=disasterRecoverybody
        )
        response = client.update_disaster_info(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.UpdateDisasterInfoRequest{}
    drSyncPeriodDisasterRecovery:= "3H"
    sendRequestDisasterRecovery:= int32(0)
    primaryToRoleDisasterRecovery:= "primary"
    resetActionDisasterRecovery:= "DR_RUNNING"
    standbyToRoleDisasterRecovery:= "standby"
    drStatusDisasterRecovery:= "running"
    disasterRecoverybody := &model.UpdateDisasterRecoveryReq{
        DrSyncPeriod: &drSyncPeriodDisasterRecovery,
```

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```
        SendRequest: &sendRequestDisasterRecovery,
        PrimaryToRole: &primaryToRoleDisasterRecovery,
        ResetAction: &resetActionDisasterRecovery,
        StandbyToRole: &standbyToRoleDisasterRecovery,
        DrStatus: &drStatusDisasterRecovery,
    }
    request.Body = &model.UpdateDisasterRecoveryRequest{
        DisasterRecovery: disasterRecoverybody,
    }
    response, err := client.UpdateDisasterInfo(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	DR configuration updated successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.8 Switching to the DR Cluster

Function

This interface is used to perform DR switchover. To perform a switchover when the DR cluster is running properly, click **Switch to DR Cluster**. You can perform a DR switchover when the DR task is in the **Running** state. During a switchover, the original production cluster is not available. Recovery Point Object (RPO) refers to the point in time to which a system and data must be restored after a disaster occurs. When the production cluster is in the Available state, the RPO is 0. When the production cluster is unavailable, RPO=0 cannot be ensured. However, data can be restored to at least the latest DR success time of the production cluster. Only DWS 2.0 clusters are supported.

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Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/disaster-recovery/{disaster_recovery_id}/switchover
```

Table 5-460 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-461 Response body parameter

Parameter	Type	Description
disaster_recovery	**DisasterRecoveryId** object	DR ID object

Table 5-462 DisasterRecoveryId

Parameter	Type	Description
id	String	DR ID

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/e59d6b86-9072-46eb-a996-13f8b44994c1/switchover
```

Example Response

Status code: 200

The DR switchover task is successfully delivered.

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```
{
  "disaster_recovery" : {
    "id" : "e59d6b86-9072-46eb-a996-13f8b44994c1"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class SwitchoverDisasterRecoverySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        SwitchoverDisasterRecoveryRequest request = new SwitchoverDisasterRecoveryRequest();
        try {
            SwitchoverDisasterRecoveryResponse response = client.switchoverDisasterRecovery(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
```

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```
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = SwitchoverDisasterRecoveryRequest()
        response = client.switchover_disaster_recovery(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.SwitchoverDisasterRecoveryRequest{}
    response, err := client.SwitchoverDisasterRecovery(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR switchover task is successfully delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.9 Switching to the DR Cluster Upon Production Cluster Exceptions

Function

This interface is used to perform an active/standby switchover when a DR exception occurs. To perform a switchover when the DR cluster is abnormal or the production cluster is faulty, click **Exception Switchover**. DR exception switchover is supported only by clusters of version 8.1.2 or later. Before a switchover, check the latest synchronization time in the DR cluster. The DR cluster will serve as a production cluster after an abnormal switchover, but the data that failed to be synchronized from the original production cluster to the DR cluster will not exist in the DR cluster. Only DWS 2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/disaster-recovery/{disaster_recovery_id}/failover
```

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Table 5-463 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-464 Response body parameters

Parameter	Type	Description
disaster_recovery	**DisasterRecoveryId** object	DR ID object

Table 5-465 DisasterRecoveryId

Parameter	Type	Description
id	String	DR ID

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/e59d6b86-9072-46eb-a996-13f8b44994c1/failover
```

Example Response

Status code: 200

The cluster switchover task is successfully delivered.

```
{
  "disaster_recovery" : {
    "id" : "e59d6b86-9072-46eb-a996-13f8b44994c1"
  }
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class SwitchFailoverDisasterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        SwitchFailoverDisasterRequest request = new SwitchFailoverDisasterRequest();
        try {
            SwitchFailoverDisasterResponse response = client.switchFailoverDisaster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = SwitchFailoverDisasterRequest()
        response = client.switch_failover_disaster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.SwitchFailoverDisasterRequest{}
    response, err := client.SwitchFailoverDisaster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The cluster switchover task is successfully delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.10 Performing Cluster Restoration

Function

This API is used to perform DR operations after an active/standby switchover is performed and the standby cluster is restored to the available state. DR is supported only by clusters of 8.1.2 or later. During DR recovery, data in the DR cluster will be deleted, and the DR relationship will be re-established with the new production cluster. Only DWS 2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/disaster-recovery/{disaster_recovery_id}/recovery

Table 5-466 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-467 Response body parameters

Parameter	Type	Description
disaster_recovery	DisasterRecoveryId object	DR ID object

Table 5-468 DisasterRecoveryId

Parameter	Type	Description
id	String	DR ID

Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/e59d6b86-9072-46eb-a996-13f8b44994c1/recovery
```

Example Response

Status code: 200

The DR restoration task is successfully delivered.

```
{
  "disaster_recovery" : {
    "id" : "e59d6b86-9072-46eb-a996-13f8b44994c1"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class RestoreDisasterSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
```

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```
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        RestoreDisasterRequest request = new RestoreDisasterRequest();
        try {
            RestoreDisasterResponse response = client.restoreDisaster(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = RestoreDisasterRequest()
        response = client.restore_disaster(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.RestoreDisasterRequest{}
    response, err := client.RestoreDisaster(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR restoration task is successfully delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.12.11 Disabling DR

Function

This API is used to stop DR operations. Only DR tasks in the **Running** or **Stop failed** state can be stopped. Data cannot be synchronized after a DR task is stopped. Only DWS 2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

POST /v2/{project_id}/disaster-recovery/{disaster_recovery_id}/pause

Table 5-469 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	DR ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-470 Response body parameter

Parameter	Type	Description
disaster_recovery	**DisasterRecoveryId** object	DR ID object

Table 5-471 DisasterRecoveryId

Parameter	Type	Description
id	String	DR ID

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Example Request

```
POST https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/e59d6b86-9072-46eb-a996-13f8b44994c1/pause
```

Example Response

Status code: 200

The DR disabling request is successfully delivered.

```
{
  "disaster_recovery" : {
    "id" : "e59d6b86-9072-46eb-a996-13f8b44994c1"
  }
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class PauseDisasterRecoverySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        PauseDisasterRecoveryRequest request = new PauseDisasterRecoveryRequest();
        try {
            PauseDisasterRecoveryResponse response = client.pauseDisasterRecovery(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
```

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```
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = PauseDisasterRecoveryRequest()
        response = client.pause_disaster_recovery(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
```

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```
        WithCredential(auth).
        Build())

    request := &model.PauseDisasterRecoveryRequest{}
    response, err := client.PauseDisasterRecovery(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR disabling request is successfully delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.12 Checking the DR Name

Function

This API is used to query whether a DR name is available.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v2/{project_id}/disaster-recovery/check-name
```

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Table 5-472 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-473 Query parameters

Parameter	Mandatory	Type	Description
dr_name	Yes	String	DR name.
type	No	String	DR type.
standby_region	No	String	Region where the standby cluster is located.
standby_project_id	No	String	ID of the project to which the standby cluster belongs.

Request Parameters

None

Response Parameters

None

Example Request

```
https://{Endpoint}/rds/v2/0536cdee2200d5912f7cc00b877980f1/disaster-recovery/check-name?dr_name=dws-it
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
```

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```
import com.huaweicloud.sdk.dws.v2.model.*;


public class CheckDisasterNameSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        CheckDisasterNameRequest request = new CheckDisasterNameRequest();
        request.withDrName("<dr_name>");
        request.withType("<type>");
        request.withStandbyRegion("<standby_region>");
        request.withStandbyProjectId("<standby_project_id>");
        try {
            CheckDisasterNameResponse response = client.checkDisasterName(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()
```

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```
    try:
        request = CheckDisasterNameRequest()
        request.dr_name = "<dr_name>"
        request.type = "<type>"
        request.standby_region = "<standby_region>"
        request.standby_project_id = "<standby_project_id>"
        response = client.check_disaster_name(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.CheckDisasterNameRequest{}
    request.DrName = "<dr_name>"
    typeRequest:= "<type>"
    request.Type = &typeRequest
    standbyRegionRequest:= "<standby_region>"
    request.StandbyRegion = &standbyRegionRequest
    standbyProjectIdRequest:= "<standby_project_id>"
    request.StandbyProjectId = &standbyProjectIdRequest
    response, err := client.CheckDisasterName(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The DR name is checked successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.12.13 Deleting a DR Task

Function

This API is used to delete a DR operation. You can delete a DR task when **DR Status** is **Creation failed**, **Not started**, **Startup failed**, **Stopped**, **Stop failed**, or **Abnormal**. Data cannot be synchronized after a DR task is deleted, and the deleted task cannot be restored. Only DWS 2.0 clusters are supported.

Call Method

For details, see **Calling APIs**.

URI

```
DELETE /v2/{project_id}/disaster-recovery/{disaster_recovery_id}
```

Table 5-474 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
disaster_recovery_id	Yes	String	ID

Request Parameters

None

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Response Parameters

None

Example Request

```
DELETE https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/disaster-recovery/b5c45780-1006-49e3-b2d5-b3229975bbc7
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DeleteDisasterRecoverySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DeleteDisasterRecoveryRequest request = new DeleteDisasterRecoveryRequest();
        try {
            DeleteDisasterRecoveryResponse response = client.deleteDisasterRecovery(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
```

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```
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = DeleteDisasterRecoveryRequest()
        response = client.delete_disaster_recovery(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())
```

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```
    request := &model.DeleteDisasterRecoveryRequest{}
    response, err := client.DeleteDisasterRecovery(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The DR deletion request is delivered successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.13 Job Management

5.13.1 Querying the Job Progress

Function

This API is used to query the job progress.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/job/{job_id}
```

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Table 5-475 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
job_id	Yes	String	Job ID

Request Parameters

None

Response Parameters

Status code: 200

Table 5-476 Response body parameters

Parameter	Type	Description
job_id	String	Job ID
job_name	String	Job name
begin_time	String	Time when the job starts
end_time	String	Job end time
status	String	Job status
failed_code	String	Error code of a job failure
failed_detail	String	Job failure details
progress	String	Job progress

Example Request

```
https://{Endpoint}/v1.0/05f2cff45100d5112f4bc00b794ea08e/job/2c9080e8845b207101845b245e1e0001
```

Example Response

Status code: 200

Job progress

```
{
  "status" : "FAIL",
  "progress" : "9%",
  "job_id" : "2c9080e88459fa44018459fbeb600001",
  "job_name" : "ecfClusterElbCreateJob",
  "begin_time" : "2022-11-09T20:25:00",
  "end_time" : "2022-11-09T20:30:00",
  "failed_code" : "CreateELBTask-fail:DWS.0114",
```

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```
  "failed_detail" : "DWS.0114:ELB private IP is not configured."
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListJobDetailsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListJobDetailsRequest request = new ListJobDetailsRequest();
        try {
            ListJobDetailsResponse response = client.listJobDetails(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *
```

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```
if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListJobDetailsRequest()
        response = client.list_job_details(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListJobDetailsRequest{}
    response, err := client.ListJobDetails(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in querying the job progress.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.14 Host Monitoring

5.14.1 Querying the Host Overview

Function

This API is used to query the host monitoring overview.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/dms/host-overview

Table 5-477 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

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Table 5-478 Query parameters

Parameter	Mandatory	Type	Description
cluster_id	No	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
instance_name	No	String	Instance name.
limit	Yes	Integer	Number of data records. The value ranges from 1 to 2147483647.
offset	Yes	Integer	Data offset. Value range: 0 to 2147483646.

Request Parameters

None

Response Parameters

Table 5-479 Response body parameters

Parameter	Type	Description
[Array]	Array of **HostOverviewResponse** objects	Host overview list

Table 5-480 HostOverviewResponse

Parameter	Type	Description
instance_name	String	Instance name
host_name	String	Host name.
host_stat	String	Host status. The options are as follows: • **ONLINE**: The device is online. • **OFFLINE**: The device is offline.
work_ip	String	IP address
mem_free	double	Unused memory in the system, in GB.

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Parameter	Type	Description
mem_total	double	Total memory(GB)
mem_usage	double	Memory usage (GB)
mem_cached	double	Cache memory (GB)
mem_buffer	double	Buffer memory (MB)
swap_free	double	RAM temporary storage in the swap space, in GB
swap_total	double	Total swap space (GB)
cpu_usage	double	CPU usage (%)
cpu_usage_sys	double	System CPU usage (%)
cpu_usage_usr	double	User CPU usage (%)
cpu_idle	double	Idle CPU usage (%)
cpu_iowait	double	I/O wait (%)
disk_usage_avg	double	Average disk usage (%)
disk_total	double	Total disk capacity (GB)
disk_used	double	Used disk capacity (GB).
disk_available	double	Available disk capacity (GB)
disk_io	double	Disk I/O (KB/s)
disk_io_read	double	Disk read rate (KB/s)
disk_io_write	double	Disk write rate (KB/s)
tcp_resend_rate	double	TCP protocol stack retransmission rate (%)
net_io	double	Network I/O (KB/s)

Example Request

```
https://{Endpoint}/v1.0/05f2cff45100d5112f4bc00b794ea08e/dms/host-overview?limit=1&offset=0
```

Example Response

Status code: 200

The host overview is queried successfully.

```
[
  {
    "instance_name": "d30035376-dms-test07-dws-cn-cn-1-1",
    "host_name": "host-172-16-11-62",
```

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```
    "host_stat": "ONLINE",
    "work_ip": "172.16.106.168",
    "mem_free": 1.45,
    "mem_total": 14.89,
    "mem_usage": 26.4,
    "mem_cached": 9.26,
    "mem_buffer": 249.34,
    "swap_free": 0,
    "swap_total": 0,
    "cpu_usage": 8.93,
    "cpu_usage_sys": 3.37,
    "cpu_usage_usr": 5.56,
    "cpu_idle": 90.57,
    "cpu_iowait": 0.12,
    "disk_usage_avg": 4.44,
    "disk_total": 548.76,
    "disk_used": 24.38,
    "disk_available": 522,
    "disk_io": 19.75,
    "disk_io_read": 0,
    "disk_io_write": 19.75,
    "tcp_resend_rate": 0,
    "net_io": 0
  }
]
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListHostOverviewSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListHostOverviewRequest request = new ListHostOverviewRequest();
        request.withClusterId("<cluster_id>");
        request.withInstanceName("<instance_name>");
        request.withLimit(<limit>);
        request.withOffset(<offset>);
```

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```
        try {
            ListHostOverviewResponse response = client.listHostOverview(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListHostOverviewRequest()
        request.cluster_id = "<cluster_id>"
        request.instance_name = "<instance_name>"
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_host_overview(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
```

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```
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListHostOverviewRequest{}
    clusterIdRequest:= "<cluster_id>"
    request.ClusterId = &clusterIdRequest
    instanceNameRequest:= "<instance_name>"
    request.InstanceName = &instanceNameRequest
    request.Limit = int32(<limit>)
    request.Offset = int32(<offset>)
    response, err := client.ListHostOverview(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The host overview is queried successfully.
204	The processing is successful, but no content is returned.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.14.2 Querying Disk Information

Function

This API is used to query information about disks monitored by a host.

Call Method

For details, see **Calling APIs**.

URI

GET /v1.0/{project_id}/dms/disk

Table 5-481 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-482 Query parameters

Parameter	Mandatory	Type	Description
cluster_id	No	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
instance_name	No	String	Instance name
instance_id	No	String	Instance ID
limit	Yes	Integer	Number of data records. The value ranges from 1 to 2147483647.
offset	Yes	Integer	Data offset. Value range: 0 to 2147483646.

Request Parameters

None

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Response Parameters

Table 5-483 Response body parameters

Parameter	Type	Description
[Array]	Array of **DiskResp** objects	List of disks on a host

Table 5-484 DiskResp

Parameter	Type	Description
instance_name	String	Instance name
instance_id	String	Instance ID
host_name	String	Host name
disk_name	String	Disk name
disk_type	String	Disk type (system disk, data disk, or log disk)
total	double	Total disk capacity (GB)
used	double	Used disk capacity (GB)
available	double	Available disk capacity (GB)
used_percentage	double	Disk Usage (%)
await	double	I/O wait time (ms)
svctm	double	I/O service time (ms)
util	double	I/O usage (%)
read_rate	double	Disk read rate (KB/s)
write_rate	double	Disk write rate (KB/s)

Example Request

```
https://{Endpoint}/v1.0/05f2cff45100d5112f4bc00b794ea08e/dms/disk?limit=1&offset=0
```

Example Response

```
[
 {
  "instance_name": "d30035376-dms-test07-dws-cn-cn-1-1",
  "instance_id": "1",
  "host_name": "host-172-16-11-62",
  "disk_name": "vda",
  "disk_type": "system",
  "total": 49,
```

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```
    "used": 5.64,
    "available": 40.99,
    "used_percentage": 11.51,
    "await": 0.21,
    "svctm": 0.03,
    "util": 0.01,
    "read_rate": 0,
    "write_rate": 52.72
  }
]
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListHostDiskSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListHostDiskRequest request = new ListHostDiskRequest();
        request.withClusterId("<cluster_id>");
        request.withInstanceId("<instance_id>");
        request.withInstanceName("<instance_name>");
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListHostDiskResponse response = client.listHostDisk(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
```

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```
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListHostDiskRequest()
        request.cluster_id = "<cluster_id>"
        request.instance_id = "<instance_id>"
        request.instance_name = "<instance_name>"
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_host_disk(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()
```

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```
    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListHostDiskRequest{}
    clusterIdRequest:= "<cluster_id>"
    request.ClusterId = &clusterIdRequest
    instanceIdRequest:= "<instance_id>"
    request.InstanceId = &instanceIdRequest
    instanceNameRequest:= "<instance_name>"
    request.InstanceName = &instanceNameRequest
    request.Limit = int32(<limit>)
    request.Offset = int32(<offset>)
    response, err := client.ListHostDisk(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The disk information is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.14.3 Obtaining the NIC Status

Function

This API is used to obtain the NIC status monitored by a host.

Call Method

For details, see **Calling APIs**.

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URI

GET /v1.0/{project_id}/dms/net

Table 5-485 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-486 Query parameters

Parameter	Mandatory	Type	Description
cluster_id	No	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
instance_name	No	String	Instance name
limit	Yes	Integer	Number of data records. The value ranges from 1 to 2147483647.
offset	Yes	Integer	Data offset. Value range: 0 to 2147483646.

Request Parameters

None

Response Parameters

Table 5-487 Parameters in the response body

Parameter	Type	Description
[Array]	Array of **NetResp** objects	NIC list of a host

Table 5-488 NetResp

Parameter	Type	Description
virtual_cluster_id	Integer	Virtual cluster ID

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Parameter	Type	Description
ctime	Long	Query time
host_id	Integer	Host ID
host_name	String	Host name
instance_name	String	Instance name
interface_name	String	NIC name
up	Boolean	NIC status. The value can be **true** (up) or **false** (down).
speed	Long	NIC speed (Mbps)
recv_packets	Long	Number of received packets
send_packets	Long	Number of sent packets
recv_drop	Long	Number of lost packets during reception
recv_rate	Double	Receiving rate (KB/s)
send_rate	Double	Sending Rate (KB/s)
io_rate	Double	Network speed (KB/s)

Example Request

```
https://{Endpoint}/v1.0/05f2cff45100d5112f4bc00b794ea08e/dms/net?limit=1&offset=0
```

Example Response

```
[
  {
    "virtual_cluster_id": 23,
    "ctime": 1668071223000,
    "host_id": 34,
    "host_name": "host-172-16-11-62",
    "instance_name": "d30035376-dms-test07-dws-cn-cn-1-1",
    "interface_name": "eth2",
    "up": true,
    "speed": -1,
    "recv_packets": 490595835,
    "send_packets": 533376765,
    "recv_drop": 0,
    "recv_rate": 16.35,
    "send_rate": 11.71,
    "io_rate": null
  }
]
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListHostNetSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListHostNetRequest request = new ListHostNetRequest();
        request.withClusterId("<cluster_id>");
        request.withInstanceName("<instance_name>");
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListHostNetResponse response = client.listHostNet(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this
```

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```
example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListHostNetRequest()
        request.cluster_id = "<cluster_id>"
        request.instance_name = "<instance_name>"
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_host_net(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListHostNetRequest{}
    clusterIdRequest:= "<cluster_id>"
    request.ClusterId = &clusterIdRequest
    instanceNameRequest:= "<instance_name>"
    request.InstanceName = &instanceNameRequest
    request.Limit = int32(<limit>)
    request.Offset = int32(<offset>)
    response, err := client.ListHostNet(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
```

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```
  }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Succeeded in obtaining the NIC status.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.14.4 Querying Performance Monitoring Metrics

Function

This API is used to obtain monitoring metrics.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/dms/metric-data/indicators
```

Table 5-489 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-490 Response body parameter

Parameter	Type	Description
[Array]	Array of **IndicatorInfo** objects	Monitoring metric list

Table 5-491 IndicatorInfo

Parameter	Type	Description
indicator_name	String	Monitoring metric name
plugin_name	String	Name of a collection module
default_collect_rate	String	Default collection frequency
support_datastore_version	String	Supported cluster version

Example Request

```
https://{Endpoint}/v1.0/05f2cff45100d5112f4bc00b794ea08e/dms/metric-data/indicators
```

Example Response

Status code: 200

Monitoring metrics obtained successfully.

```
[ {
  "indicator_name" : "cluster.cpu_usage",
  "plugin_name" : "CpuStat",
  "default_collect_rate" : "30",
  "support_datastore_version" : "8.0.0"
}, {
  "indicator_name" : "cluster.sql_probe_single",
  "plugin_name" : "SqlProbeTask",
  "default_collect_rate" : "30",
  "support_datastore_version" : "8.0.0"
} ]
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListMonitorIndicatorsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListMonitorIndicatorsRequest request = new ListMonitorIndicatorsRequest();
        try {
            ListMonitorIndicatorsResponse response = client.listMonitorIndicators(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListMonitorIndicatorsRequest()
        response = client.list_monitor_indicators(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListMonitorIndicatorsRequest{}
    response, err := client.ListMonitorIndicators(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	Monitoring metrics obtained successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.14.5 Querying Historical Monitoring Data

Function

This API is used to query historical monitoring data.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1.0/{project_id}/dms/metric-data
```

Table 5-492 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.

Table 5-493 Query parameters

Parameter	Mandatory	Type	Description
from	Yes	String	Start time
to	Yes	String	End time
function	No	String	Method to obtain values.
period	No	String	Period for obtaining values.

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Parameter	Mandatory	Type	Description
indicator_name	Yes	String	Monitoring metric name
dim0	Yes	String	First level
dim1	No	String	Second level

Request Parameters

None

Response Parameters

Status code: 200

Table 5-494 Response body parameter

Parameter	Type	Description
[Array]	Array of **TrendQueryDataResponseBody** objects	List of historical monitoring data.

Table 5-495 TrendQueryDataResponseBody

Parameter	Type	Description
query_time	Long	Query time
indicator_name	String	Monitoring metric name
object_id	String	ID of the monitored object
unit	String	Unit
sub_object_id	String	ID of the cluster under secondary monitoring
data_points	Array of **TrendQueryData** objects	Node data

Table 5-496 TrendQueryData

Parameter	Type	Description
result	String	Query result.
timestamp	Long	Timestamp

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Example Request

```
https://{Endpoint}/v1.0/05f2cff45100d5112f4bc00b794ea08e/dms/metric-data?from=1671058114000&to=1671058144000&indicator_name=cluster.cpu_usage&dim0=cluster_id,fe658e95-5284-4adf-b6aa-7729b563dxxx
```

Example Response

Status code: 200

```
[ {
  "query_time" : 1671160536504,
  "indicator_name" : "cluster cpu_usage",
  "object_id" : "fe658e95-5284-4adf-b6aa-7729b563dcb7",
  "unit" : "percentage",
  "data_points" : [ {
    "result" : "10.20",
    "timestamp" : 1671058114000
  }, {
    "result" : "10.20",
    "timestamp" : 1671058144000
  } ]
}, {
  "query_time" : 1671160536504,
  "indicator_name" : "cluster cpu_mem",
  "object_id" : "fe658e95-5284-4adf-b6aa-7729b563dcb7",
  "unit" : "percentage",
  "data_points" : [ {
    "result" : "10.20",
    "timestamp" : 1671058114000
  }, {
    "result" : "10.20",
    "timestamp" : 1671058144000
  } ]
} ]
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListMonitorIndicatorDataSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
```

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```
            .withSk(sk);

    DwsClient client = DwsClient.newBuilder()
            .withCredential(auth)
            .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
            .build();
    ListMonitorIndicatorDataRequest request = new ListMonitorIndicatorDataRequest();
    request.withFrom("<from>");
    request.withTo("<to>");
    request.withFunction("<function>");
    request.withPeriod("<period>");
    request.withIndicatorName("<indicator_name>");
    request.withDim0("<dim0>");
    request.withDim1("<dim1>");
    try {
        ListMonitorIndicatorDataResponse response = client.listMonitorIndicatorData(request);
        System.out.println(response.toString());
    } catch (ConnectionException e) {
        e.printStackTrace();
    } catch (RequestTimeoutException e) {
        e.printStackTrace();
    } catch (ServiceResponseException e) {
        e.printStackTrace();
        System.out.println(e.getHttpStatusCode());
        System.out.println(e.getRequestId());
        System.out.println(e.getErrorCode());
        System.out.println(e.getErrorMsg());
    }
  }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListMonitorIndicatorDataRequest()
        request._from = "<from>"
        request.to = "<to>"
        request.function = "<function>"
        request.period = "<period>"
        request.indicator_name = "<indicator_name>"
        request.dim0 = "<dim0>"
        request.dim1 = "<dim1>"
        response = client.list_monitor_indicator_data(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
```

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```
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListMonitorIndicatorDataRequest{}
    request.From = "<from>"
    request.To = "<to>"
    functionRequest:= "<function>"
    request.Function = &functionRequest
    periodRequest:= "<period>"
    request.Period = &periodRequest
    request.IndicatorName = "<indicator_name>"
    request.Dim0 = "<dim0>"
    dim1Request:= "<dim1>"
    request.Dim1 = &dim1Request
    response, err := client.ListMonitorIndicatorData(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The historical monitoring data is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.14.6 Querying Table Skew or Dirty Page Rate Information

Function

This API is used to query the skew or dirty page rate of a table.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1/{project_id}/clusters/{cluster_id}/dms/tables/statistic
```

Table 5-497 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-498 Query parameters

Parameter	Mandatory	Type	Description
rate_type	Yes	String	Type of information to be queried. This parameter is set to a fixed value. • **skew**: table skew rate. • **dirtyPage**: dirty page rate
offset	Yes	Integer	Offset from which the query starts, which is greater or equal to 0.
limit	Yes	Integer	Number of records displayed per page.
order_by	No	String	Sorting field This parameter is set to a fixed value. • **table_size**: table size. • **rate**: table skew rate or dirty page rate.
sort_by	No	String	Ascending or descending. This parameter is set to a fixed value. • **ASC**: ascending • **DESC**: descending
filter	No	String	Query condition. This parameter is set to a fixed value. • **db_name**: database name • **schema_name**: schema name • **table_name**: table name. • **table_owner**: table owner
value	No	String	Value of a query condition.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-499 Response body parameters

Parameter	Type	Description
collect_time	Long	Millisecond-level timestamp of the data collection time
data	Array of **ListTablesStatisticDto** objects	List of table skew rates or dirty page rates
count	Integer	Total list size

Table 5-500 ListTablesStatisticDto

Parameter	Type	Description
db_name	String	Database name
schema_name	String	Schema name
table_name	String	Table name
table_owner	String	Table owner
table_size	String	Table size
skew_rate	Double	Skew rate
dirty_page_rate	Double	Dirty page rate

Example Request

```
https://{Endpoint}/v1/{project_id}/clusters/{cluster_id}/dms/tables/statistic?
rate_type=dirtyPage&filter=&value=&offset=0&limit=1&order_by=&sort_by=ASC
```

Example Response

Status code: 200

```
{
  "collect_time" : 0,
  "data" : [ {
    "db_name" : "postgres",
    "schema_name" : "pmk",
    "table_name" : "pmk_snapshot_coordinator_stat",
    "table_owner" : "Ruby",
    "table_size" : "224 KB",
    "skew_rate" : null,
    "dirty_page_rate" : 0.77
  } ],
  "count" : 3
}
```

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SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListTablesStatisticSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListTablesStatisticRequest request = new ListTablesStatisticRequest();
        request.withRateType("<rate_type>");
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        request.withOrderBy("<order_by>");
        request.withSortBy("<sort_by>");
        request.withFilter("<filter>");
        request.withValue("<value>");
        try {
            ListTablesStatisticResponse response = client.listTablesStatistic(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
```

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```
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListTablesStatisticRequest()
        request.rate_type = "<rate_type>"
        request.offset = <offset>
        request.limit = <limit>
        request.order_by = "<order_by>"
        request.sort_by = "<sort_by>"
        request.filter = "<filter>"
        request.value = "<value>"
        response = client.list_tables_statistic(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListTablesStatisticRequest{}
```

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```
    request.RateType = "<rate_type>"
    request.Offset = int32(<offset>)
    request.Limit = int32(<limit>)
    orderByRequest:= "<order_by>"
    request.OrderBy = &orderByRequest
    sortByRequest:= "<sort_by>"
    request.SortBy = &sortByRequest
    filterRequest:= "<filter>"
    request.Filter = &filterRequest
    valueRequest:= "<value>"
    request.Value = &valueRequest
    response, err := client.ListTablesStatistic(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The table skew rate/dirty page rate is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.14.7 Querying the SQL List

Function

This API is used to query the real-time SQL list.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v2/{project_id}/clusters/{cluster_id}/dms/queries
```

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Table 5-501 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-502 Request body parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID
project_id	Yes	String	Project ID
offset	Yes	String	Offset from which the query starts, which is greater or equal to 0.
limit	Yes	String	Number of records displayed per page
conditions	Yes	Array of **ListQueriesCondition** objects	Search criteria
order_by	No	String	Sorting field
target	Yes	String	The value is fixed at **db_queries**.

Table 5-503 ListQueriesCondition

Parameter	Mandatory	Type	Description
field	Yes	String	Field name
value	Yes	String	Field value

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Parameter	Mandatory	Type	Description
operator	Yes	String	Comparison mode. • For string parameters: – = – != – like – not like • For int parameters: – = – != – >= – < – >= – <= • For boolean parameters: – = – !=

Response Parameters

Status code: 200

Table 5-504 Response body parameters

Parameter	Type	Description
code	Integer	Response code
msg	String	Response message
data	**ListQueriesData** object	Response data
count	Integer	Total records

Table 5-505 ListQueriesData

Parameter	Type	Description
queries	Array of **ListQueriesDto** objects	Queried data object list
status	**ListQueriesStatus** object	Statistical data

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Table 5-506 ListQueriesDto

Parameter	Type	Description
virtual_cluster_id	Integer	Virtual cluster ID
ctime	Long	Collection time
pid	String	Session ID
inst_name	String	Instance name
waiting	Boolean	Whether the backend is currently waiting on a lock. If yes, the value is **true**.
enqueue	String	Workload management resource status
warning	String	Warnings related to SQL self-diagnosis and tuning
query	String	Query statement
lane	String	Fast or slow lane.
db_name	String	Database name
priority	String	Priority of a job in the resource pool. The value can be **1**, **2**, **4**, or **8** (**rush**, **high**, **medium**, or **low**).
query_id	String	Internal **query_id** used for statement execution
query_band	String	Job type, which can be set using the guc parameter **query_band**. The default value is a null string.
job_name	String	The value is obtained from the **query_band** field. The position is 0.
job_inst	String	The value is obtained from the **query_band** field. The position is 1.
user_name	String	Username used for connecting to the backend
application_name	String	Name of the application that is connected to the backend.
client_address	String	IP address of the client connected to this backend.
client_hostname	String	Host name of the client.
client_port	String	TCP port number used by a client to communicate with the backend

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Parameter	Type	Description
start_time	Long	Time when a statement starts to be executed
block_time	Long	Block time before the statement is executed. The unit is ms.
duration	Long	Duration that a statement has been executed. The unit is ms.
estimate_total_time	Long	Estimated execution time of a statement. The unit is ms.
estimate_left_time	Long	Estimated remaining time of statement execution. The unit is ms.
resource_pool	String	Resource pool used by the user
control_group	String	Cgroup used by the statement.
min_peak_memory	Integer	Minimum memory peak of a statement across all DNs. The unit is MB.
max_peak_memory	Integer	Maximum memory peak of a statement across all DNs. The unit is MB.
average_peak_memory	Integer	Average memory usage during statement execution. The unit is MB.
memory_skew_percent	Integer	Memory usage skew of a statement among DNs.
estimate_memory	Integer	Estimated memory used by a statement. The unit is MB.
spill_info	String	Information about the statement spilling to disks on all DNs.
min_spill_size	Integer	Minimum spilled data among all DNs when a spill occurs, in MB. The default value is **0**.
max_spill_size	Integer	Maximum spilled data among all DNs when a spill occurs, in MB. The default value is **0**.
average_spill_size	Integer	Average spilled data among all DNs when a spill occurs, in MB. The default value is **0**.
spill_skew_percent	Integer	DN spill skew.
min_dn_time	Long	Minimum execution time of a statement across all DNs. The unit is ms.
max_dn_time	Long	Minimum execution time of a statement across all DNs. The unit is ms.
average_dn_time	Long	Average execution time of a statement across all DNs. The unit is ms.

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Parameter	Type	Description
dntime_skew_percent	Integer	Execution time skew of a statement among DNs.
min_cpu_time	Long	Minimum CPU time of a statement across all DNs. The unit is milliseconds.
max_cpu_time	Long	Maximum CPU time of a statement across all DNs. The unit is milliseconds.
total_cpu_time	Long	Total CPU time of a statement across all DNs. The unit is milliseconds.
cpu_skew_percent	Integer	CPU time skew of a statement among DNs.
average_peak_iops	Integer	Average IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
iops_skew_percent	Integer	I/O skew of a statement among DNs.
max_peak_iops	Integer	Maximum IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
min_peak_iops	Integer	Minimum IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
query_plan	String	Query Plan
query_status	String	Real-time running status (**active**, **idle**, **idle in transaction**, **idle in transaction(aborted)**, **fastpath function call**, **disabled**) of the current query statement.
wlm_status	String	Running status (**pending**, **running**, **finished**, **aborted**, **active**, **unknown**) of the current query statement in the resource pool.
wlm_attrib	String	Statement attribute (**ordinary**, **simple**, **complicated**, **internal**)
system_query	Boolean	Whether a query is a system query
backend_start	Long	Time when this process was started, that is, when the client connected to the server
elapsed_time	Long	Execution time so far.

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Parameter	Type	Description
curr_xact_start	Long	Time when the current transaction was started (**NULL** if no transactions are active). If the current query is the first of its transaction, the value of this column is the same as that of the **query_start** column.
state_change	Long	Time when the **status** was changed in the previous time
query_start	Long	Time when a statement starts to be executed
query_elapsed_time	Long	Actual execution duration of the statement, in seconds.

Table 5-507 ListQueriesStatus

Parameter	Type	Description
average_query_waiting_time	Double	Average query wait time
average_time_consumption_of_queries	Double	Average query duration
average_time_consumption_of_sessions	Double	Average session duration
queries_count	Long	Number of records to be queried.
session_count	Long	Sessions

Example Request

```
https://{Endpoint}/v2/{project_id}/clusters/{cluster_id}/dms/queries

{
  "offset" : 0,
  "limit" : 1,
  "cluster_id" : "cluster_id",
  "project_id" : "project_id",
  "conditions" : [ {
    "field" : "userName",
"value": " User Name",
    "operator" : "="
  }, {
    "field" : "applicationName",
"value": "Application Name",
    "operator" : "<>"
  }, {
    "field" : "dbName",
"value": "Database name",
    "operator" : "="
```

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```
 }, {
   "field" : "resourcePool",
"value": "Resource Pool",
   "operator" : "<>"
 }, {
   "field" : "queryStatus",
"value": "Query status",
   "operator" : "="
 }, {
   "field" : "enqueue",
"value": "Queuing status",
   "operator" : "<>"
 }, {
   "field" : "lane",
"value": "Fast and slow lane",
   "operator" : "="
 }, {
   "field" : "instName",
"value": "Access CN",
   "operator" : "<>"
 }, {
   "field" : "pid",
"value": "Session ID",
   "operator" : "="
 }, {
   "field" : "blockTime",
   "value" : "1",
   "operator" : "="
 }, {
   "field" : "duration",
   "value" : "2",
   "operator" : "<>"
 }, {
   "field" : "minCpuTime",
   "value" : "3",
   "operator" : ">"
 }, {
   "field" : "maxCpuTime",
   "value" : "4",
   "operator" : "<"
 }, {
   "field" : "totalCpuTime",
   "value" : "5",
   "operator" : ">="
 }, {
   "field" : "cpuSkewPercent",
   "value" : "6",
   "operator" : "<="
 }, {
   "field" : "spillInfo",
"value": "DN spill information",
   "operator" : "="
 }, {
   "field" : "minSpillSize",
   "value" : "7",
   "operator" : "<>"
 }, {
   "field" : "maxSpillSize",
   "value" : "8",
   "operator" : ">"
 }, {
   "field" : "averageSpillSize",
   "value" : "9",
   "operator" : "<"
 }, {
   "field" : "spillSkewPercent",
   "value" : "10",
   "operator" : ">="
 }, {
```

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```
    "field" : "queryBand",
"value": "Job type",
    "operator" : "<>"
  }, {
    "field" : "jobName",
"value": " Task name",
    "operator" : "="
  }, {
    "field" : "jobInst",
"value": "Task instance",
    "operator" : "<>"
  }, {
    "field" : "clientHostname",
"value": "Host name",
    "operator" : "="
  }, {
    "field" : "clientPort",
"value": "TCP port",
    "operator" : "<>"
  }, {
    "field" : "waiting",
"value": "Wait",
    "operator" : "="
  }, {
    "field" : "estimateTotalTime",
    "value" : "11",
    "operator" : "="
  }, {
    "field" : "estimateLeftTime",
    "value" : "12",
    "operator" : "<>"
  }, {
    "field" : "controlGroup",
    "value" : "cgroup",
    "operator" : "like"
  }, {
    "field" : "minPeakMemory",
    "value" : "13",
    "operator" : "="
  }, {
    "field" : "maxPeakMemory",
    "value" : "14",
    "operator" : "<>"
  }, {
    "field" : "averagePeakMemory",
    "value" : "15",
    "operator" : ">"
  }, {
    "field" : "memorySkewPercent",
    "value" : "16",
    "operator" : "<"
  }, {
    "field" : "estimateMemory",
    "value" : "17",
    "operator" : ">="
  }, {
    "field" : "minDnTime",
    "value" : "18",
    "operator" : "<="
  }, {
    "field" : "maxDnTime",
    "value" : "19",
    "operator" : "="
  }, {
    "field" : "averageDnTime",
    "value" : "20",
    "operator" : "<>"
  }, {
    "field" : "dntimeSkewPercent",
```

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```
    "value" : "21",
    "operator" : ">"
  }, {
    "field" : "warning",
"value": "Alarm",
    "operator" : "="
  }, {
    "field" : "averagePeakIops",
    "value" : "22",
    "operator" : "<>"
  }, {
    "field" : "iopsSkewPercent",
    "value" : "23",
    "operator" : ">"
  }, {
    "field" : "wlmStatus",
"value": "Statement running status",
    "operator" : "="
  }, {
    "field" : "wlmAttrib",
"value": "Statement attribute",
    "operator" : "not like"
  } ],
  "order_by" : "duration asc",
  "target" : "db_queries"
}
```

Example Response

Status code: 200

```
{
  "code" : 0,
  "msg" : "OK",
  "count" : 0,
  "data" : {
    "queries" : [ {
      "ctime" : 1699062726000,
      "pid" : "140535026615872",
      "waiting" : false,
      "duration" : 0,
      "enqueue" : "",
      "warning" : "",
      "query" : "WLM fetch collect info from data nodes",
      "lane" : "",
      "priority" : null,
      "virtual_cluster_id" : 0,
      "inst_name" : "cn_5002",
      "db_name" : "postgres",
      "query_id" : "145522562959854219",
      "query_band" : "",
      "job_name" : "",
      "job_inst" : "",
      "user_name" : "Ruby",
      "application_name" : "workload",
      "client_address" : "",
      "client_hostname" : "",
      "client_port" : "",
      "start_time" : 0,
      "block_time" : 0,
      "estimate_total_time" : 0,
      "estimate_left_time" : 0,
      "resource_pool" : "default_pool",
      "control_group" : "",
      "min_peak_memory" : 0,
      "max_peak_memory" : 0,
      "average_peak_memory" : 0,
      "memory_skew_percent" : 0,
      "estimate_memory" : 0,
```

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```
    "spill_info" : "",
    "min_spill_size" : 0,
    "max_spill_size" : 0,
    "average_spill_size" : 0,
    "spill_skew_percent" : 0,
    "min_dn_time" : 0,
    "max_dn_time" : 0,
    "average_dn_time" : 0,
    "dntime_skew_percent" : 0,
    "min_cpu_time" : 0,
    "max_cpu_time" : 0,
    "total_cpu_time" : 0,
    "cpu_skew_percent" : 0,
    "average_peak_iops" : 0,
    "iops_skew_percent" : 0,
    "max_peak_iops" : 0,
    "min_peak_iops" : 0,
    "query_plan" : null,
    "query_status" : "active",
    "wlm_status" : "",
    "wlm_attrib" : "",
    "system_query" : true,
    "backend_start" : 1698998138,
    "elapsed_time" : 64585,
    "curr_xact_start" : 1699062726,
    "state_change" : 1698998142,
    "query_start" : 1698998142,
    "query_elapsed_time" : -1
   } ],
   "status" : {
    "session_count" : 19,
    "average_time_consumption_of_sessions" : 51297.58,
    "queries_count" : 19,
    "average_time_consumption_of_queries" : 48799.8,
    "average_query_waiting_time" : 0
   }
  }
}
```


SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class ListQueriesSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
```

```
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListQueriesRequest request = new ListQueriesRequest();
        ListQueriesRequestBody body = new ListQueriesRequestBody();
        List<ListQueriesCondition> listbodyConditions = new ArrayList<>();
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("userName")
.withValue ("User_name")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("applicationName")
.withValue ("Application_name")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("dbName")
.withValue ("Database_name")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("resourcePool")
.withValue ("Resource_pool")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("queryStatus")
.withValue ("Query_status")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("enqueue")
.withValue ("Queuing_status")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("lane")
.withValue ("Fast/slow_lane")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("instName")
.withValue ("Access_CN")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("pid")
.withValue ("Session_ID")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
```

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```
            .withField("blockTime")
            .withValue("1")
            .withOperator("=")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("duration")
            .withValue("2")
            .withOperator("<>")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("minCpuTime")
            .withValue("3")
            .withOperator(">")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("maxCpuTime")
            .withValue("4")
            .withOperator("<")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("totalCpuTime")
            .withValue("5")
            .withOperator(">=")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("cpuSkewPercent")
            .withValue("6")
            .withOperator("<=")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("spillInfo")
.withValue("DN_spilling_information")
            .withOperator("=")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("minSpillSize")
            .withValue("7")
            .withOperator("<>")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("maxSpillSize")
            .withValue("8")
            .withOperator(">")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("averageSpillSize")
            .withValue("9")
            .withOperator("<")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("spillSkewPercent")
            .withValue("10")
            .withOperator(">=")
    );
    listbodyConditions.add(
        new ListQueriesCondition()
            .withField("queryBand")
.withValue ("Job_type")
            .withOperator("<>")
```

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```
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("jobName")
.withValue ("Task_name")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("jobInst")
.withValue ("Task_instance")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("clientHostname")
.withValue ("Host_name")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("clientPort")
.withValue ("TCP_port")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("waiting")
.withValue ("Wait_or_not")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("estimateTotalTime")
                .withValue("11")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("estimateLeftTime")
                .withValue("12")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("controlGroup")
                .withValue("cgroup")
                .withOperator("like")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("minPeakMemory")
                .withValue("13")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("maxPeakMemory")
                .withValue("14")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("averagePeakMemory")
                .withValue("15")
                .withOperator(">")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
```

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```
                .withField("memorySkewPercent")
                .withValue("16")
                .withOperator("<")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("estimateMemory")
                .withValue("17")
                .withOperator(">=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("minDnTime")
                .withValue("18")
                .withOperator("<=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("maxDnTime")
                .withValue("19")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("averageDnTime")
                .withValue("20")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("dntimeSkewPercent")
                .withValue("21")
                .withOperator(">")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("warning")
.withValue ("Alarm")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("averagePeakIops")
                .withValue("22")
                .withOperator("<>")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("iopsSkewPercent")
                .withValue("23")
                .withOperator(">")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("wlmStatus")
.withValue ("Statement_running_status")
                .withOperator("=")
        );
        listbodyConditions.add(
            new ListQueriesCondition()
                .withField("wlmAttrib")
.withValue ("Statement_attribute")
                .withOperator("not like")
        );
        body.withTarget("db_queries");
        body.withOrderBy("duration asc");
        body.withConditions(listbodyConditions);
        body.withLimit("1");
        body.withOffset("0");
```

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```
        body.withProjectId("project_id");
        body.withClusterId("cluster_id");
        request.withBody(body);
        try {
            ListQueriesResponse response = client.listQueries(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListQueriesRequest()
        listConditionsbody = [
            ListQueriesCondition(
                field="userName",
value="User_name",
                operator="="
            ),
            ListQueriesCondition(
                field="applicationName",
value="Application_name",
                operator="<>"
            ),
            ListQueriesCondition(
                field="dbName",
value="Database_name",
                operator="="
            ),
            ListQueriesCondition(
                field="resourcePool",
value="Resource_pool",
                operator="<>"
            ),
            ListQueriesCondition(
```

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```
            field="queryStatus",
value="Query_status",
            operator="="
        ),
        ListQueriesCondition(
            field="enqueue",
value="Queuing_status",
            operator="<>"
        ),
        ListQueriesCondition(
            field="lane",
value="Fast/Slow_lane",
            operator="="
        ),
        ListQueriesCondition(
            field="instName",
value="Connected_CN",
            operator="<>"
        ),
        ListQueriesCondition(
            field="pid",
value="Session_ID",
            operator="="
        ),
        ListQueriesCondition(
            field="blockTime",
            value="1",
            operator="="
        ),
        ListQueriesCondition(
            field="duration",
            value="2",
            operator="<>"
        ),
        ListQueriesCondition(
            field="minCpuTime",
            value="3",
            operator=">"
        ),
        ListQueriesCondition(
            field="maxCpuTime",
            value="4",
            operator="<"
        ),
        ListQueriesCondition(
            field="totalCpuTime",
            value="5",
            operator=">="
        ),
        ListQueriesCondition(
            field="cpuSkewPercent",
            value="6",
            operator="<="
        ),
        ListQueriesCondition(
            field="spillInfo",
value="DN_spilling_information",
            operator="="
        ),
        ListQueriesCondition(
            field="minSpillSize",
            value="7",
            operator="<>"
        ),
        ListQueriesCondition(
            field="maxSpillSize",
            value="8",
            operator=">"
        ),
```

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```
        ListQueriesCondition(
            field="averageSpillSize",
            value="9",
            operator="<"
        ),
        ListQueriesCondition(
            field="spillSkewPercent",
            value="10",
            operator=">="
        ),
        ListQueriesCondition(
            field="queryBand",
value="Job_type",
            operator="<>"
        ),
        ListQueriesCondition(
            field="jobName",
value="Task_name",
            operator="="
        ),
        ListQueriesCondition(
            field="jobInst",
value="Task_instance",
            operator="<>"
        ),
        ListQueriesCondition(
            field="clientHostname",
value="Host_name",
            operator="="
        ),
        ListQueriesCondition(
            field="clientPort",
value="TCP_port",
            operator="<>"
        ),
        ListQueriesCondition(
            field="waiting",
value="Wait_or_not",
            operator="="
        ),
        ListQueriesCondition(
            field="estimateTotalTime",
            value="11",
            operator="="
        ),
        ListQueriesCondition(
            field="estimateLeftTime",
            value="12",
            operator="<>"
        ),
        ListQueriesCondition(
            field="controlGroup",
            value="cgroup",
            operator="like"
        ),
        ListQueriesCondition(
            field="minPeakMemory",
            value="13",
            operator="="
        ),
        ListQueriesCondition(
            field="maxPeakMemory",
            value="14",
            operator="<>"
        ),
        ListQueriesCondition(
            field="averagePeakMemory",
            value="15",
            operator=">"
```

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```
            ),
            ListQueriesCondition(
                field="memorySkewPercent",
                value="16",
                operator="<"
            ),
            ListQueriesCondition(
                field="estimateMemory",
                value="17",
                operator=">="
            ),
            ListQueriesCondition(
                field="minDnTime",
                value="18",
                operator="<="
            ),
            ListQueriesCondition(
                field="maxDnTime",
                value="19",
                operator="="
            ),
            ListQueriesCondition(
                field="averageDnTime",
                value="20",
                operator="<>"
            ),
            ListQueriesCondition(
                field="dntimeSkewPercent",
                value="21",
                operator=">"
            ),
            ListQueriesCondition(
                field="warning",
value="Alarm",
                operator="="
            ),
            ListQueriesCondition(
                field="averagePeakIops",
                value="22",
                operator="<>"
            ),
            ListQueriesCondition(
                field="iopsSkewPercent",
                value="23",
                operator=">"
            ),
            ListQueriesCondition(
                field="wlmStatus",
value="Statement_running_status",
                operator="="
            ),
            ListQueriesCondition(
                field="wlmAttrib",
value="Statement_attribute",
                operator="not like"
            )
        ]
        request.body = ListQueriesRequestBody(
            target="db_queries",
            order_by="duration asc",
            conditions=listConditionsbody,
            limit="1",
            offset="0",
            project_id="project_id",
            cluster_id="cluster_id"
        )
        response = client.list_queries(request)
        print(response)
    except exceptions.ClientRequestException as e:
```

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```
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListQueriesRequest{}
    var listConditionsbody = []model.ListQueriesCondition{
        {
            Field: "userName",
Value: "User_name",
            Operator: "=",
        },
        {
            Field: "applicationName",
Value: "Application_name",
            Operator: "<>",
        },
        {
            Field: "dbName",
Value: "Database_name",
            Operator: "=",
        },
        {
            Field: "resourcePool",
Value: "Resource_pool",
            Operator: "<>",
        },
        {
            Field: "queryStatus",
Value: "Query_status",
            Operator: "=",
        },
        {
            Field: "enqueue",
Value: "Queuing_status",
            Operator: "<>",
        },
```

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```
    {
        Field: "lane",
Value: "Fast/Slow_lane",
        Operator: "=",
    },
    {
        Field: "instName",
Value: "Connected_CN",
        Operator: "<>",
    },
    {
        Field: "pid",
Value: "Session_ID",
        Operator: "=",
    },
    {
        Field: "blockTime",
        Value: "1",
        Operator: "=",
    },
    {
        Field: "duration",
        Value: "2",
        Operator: "<>",
    },
    {
        Field: "minCpuTime",
        Value: "3",
        Operator: ">",
    },
    {
        Field: "maxCpuTime",
        Value: "4",
        Operator: "<",
    },
    {
        Field: "totalCpuTime",
        Value: "5",
        Operator: ">=",
    },
    {
        Field: "cpuSkewPercent",
        Value: "6",
        Operator: "<=",
    },
    {
        Field: "spillInfo",
Value: "DN_spilling_information",
        Operator: "=",
    },
    {
        Field: "minSpillSize",
        Value: "7",
        Operator: "<>",
    },
    {
        Field: "maxSpillSize",
        Value: "8",
        Operator: ">",
    },
    {
        Field: "averageSpillSize",
        Value: "9",
        Operator: "<",
    },
    {
        Field: "spillSkewPercent",
        Value: "10",
        Operator: ">=",
```

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```
        },
        {
            Field: "queryBand",
Value: "Job_type",
            Operator: "<>",
        },
        {
            Field: "jobName",
Value: "Task_name",
            Operator: "=",
        },
        {
            Field: "jobInst",
Value: "Task_instance",
            Operator: "<>",
        },
        {
            Field: "clientHostname",
Value: "Host_name",
            Operator: "=",
        },
        {
            Field: "clientPort",
Value: "TCP_port",
            Operator: "<>",
        },
        {
            Field: "waiting",
Value: "Wait_or_not",
            Operator: "=",
        },
        {
            Field: "estimateTotalTime",
            Value: "11",
            Operator: "=",
        },
        {
            Field: "estimateLeftTime",
            Value: "12",
            Operator: "<>",
        },
        {
            Field: "controlGroup",
            Value: "cgroup",
            Operator: "like",
        },
        {
            Field: "minPeakMemory",
            Value: "13",
            Operator: "=",
        },
        {
            Field: "maxPeakMemory",
            Value: "14",
            Operator: "<>",
        },
        {
            Field: "averagePeakMemory",
            Value: "15",
            Operator: ">",
        },
        {
            Field: "memorySkewPercent",
            Value: "16",
            Operator: "<",
        },
        {
            Field: "estimateMemory",
            Value: "17",
```

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```
            Operator: ">=",
        },
        {
            Field: "minDnTime",
            Value: "18",
            Operator: "<=",
        },
        {
            Field: "maxDnTime",
            Value: "19",
            Operator: "=",
        },
        {
            Field: "averageDnTime",
            Value: "20",
            Operator: "<>",
        },
        {
            Field: "dntimeSkewPercent",
            Value: "21",
            Operator: ">",
        },
        {
            Field: "warning",
Value: "Alarm",
            Operator: "=",
        },
        {
            Field: "averagePeakIops",
            Value: "22",
            Operator: "<>",
        },
        {
            Field: "iopsSkewPercent",
            Value: "23",
            Operator: ">",
        },
        {
            Field: "wlmStatus",
Value: "Statement_running_status",
            Operator: "=",
        },
        {
            Field: "wlmAttrib",
Value: "Statement_attribute",
            Operator: "not like",
        },
    }
    orderByListQueriesRequestBody:= "duration asc"
    request.Body = &model.ListQueriesRequestBody{
        Target: "db_queries",
        OrderBy: &orderByListQueriesRequestBody,
        Conditions: listConditionsbody,
        Limit: "1",
        Offset: "0",
        ProjectId: "project_id",
        ClusterId: "cluster_id",
    }
    response, err := client.ListQueries(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The SQL list is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.14.8 Querying SQL Execution Information

Function

This API is used to query SQL execution information.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/dms/queries/{query_id}

Table 5-508 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
query_id	Yes	String	Query ID

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Table 5-509 Query parameters

Parameter	Mandatory	Type	Description
ctime	No	Long	Collection time

Request Parameters

None

Response Parameters

Status code: 200

Table 5-510 Response body parameters

Parameter	Type	Description
code	Integer	Response code
msg	String	Response message
data	**ListQueriesDto** object	Response data

Table 5-511 ListQueriesDto

Parameter	Type	Description
virtual_cluster_id	Integer	Virtual cluster ID
ctime	Long	Collection time
pid	String	Session ID
inst_name	String	Instance name
waiting	Boolean	Whether the backend is currently waiting on a lock. If yes, the value is **true**.
enqueue	String	Resource status in workload management
warning	String	Warnings related to SQL self-diagnosis and tuning
query	String	Query statement
lane	String	Fast or slow lane.
db_name	String	Database name

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Parameter	Type	Description
priority	String	Priority of a job in the resource pool. The value can be **1**, **2**, **4**, or **8** (**rush**, **high**, **medium**, or **low**).
query_id	String	Internal **query_id** used for statement execution
query_band	String	Job type, which can be set using the guc parameter **query_band**. The default value is a null string.
job_name	String	The value is obtained from the **query_band** field. The position is 0.
job_inst	String	The value is obtained from the **query_band** field. The position is 1.
user_name	String	Username used for connecting to the backend
application_name	String	Name of the application that is connected to the backend.
client_address	String	IP address of the client connected to this backend.
client_hostname	String	Host name of the client.
client_port	String	TCP port number used by a client to communicate with the backend
start_time	Long	Time when a statement starts to be executed
block_time	Long	Block time before the statement is executed. The unit is ms.
duration	Long	Duration that a statement has been executed. The unit is ms.
estimate_total_time	Long	Estimated execution time of a statement. The unit is ms.
estimate_left_time	Long	Estimated remaining time of statement execution. The unit is ms.
resource_pool	String	Resource pool used by the user
control_group	String	Cgroup used by the statement.
min_peak_memory	Integer	Minimum memory peak of a statement across all DNs. The unit is MB.
max_peak_memory	Integer	Maximum memory peak of a statement across all DNs. The unit is MB.
average_peak_memory	Integer	Average memory usage during statement execution. The unit is MB.

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Parameter	Type	Description
memory_skew_percent	Integer	Memory usage skew of a statement among DNs.
estimate_memory	Integer	Estimated memory used by a statement. The unit is MB.
spill_info	String	Information about the statement spilling to disks on all DNs.
min_spill_size	Integer	Minimum spilled data among all DNs when a spill occurs, in MB. The default value is **0**.
max_spill_size	Integer	Maximum spilled data among all DNs when a spill occurs, in MB. The default value is **0**.
average_spill_size	Integer	Average spilled data among all DNs when a spill occurs, in MB. The default value is **0**.
spill_skew_percent	Integer	DN spill skew.
min_dn_time	Long	Minimum execution time of a statement across all DNs. The unit is ms.
max_dn_time	Long	Minimum execution time of a statement across all DNs. The unit is ms.
average_dn_time	Long	Average execution time of a statement across all DNs. The unit is ms.
dntime_skew_percent	Integer	Execution time skew of a statement among DNs.
min_cpu_time	Long	Minimum CPU time of a statement across all DNs. The unit is milliseconds.
max_cpu_time	Long	Maximum CPU time of a statement across all DNs. The unit is milliseconds.
total_cpu_time	Long	Total CPU time of a statement across all DNs. The unit is milliseconds.
cpu_skew_percent	Integer	CPU time skew of a statement among DNs.
average_peak_iops	Integer	Average IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
iops_skew_percent	Integer	I/O skew of a statement among DNs.

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Parameter	Type	Description
max_peak_iops	Integer	Maximum IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
min_peak_iops	Integer	Minimum IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
query_plan	String	Query plan
query_status	String	Real-time running status (**active**, **idle**, **idle in transaction**, **idle in transaction(aborted)**, **fastpath function call**, **disabled**) of the current query statement.
wlm_status	String	Running status (**pending**, **running**, **finished**, **aborted**, **active**, **unknown**) of the current query statement in the resource pool.
wlm_attrib	String	Statement attribute (**ordinary**, **simple**, **complicated**, **internal**)
system_query	Boolean	Whether a query is a system query
backend_start	Long	Time when this process was started, that is, when the client connected to the server
elapsed_time	Long	Execution time so far.
curr_xact_start	Long	Time when the current transaction was started (**NULL** if no transactions are active). If the current query is the first of its transaction, the value of this column is the same as that of the **query_start** column.
state_change	Long	Time when the **status** was changed in the previous time
query_start	Long	Time when a statement starts to be executed
query_elapsed_time	Long	Actual execution duration of the statement, in seconds.

Example Request

```
https://{Endpoint}/v1/{project_id}/clusters/{cluster_id}/dms/queries/{query_id}?ctime=1699062846000
```

Example Response

Status code: 200

```
{
  "code" : 0,
```

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```
 "msg" : "OK",
 "data" : {
   "ctime" : 1699062846000,
   "pid" : "140535026615872",
   "waiting" : false,
   "duration" : 0,
   "enqueue" : "",
   "warning" : "",
   "query" : "WLM fetch collect info from data nodes",
   "lane" : "",
   "priority" : null,
   "virtual_cluster_id" : 0,
   "inst_name" : "cn_5002",
   "db_name" : "postgres",
   "query_id" : "145522562959855061",
   "query_band" : "",
   "job_name" : "",
   "job_inst" : "",
   "user_name" : "Ruby",
   "application_name" : "workload",
   "client_address" : "",
   "client_hostname" : "",
   "client_port" : "",
   "start_time" : 0,
   "block_time" : 0,
   "estimate_total_time" : 0,
   "estimate_left_time" : 0,
   "resource_pool" : "default_pool",
   "control_group" : "",
   "min_peak_memory" : 0,
   "max_peak_memory" : 0,
   "average_peak_memory" : 0,
   "memory_skew_percent" : 0,
   "estimate_memory" : 0,
   "spill_info" : "",
   "min_spill_size" : 0,
   "max_spill_size" : 0,
   "average_spill_size" : 0,
   "spill_skew_percent" : 0,
   "min_dn_time" : 0,
   "max_dn_time" : 0,
   "average_dn_time" : 0,
   "dntime_skew_percent" : 0,
   "min_cpu_time" : 0,
   "max_cpu_time" : 0,
   "total_cpu_time" : 0,
   "cpu_skew_percent" : 0,
   "average_peak_iops" : 0,
   "iops_skew_percent" : 0,
   "max_peak_iops" : 0,
   "min_peak_iops" : 0,
   "query_plan" : "",
   "query_status" : "active",
   "wlm_status" : "",
   "wlm_attrib" : "",
   "system_query" : false,
   "backend_start" : 0,
   "elapsed_time" : 0,
   "curr_xact_start" : 0,
   "state_change" : 0,
   "query_start" : 0,
   "query_elapsed_time" : 0
 }
}
```


SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowQueryDetailSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ShowQueryDetailRequest request = new ShowQueryDetailRequest();
        request.withCtime(<ctime>L);
        try {
            ShowQueryDetailResponse response = client.showQueryDetail(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ShowQueryDetailRequest()
        request.ctime = <ctime>
        response = client.show_query_detail(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ShowQueryDetailRequest{}
    ctimeRequest:= int64(<ctime>)
    request.Ctime = &ctimeRequest
    response, err := client.ShowQueryDetail(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The SQL execution information is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.14.9 Querying the List of Metrics Used by a Cluster

Function

This API is used to query the list of metrics used by a cluster.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/dms/metrics

Table 5-512 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-513 Query parameters

Parameter	Mandatory	Type	Description
offset	Yes	Integer	Offset from which the query starts, which is greater or equal to 0.
limit	Yes	Integer	Number of items displayed on each page. The maximum value is 1000.
order_by	No	String	Sorting field This parameter is set to a fixed value. • create_time: creation time.
sort_by	No	String	Ascending or descending. This parameter is set to a fixed value. • asc: ascending order. • desc: reverse order.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-514 Response body parameters

Parameter	Type	Description
code	Integer	Response code
msg	String	Response message
data	Array of ClusterMetric objects	Metric list
count	Long	Total list size

Table 5-515 ClusterMetric

Parameter	Type	Description
scope	String	Metric name

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Parameter	Type	Description
fields	Array of **SimpleFieldDto** objects	Field information in the metric table.
metric_name	String	Name of the valid region
collect_rate	Integer	Collection Rate
collect_range	Array of strings	Period
create_time	String	Creation time

Table 5-516 SimpleFieldDto

Parameter	Type	Description
column_name	String	Field name in the metric table.
column_type	String	Type of the field corresponding to the metric table.

Example Request

```
https://{Endpoint}/v1/{project_id}/clusters/{cluster_id}/dms/metrics?
limit=1&offset=0&order_by=create_time&sort_by=desc
```

Example Response

Status code: 200

```
{
  "code" : 0,
  "msg" : "OK",
  "data" : [ {
    "scope" : "CN,ANY",
    "fields" : [ {
      "column_name" : "db_name",
      "column_type" : "text"
    }, {
      "column_name" : "schema_name",
      "column_type" : "text"
    }, {
      "column_name" : "table_name",
      "column_type" : "text"
    }, {
      "column_name" : "table_owner",
      "column_type" : "text"
    }, {
      "column_name" : "table_size",
      "column_type" : "bigint"
    }, {
      "column_name" : "dirty_page_rate",
      "column_type" : "double precision"
    } ],
    "metric_name" : "TableDirtyPageRate",
```

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```
    "collect_rate" : 7200,
    "collect_range" : [ ],
    "create_time" : "1701915436000"
  } ],
  "count" : 1
}
```

Status Code

Status Code	Description
200	The list of metrics used by the cluster is queried successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.14.10 Obtains the collected data of a specified metric.

Function

This API is used to obtain the collected data of a specified metric.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1/{project_id}/clusters/{cluster_id}/dms/metrics/{metric_name}
```

Table 5-517 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
metric_name	Yes	String	Metric name

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Table 5-518 Query parameters

Parameter	Mandatory	Type	Description
offset	Yes	Integer	Offset from which the query starts, which is greater or equal to 0.
limit	Yes	Integer	Number of items displayed on each page. The maximum value is 1000.
from	Yes	Long	Collection start time, which is a 13-digit timestamp.
to	Yes	Long	Collection end time, which is a 13-digit timestamp. The period from the start time to the end time cannot exceed one day.
order_by	No	String	Sorting field This parameter is set to a fixed value. • ctime: indicates the collection time.
sort_by	No	String	Ascending or descending. This parameter is set to a fixed value. • asc: ascending order. • desc: reverse order.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-519 Response body parameters

Parameter	Type	Description
code	Integer	Response code
msg	String	Response message
data	Array of Map<String,String> objects	Indicates the list of collected metric data. For details, see **User-defined Counter List**.
count	Long	Total list size

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Example Request

```
https://{Endpoint}/v1/{project_id}/clusters/{cluster_id}/dms/metrics/TableDirtyPageRate?
limit=1&offset=0&from=1701914324000&to=1701942194000&order_by=ctime&sort_by=desc
```

Example Response

Status code: 200

Querying Indicator Collection Data Objects

```
{
  "code" : 0,
  "msg" : "OK",
  "data" : [ {
    "table_size" : 40960,
    "virtual_cluster_id" : 53,
    "db_name" : "postgres",
    "ctime" : 1701929836000,
    "table_owner" : "Ruby",
    "schema_name" : "pmk",
    "table_name" : "pmk_meta_data",
    "dirty_page_rate" : 0.8
  } ],
  "count" : 3
}
```

Status Code

Status Code	Description
200	Succeeded in querying the data collection object of the specified metric.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.15 Managing Database Permissions

5.15.1 Synchronizing IAM Users to the Database

Function

This API is used to synchronize IAM users to the database.

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Call Method

For details, see **Calling APIs**.

URI

POST /v1/{project_id}/clusters/{cluster_id}/db-manager/sync-iam-user

Table 5-520 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-521 Response body parameter

Parameter	Type	Description
sync_user	Array of strings	List of users that are successfully created.

Example Request

POST https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/a89aea88-7ea2-40bd-8ac8-8b93e169e5d6/db-manager/sync-iam-user

Example Response

Status code: 200

The user list is successfully created.

```
{
  "sync_user" : [ "user1", "user2" ]
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class SyncIamUsersSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        SyncIamUsersRequest request = new SyncIamUsersRequest();
        try {
            SyncIamUsersResponse response = client.syncIamUsers(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = SyncIamUsersRequest()
        response = client.sync_iam_users(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.SyncIamUsersRequest{}
    response, err := client.SyncIamUsers(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	The user list is successfully created.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.15.2 Querying All Database Users and Roles

Function

This API is used to query all database users and roles.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1/{project_id}/clusters/{cluster_id}/db-manager/users
```

Table 5-522 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

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Table 5-523 Response body parameter

Parameter	Type	Description
users	Array of DatabaseUser objects	User list.

Table 5-524 DatabaseUser

Parameter	Type	Description
name	String	Username
login	Boolean	Permission to log in to the database

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/
a89aea88-7ea2-40bd-8ac8-8b93e169e5d6/db-manager/users
```

Example Response

Status code: 200

User/role list.

```
{
  "users" : [ {
    "name" : "user1",
    "login" : true
  }, {
    "name" : "user2",
    "login" : false
  } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListDatabaseUsersSolution {

    public static void main(String[] args) {
```

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```
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListDatabaseUsersRequest request = new ListDatabaseUsersRequest();
        try {
            ListDatabaseUsersResponse response = client.listDatabaseUsers(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListDatabaseUsersRequest()
        response = client.list_database_users(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListDatabaseUsersRequest{}
    response, err := client.ListDatabaseUsers(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	User/role list.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.15.3 Querying User Information

Function

This API is used to query information about a specified user.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/db-manager/users/{name}

Table 5-525 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
name	Yes	String	Username

Request Parameters

None

Response Parameters

Status code: 200

Table 5-526 Response body parameter

Parameter	Type	Description
name	String	Username.
login	Boolean	Permission to log in to the database
createrole	Boolean	Permission to create roles
createdb	Boolean	Permission to create databases
systemadmin	Boolean	System administrator

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Parameter	Type	Description
auditadmin	Boolean	Audit administrator.
inherit	Boolean	Whether a user can inherit the permissions of the group to which it belongs
useft	Boolean	Permission to access foreign tables.
conn_limit	Integer	Maximum number of connections.
replication	Boolean	Whether streaming replication is allowed
valid_begin	Long	Time when a role takes effect
valid_until	Long	Expiration time of a role
lock	Boolean	Whether a user is locked
desc	String	Description.
user_type	String	Type of a user.
logical_cluster	String	Logical cluster to which the user belongs.

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/
a89aea88-7ea2-40bd-8ac8-8b93e169e5d6/db-manager/users/user1
```

Example Response

Status code: 200

User information details

```
{
  "name" : "user1",
  "login" : true,
  "createrole" : true,
  "createdb" : true,
  "systemadmin" : false,
  "auditadmin" : false,
  "inherit" : false,
  "useft" : true,
  "conn_limit" : -1,
  "replication" : false,
  "valid_begin" : 1681971166000,
  "valid_until" : 1681971166000,
  "lock" : false,
  "desc" : "",
  "user_type" : "",
  "logical_cluster" : ""
}
```

SDK Sample Code

The sample code is as follows:

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Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ShowDatabaseUserSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ShowDatabaseUserRequest request = new ShowDatabaseUserRequest();
        try {
            ShowDatabaseUserResponse response = client.showDatabaseUser(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")
```

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```
    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ShowDatabaseUserRequest()
        response = client.show_database_user(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ShowDatabaseUserRequest{}
    response, err := client.ShowDatabaseUser(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

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Status Code

Status Code	Description
200	User information details
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.15.4 Modifying User Information

Function

This API is used to modify information about a specified user.

Call Method

For details, see **Calling APIs**.

URI

POST /v1/{project_id}/clusters/{cluster_id}/db-manager/users/{name}

Table 5-527 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.
name	Yes	String	Username

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Request Parameters

Table 5-528 Request body parameters

Parameter	Mandatory	Type	Description
login	No	Boolean	Permission to log in to the database
createrole	No	Boolean	Permission to create roles
createdb	No	Boolean	Permission to create databases
systemadmin	No	Boolean	System administrator
auditadmin	No	Boolean	Audit administrator
inherit	No	Boolean	Whether a user can inherit the permissions of the group to which it belongs
useft	No	Boolean	Permission to access foreign tables.
conn_limit	No	Integer	Maximum number of connections.
replication	No	Boolean	Whether streaming replication is allowed
valid_begin	No	String	Role effective time, in yyyy-MM-ddTHH:mm:ssZ format.
valid_until	No	String	Role expiration time, in yyyy-MM-ddTHH:mm:ssZ format.
lock	No	Boolean	Whether a user is locked

Response Parameters

None

Example Request

Modify information about **user1** in the cluster whose ID is **a89aea88-7ea2-40bd-8ac8-8b93e169e5d6** so that **user1** can log in to the database and have the permissions to create roles, create databases, and access foreign tables. However, do not grant **user1** the system administrator and audit administrator permissions, and do not limit the number of connections.

```
POST https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/
a89aea88-7ea2-40bd-8ac8-8b93e169e5d6/db-manager/users/user1

{
  "login" : true,
  "createrole" : true,
  "createdb" : true,
```

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```
  "systemadmin" : false,
  "auditadmin" : false,
  "inherit" : false,
  "useft" : true,
  "conn_limit" : -1,
  "replication" : false,
  "valid_begin" : "2023-04-03T12:23:01",
  "valid_until" : "2023-04-18T12:23:01",
  "lock" : false
}
```

Example Response

Status code: 200

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class UpdateDatabaseUserInfoSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        UpdateDatabaseUserInfoRequest request = new UpdateDatabaseUserInfoRequest();
        DatabaseUserInfoReq body = new DatabaseUserInfoReq();
        body.withLock(false);
        body.withValidUntil("2023-04-18T12:23:01");
        body.withValidBegin("2023-04-03T12:23:01");
        body.withReplication(false);
        body.withConnLimit(-1);
        body.withUseft(true);
        body.withInherit(false);
        body.withAuditadmin(false);
        body.withSystemadmin(false);
        body.withCreatedb(true);
        body.withCreaterole(true);
```

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```
        body.withLogin(true);
        request.withBody(body);
        try {
            UpdateDatabaseUserInfoResponse response = client.updateDatabaseUserInfo(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = UpdateDatabaseUserInfoRequest()
        request.body = DatabaseUserInfoReq(
            lock=False,
            valid_until="2023-04-18T12:23:01",
            valid_begin="2023-04-03T12:23:01",
            replication=False,
            conn_limit=-1,
            useft=True,
            inherit=False,
            auditadmin=False,
            systemadmin=False,
            createdb=True,
            createrole=True,
            login=True
        )
        response = client.update_database_user_info(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.UpdateDatabaseUserInfoRequest{}
    lockDatabaseUserInfoReq:= false
    validUntilDatabaseUserInfoReq:= "2023-04-18T12:23:01"
    validBeginDatabaseUserInfoReq:= "2023-04-03T12:23:01"
    replicationDatabaseUserInfoReq:= false
    connLimitDatabaseUserInfoReq:= int32(-1)
    useftDatabaseUserInfoReq:= true
    inheritDatabaseUserInfoReq:= false
    auditadminDatabaseUserInfoReq:= false
    systemadminDatabaseUserInfoReq:= false
    createdbDatabaseUserInfoReq:= true
    createroleDatabaseUserInfoReq:= true
    loginDatabaseUserInfoReq:= true
    request.Body = &model.DatabaseUserInfoReq{
        Lock: &lockDatabaseUserInfoReq,
        ValidUntil: &validUntilDatabaseUserInfoReq,
        ValidBegin: &validBeginDatabaseUserInfoReq,
        Replication: &replicationDatabaseUserInfoReq,
        ConnLimit: &connLimitDatabaseUserInfoReq,
        Useft: &useftDatabaseUserInfoReq,
        Inherit: &inheritDatabaseUserInfoReq,
        Auditadmin: &auditadminDatabaseUserInfoReq,
        Systemadmin: &systemadminDatabaseUserInfoReq,
        Createdb: &createdbDatabaseUserInfoReq,
        Createrole: &createroleDatabaseUserInfoReq,
        Login: &loginDatabaseUserInfoReq,
    }
    response, err := client.UpdateDatabaseUserInfo(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	User information details
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.15.5 Modifying Database Object Permissions

Function

This API is used to modify database object permissions.

Call Method

For details, see **Calling APIs**.

URI

POST /v1/{project_id}/clusters/{cluster_id}/db-manager/authority

Table 5-529 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-530 Request body parameters

Parameter	Mandatory	Type	Description
type	Yes	String	Object type [DATABASE | SCHEMA | TABLE | VIEW | COLUMN | FUNCTION| SEQUENCE | NODEGROUP | ROLE].
is_grant	Yes	Boolean	Whether to grant a permission
grant_list	No	Array of **Grant** objects	This parameter is mandatory when is_grant is set to true.
revoke_list	No	Array of **Revoke** objects	List of revoked permissions. This parameter is mandatory when is_grant is set to false.
role_list	Yes	Array of strings	List of roles that a permission is granted
object_list	Yes	Array of strings	List of objects to which a permission belongs
all_object	No	Boolean	Permissions on all database objects in a schema. The default value is false.
cascade	No	Boolean	Whether a permission is revoked in cascading mode. The default value is **true**. Default value: **true**
database	Yes	String	Database name
schema	No	String	Schema name
table	No	String	Table name

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Table 5-531 Grant

Parameter	Mandatory	Type	Description
permission	Yes	String	Permission name. The permission varies depending on the database object type. • database CREATE | CONNECT | TEMPORARY | TEMP ALL PRIVILEGES • schema CREATE | USAGE | ALTER | DROP ALL PRIVILEGES • table SELECT | INSERT | UPDATE | DELETE | TRUNCATE | REFERENCES | TRIGGER | ANALYZE | ANALYSE | VACUUM | ALTER | DROP ALL PRIVILEGES • view SELECT | INSERT | UPDATE | DELETE | TRUNCATE | REFERENCES | TRIGGER | ANALYZE | ANALYSE | VACUUM | ALTER | DROP ALL PRIVILEGES • column SELECT | INSERT | UPDATE | REFERENCES ALL PRIVILEGES • function EXECUTE ALL PRIVILEGES • sequence SELECT | UPDATE | USAGE ALL PRIVILEGES • nodegroup CREATE | USAGE | COMPUTE ALL PRIVILEGES • role role_name (role name)
grant_with	Yes	Boolean	Whether a permission is included in the grant options.

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Table 5-532 Revoke

Parameter	Mandatory	Type	Description
permission	Yes	String	Permission name. The permission varies depending on the database object type. • database CREATE | CONNECT | TEMPORARY | TEMP ALL PRIVILEGES • schema CREATE | USAGE | ALTER | DROP ALL PRIVILEGES • table SELECT | INSERT | UPDATE | DELETE | TRUNCATE | REFERENCES | TRIGGER | ANALYZE | ANALYSE | VACUUM | ALTER | DROP ALL PRIVILEGES • view SELECT | INSERT | UPDATE | DELETE | TRUNCATE | REFERENCES | TRIGGER | ANALYZE | ANALYSE | VACUUM | ALTER | DROP ALL PRIVILEGES • column SELECT | INSERT | UPDATE | REFERENCES ALL PRIVILEGES • function EXECUTE ALL PRIVILEGES • sequence SELECT | UPDATE | USAGE ALL PRIVILEGES • nodegroup CREATE | USAGE | COMPUTE ALL PRIVILEGES • role role_name (role name)
revoke_with	Yes	Boolean	Whether to remove a grant option.

Response Parameters

Status code: 200

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Table 5-533 Response body parameter

Parameter	Type	Description
view_sql	Array of strings	SQL list.

Example Request

Modify the database object permission of the cluster whose ID is **a89aea88-7ea2-40bd-8ac8-8b93e169e5d6**. Specifically, grant the **SELECT** permission of **table1** and **table2** in a GaussDB database to **user1** and **user2** in the schema **public**.

```
POST https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/
a89aea88-7ea2-40bd-8ac8-8b93e169e5d6/db-manager/authority

{
  "type" : "table",
  "is_grant" : true,
  "grant_list" : [ {
    "permission" : "SELECT",
    "grant_with" : true
  } ],
  "role_list" : [ "user1", "user2" ],
  "object_list" : [ "table1", "table2" ],
  "database" : "gaussdb",
  "schema" : "public"
}
```

Example Response

Status code: 200

User information details

```
{
  "view_sql" : [ "GRANT SELECT ON TABLE public.test_t1 TO user1 WITH GRANT OPTION;", "GRANT
UPDATE ON TABLE public.test_t1 TO user1 ;" ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;
```

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```
public class UpdateDatabaseAuthoritySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        UpdateDatabaseAuthorityRequest request = new UpdateDatabaseAuthorityRequest();
        DatabasePermissionReq body = new DatabasePermissionReq();
        List<String> listbodyRoleList = new ArrayList<>();
        listbodyRoleList.add("user1");
        listbodyRoleList.add("user2");
        List<Grant> listbodyGrantList = new ArrayList<>();
        listbodyGrantList.add(
            new Grant()
                .withPermission("SELECT")
                .withGrantWith(true)
        );
        body.withSchema("public");
        body.withDatabase("gaussdb");
        body.withObjectList("[table1, table2]");
        body.withRoleList(listbodyRoleList);
        body.withGrantList(listbodyGrantList);
        body.withIsGrant(true);
        body.withType("table");
        request.withBody(body);
        try {
            UpdateDatabaseAuthorityResponse response = client.updateDatabaseAuthority(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this
```

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```
example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = UpdateDatabaseAuthorityRequest()
        listRoleListbody = [
            "user1",
            "user2"
        ]
        listGrantListbody = [
            Grant(
                permission="SELECT",
                grant_with=True
            )
        ]
        request.body = DatabasePermissionReq(
            schema="public",
            database="gaussdb",
            object_list="[table1, table2]",
            role_list=listRoleListbody,
            grant_list=listGrantListbody,
            is_grant=True,
            type="table"
        )
        response = client.update_database_authority(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
```

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```
        WithCredential(auth).
        Build())

    request := &model.UpdateDatabaseAuthorityRequest{}
    var listRoleListbody = []string{
        "user1",
        "user2",
    }
    var listGrantListbody = []model.Grant{
        {
            Permission: "SELECT",
            GrantWith: true,
        },
    }
    schemaDatabasePermissionReq:= "public"
    request.Body = &model.DatabasePermissionReq{
        Schema: &schemaDatabasePermissionReq,
        Database: "gaussdb",
        ObjectList: "[table1, table2]",
        RoleList: listRoleListbody,
        GrantList: &listGrantListbody,
        IsGrant: true,
        Type: "table",
    }
    response, err := client.UpdateDatabaseAuthority(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	User information details
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

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5.15.6 Querying Database Object Permissions

Function

This API is used to query database object permissions.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/db-manager/authority

Table 5-534 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-535 Query parameters

Parameter	Mandatory	Type	Description
type	Yes	String	Object Type [DATABASE | SCHEMA | TABLE | VIEW | COLUMN| FUNCTION|| SEQUENCE| NODEGROUP]
name	Yes	Array of strings	Object name
database	Yes	String	Database name
schema	No	String	Schema name. This parameter is mandatory when the object type is TABLE, VIEW, COLUMN, FUNCTION, or SEQUENCE.
table	No	String	Specifies the table name. This parameter is mandatory when the object type is COLUMN.

Request Parameters

None

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Response Parameters

Status code: 200

Table 5-536 Response body parameter

Parameter	Type	Description
authorities	Array of **ObjectAuthority** objects	Object permission set

Table 5-537 ObjectAuthority

Parameter	Type	Description
name	String	Object name
role_authority	Array of **RoleAuthority** objects	Role permission set

Table 5-538 RoleAuthority

Parameter	Type	Description
role	String	Role name
right_list	Array of strings	Permission list

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/
a89aea88-7ea2-40bd-8ac8-8b93e169e5d6/db-manager/authority?
type=table&name=table1&database=gaussdb&schema=public
```

Example Response

Status code: 200

Database object permission information

```
{
  "authorities" : [ {
    "name" : "table1",
    "role_authority" : [ {
      "role" : "role1",
      "right_list" : [ "SELECT", "UPDATE" ]
    }, {
      "role" : "role2",
      "right_list" : [ "SELECT", "UPDATE" ]
    } ]
```

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```
 } ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

import java.util.List;
import java.util.ArrayList;

public class ShowDatabaseAuthoritySolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ShowDatabaseAuthorityRequest request = new ShowDatabaseAuthorityRequest();
        request.withType("<type>");
        request.withName();
        request.withDatabase("<database>");
        request.withSchema("<schema>");
        request.withTable("<table>");
        try {
            ShowDatabaseAuthorityResponse response = client.showDatabaseAuthority(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

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Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ShowDatabaseAuthorityRequest()
        request.type = "<type>"
        request.name =
        request.database = "<database>"
        request.schema = "<schema>"
        request.table = "<table>"
        response = client.show_database_authority(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
```

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```
        WithCredential(auth).
        Build())

    request := &model.ShowDatabaseAuthorityRequest{}
    request.Type = "<type>"
    request.Database = "<database>"
    schemaRequest:= "<schema>"
    request.Schema = &schemaRequest
    tableRequest:= "<table>"
    request.Table = &tableRequest
    response, err := client.ShowDatabaseAuthority(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Database object permission information
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.15.7 Obtaining the Cluster O&M Account Status

Function

This API is used to obtain the status of a database O&M account.

Call Method

For details, see **Calling APIs**.

URI

```
GET /v1/{project_id}/clusters/{cluster_id}/db-manager/om-user/status
```

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Table 5-539 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

Status code: 200

Table 5-540 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message
om_user_info	**DatabaseOmUserInfo** object	O&M user information

Table 5-541 DatabaseOmUserInfo

Parameter	Type	Description
om_user_status	String	O&M account status
om_user_expires_time	String	Expiration status of the O&M account

Example Request

Obtain the O&M user status.

```
https://cn-north-208-console.ulanqab.huawei.com/dws/rest-dms/v1.0/05f2cff45100d5112f4bc00b794ea08e/clusters/e7107fab-cac0-4261-916b-7f32b3053034/db-manager/om-user/status
```

```
{
  "error_code" : 0,
  "error_msg" : null,
```

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```
  "om_user_info" : {
    "om_user_status" : "on",
    "om_user_expires_time" : 1684918485000
  }
}
```

Example Response

Status code: 200

The request for obtaining cluster O&M user status information is responded.

```
{
  "error_code" : 0,
  "error_msg" : null,
  "om_user_info" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

Obtain the O&M user status.

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;

public class ShowDatabaseOmUserStatusSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ShowDatabaseOmUserStatusRequest request = new ShowDatabaseOmUserStatusRequest();
        try {
            ShowDatabaseOmUserStatusResponse response = client.showDatabaseOmUserStatus(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
```

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```
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

Obtain the O&M user status.

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ShowDatabaseOmUserStatusRequest()
        response = client.show_database_om_user_status(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

Obtain the O&M user status.

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")
```

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```
    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ShowDatabaseOmUserStatusRequest{}
    response, err := client.ShowDatabaseOmUserStatus(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The request for obtaining cluster O&M user status information is responded.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.15.8 Perform O&M User Operations

Function

This API is used to perform database O&M account operations.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1/{project_id}/clusters/{cluster_id}/db-manager/om-user/action
```

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Table 5-542 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

Table 5-543 Request body parameters

Parameter	Mandatory	Type	Description
operation	Yes	String	Operation types. The values are: • **addOmUser**: adds an O&M user. • **deleteOmUser**: deletes an O&M user. • **increaseOmUserPeriod**: extends the validity period of an O&M user.

Response Parameters

Status code: 200

Table 5-544 Response body parameters

Parameter	Type	Description
error_code	String	Error code
error_msg	String	Error message
om_user_info	**DatabaseOmUserInfo** object	O&M user information

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Table 5-545 DatabaseOmUserInfo

Parameter	Type	Description
om_user_status	String	O&M account status
om_user_expires_time	String	Expiration status of the O&M account

Example Request

- Add an O&M user.

```
https://cn-north-208-console.ulanqab.huawei.com/dws/rest-dms/v1.0/05f2cff45100d5112f4bc00b794ea08e/clusters/e7107fab-cac0-4261-916b-7f32b3053034/db-manager/om-user/action

{
  "operation" : "addOmUser"
}
```

- Delete an O&M user.

```
https://cn-north-208-console.ulanqab.huawei.com/dws/rest-dms/v1.0/05f2cff45100d5112f4bc00b794ea08e/clusters/e7107fab-cac0-4261-916b-7f32b3053034/db-manager/om-user/action

{
  "operation" : "deleteOmUser"
}
```

- Extend the validity period of an O&M user.

```
https://cn-north-208-console.ulanqab.huawei.com/dws/rest-dms/v1.0/05f2cff45100d5112f4bc00b794ea08e/clusters/e7107fab-cac0-4261-916b-7f32b3053034/db-manager/om-user/action

{
  "operation" : "increaseOmUserPeriod"
}
```

Example Response

Status code: 200

The cluster O&M user operation is successful.

```
{
  "error_code" : 0,
  "error_msg" : null,
  "om_user_info" : null
}
```

SDK Sample Code

The sample code is as follows:

Java

- Add an O&M user.

```
package com.huaweicloud.sdk.test;
```

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```
import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ExecuteDatabaseOmUserActionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ExecuteDatabaseOmUserActionRequest request = new ExecuteDatabaseOmUserActionRequest();
        DatabaseOmUserActionReq body = new DatabaseOmUserActionReq();
        body.withOperation("addOmUser");
        request.withBody(body);
        try {
            ExecuteDatabaseOmUserActionResponse response = client.executeDatabaseOmUserAction(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

- Delete an O&M user.

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ExecuteDatabaseOmUserActionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
```

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```
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before
running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local
environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ExecuteDatabaseOmUserActionRequest request = new ExecuteDatabaseOmUserActionRequest();
        DatabaseOmUserActionReq body = new DatabaseOmUserActionReq();
        body.withOperation("deleteOmUser");
        request.withBody(body);
        try {
            ExecuteDatabaseOmUserActionResponse response =
client.executeDatabaseOmUserAction(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

- Extend the validity period of an O&M user.

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ExecuteDatabaseOmUserActionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before
running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local
environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
```

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```
        ExecuteDatabaseOmUserActionRequest request = new ExecuteDatabaseOmUserActionRequest();
        DatabaseOmUserActionReq body = new DatabaseOmUserActionReq();
        body.withOperation("increaseOmUserPeriod");
        request.withBody(body);
        try {
            ExecuteDatabaseOmUserActionResponse response =
client.executeDatabaseOmUserAction(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

- Add an O&M user.

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before
running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local
environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ExecuteDatabaseOmUserActionRequest()
        request.body = DatabaseOmUserActionReq(
            operation="addOmUser"
        )
        response = client.execute_database_om_user_action(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

- Delete an O&M user.

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *
```

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```
if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ExecuteDatabaseOmUserActionRequest()
        request.body = DatabaseOmUserActionReq(
            operation="deleteOmUser"
        )
        response = client.execute_database_om_user_action(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

- Extend the validity period of an O&M user.

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ExecuteDatabaseOmUserActionRequest()
        request.body = DatabaseOmUserActionReq(
            operation="increaseOmUserPeriod"
        )
        response = client.execute_database_om_user_action(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

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Go

- Add an O&M user.

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ExecuteDatabaseOmUserActionRequest{}
    request.Body = &model.DatabaseOmUserActionReq{
        Operation: "addOmUser",
    }
    response, err := client.ExecuteDatabaseOmUserAction(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

- Delete an O&M user.

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
```

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```
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ExecuteDatabaseOmUserActionRequest{}
    request.Body = &model.DatabaseOmUserActionReq{
        Operation: "deleteOmUser",
    }
    response, err := client.ExecuteDatabaseOmUserAction(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

- Extend the validity period of an O&M user.

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ExecuteDatabaseOmUserActionRequest{}
    request.Body = &model.DatabaseOmUserActionReq{
        Operation: "increaseOmUserPeriod",
    }
    response, err := client.ExecuteDatabaseOmUserAction(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The cluster O&M user operation is successful.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	The service was unavailable.

5.16 Log Management

5.16.1 Obtaining the LTS Log List

Function

This API is used to obtain the LTS log list.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/lts-logs

Table 5-546 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Table 5-547 Query parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Number of records to be queried
offset	No	Integer	Offset

Request Parameters

None

Response Parameters

Status code: 200

Table 5-548 Response body parameters

Parameter	Type	Description
access_status	String	Whether the log function is enabled
lts_access_list	Array of **LtslogInfo** objects	LTS log list
count	Integer	Total number

Table 5-549 LtslogInfo

Parameter	Type	Description
status	String	Configuration status. The options are as follows: • OPEN: The function is being enabled. • CLOSE: The function has been disabled.
id	String	Log ID
log_type	String	Log type
log_desc	String	Log description
access_url	String	URL for accessing LTS logs

Example Request

```
GET https://{Endpoint}/v2/89cd04f168b84af6be287f71730fdb4b/clusters/e59d6b86-9072-46eb-a996-13f8b44994c1/lts-logs
```

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Example Response

Status code: 200

The LTS log list is obtained successfully.

```
{
  "access_status" : "OPEN",
  "lts_access_list" : [ {
    "status" : "OPEN",
    "id" : "c0c4e5f2-9b2a-4b47-a649-baf40b33e2e0",
    "log_type" : "messages",
    "log_desc" : "operating system messages log",
    "access_url" : "/lts/?region=cn-north-7&locale=#/cts/logEventsLeftMenu/events?groupId=b6680a92-
e14f-4a7d-b669-4f702db806f7&groupName=z30024644-s-5&topicId=1a9fe6d0-d383-4d58-
adb6-2c26d229944e&topicName=messages&epsId=0"
  } ],
  "count" : 2
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListLtsLogsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great
security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or
environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        ListLtsLogsRequest request = new ListLtsLogsRequest();
        request.withLimit(<limit>);
        request.withOffset(<offset>);
        try {
            ListLtsLogsResponse response = client.listLtsLogs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
```

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```
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = ListLtsLogsRequest()
        request.limit = <limit>
        request.offset = <offset>
        response = client.list_lts_logs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
```

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```
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.ListLtsLogsRequest{}
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    response, err := client.ListLtsLogs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	The LTS log list is obtained successfully.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
404	No resources found.
500	Internal server error.
503	Service unavailable.

5.16.2 Enabling LTS

Function

This API is used to enable LTS for a cluster.

Call Method

For details, see **Calling APIs**.

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URI

```
POST /v1/{project_id}/clusters/{cluster_id}/lts-logs/enable
```

Table 5-550 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

None

Example Request

```
https://{Endpoint}/v2/05f2cff45100d5112f4bc00b794ea08e/clusters/a862e17c-2981-4150-9018-f9a40511999c/lts-logs/enable
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class EnableLtsLogsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running
```

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```
this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        EnableLtsLogsRequest request = new EnableLtsLogsRequest();
        try {
            EnableLtsLogsResponse response = client.enableLtsLogs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()

    try:
        request = EnableLtsLogsRequest()
        response = client.enable_lts_logs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main
```

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```
import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.EnableLtsLogsRequest{}
    response, err := client.EnableLtsLogs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	LTS is enabled successfully.
400	Request error.
401	Authentication failed.
403	No operation permission.
404	No resource found.
500	Internal service error.
503	The service is unavailable.

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5.16.3 Disabling LTS

Function

This API is used to disable LTS for a cluster.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1/{project_id}/clusters/{cluster_id}/lts-logs/disable
```

Table 5-551 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Request Parameters

None

Response Parameters

None

Example Request

```
https://{Endpoint}/v2/05f2cff45100d5112f4bc00b794ea08e/clusters/a862e17c-2981-4150-9018-f9a40511999c/lts-logs/disable
```

Example Response

None

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
```

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```
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class DisableLtsLogsSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("<YOUR REGION>"))
                .build();
        DisableLtsLogsRequest request = new DisableLtsLogsRequest();
        try {
            DisableLtsLogsResponse response = client.disableLtsLogs(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("<YOUR REGION>")) \
        .build()
```

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```
    try:
        request = DisableLtsLogsRequest()
        response = client.disable_lts_logs(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("<YOUR REGION>")).
            WithCredential(auth).
            Build())

    request := &model.DisableLtsLogsRequest{}
    response, err := client.DisableLtsLogs(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	LTS is disabled successfully.
400	Request error.

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Status Code	Description
401	Authentication failed.
403	No operation permission.
404	No resource found.
500	Internal service error.
503	The service is unavailable.

5.17 Upgrade Management

5.17.1 Obtaining Cluster Upgrade Records

Function

This API is used to obtain the upgrade records of the current cluster.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/upgrade-management/records

Table 5-552 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-553 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset
limit	No	Integer	Number of records

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Request Parameters

None

Response Parameters

Status code: 200

Table 5-554 Response body parameters

Parameter	Type	Description
count	Integer	Total number of cluster upgrade records
records	Array of **ClusterUpdateRecordResp** objects	List of cluster upgrade records

Table 5-555 ClusterUpdateRecordResp

Parameter	Type	Description
item_id	String	Upgrade project ID
status	String	Upgrade status: • Waiting: The upgrade is to be performed. • Update_Running: The upgrade is in progress. • Update_Success: The upgrade is successful and is to be submitted. • Update_Failure: The upgrade fails. • Rollback_Running: The rollback is in progress. • Rollback_Failure: The rollback fails. • Commit_Running: The task is being committed. • Commit_Failure: The submission fails. • Completed: The upgrade is complete.
record_type	String	Upgrade type
from_version	String	Source version
to_version	String	Target version
start_time	String	Start time
end_time	String	End time
job_id	String	Upgrade task ID

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Parameter	Type	Description
failed_reason	String	Cause of failure

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/c719b1a7-c85c-4cb5-a721-7694908c2c11/upgrade-management/records
```

Example Response

Status code: 200

Cluster upgrade record response body:

```
{
   "records": [
      {
         "item_id": "930d2820-fc17-4a42-9a50-eb695bf05e83",
         "status": "UpdateCompleted_Success",
         "record_type": "update-kernel",
         "from_version": "8.2.0",
         "to_version": "8.2.0.100",
         "start_time": "2023-08-04T06:46:46",
         "end_time": "2023-08-04T06:54:59",
         "job_id": "2c90804789bf441e0189bf4c78fd0001",
         "failed_reason": null
      }
   ]
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListUpdateRecordSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);
```

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```
        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListUpdateRecordRequest request = new ListUpdateRecordRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListUpdateRecordResponse response = client.listUpdateRecord(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListUpdateRecordRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_update_record(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
```

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```
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListUpdateRecordRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListUpdateRecord(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Cluster upgrade record response body.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

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5.17.2 Obtaining the Target Version to Which a Cluster Can Be Upgraded

Function

This API is used to obtain the target version to which a cluster can be upgraded.

Call Method

For details, see **Calling APIs**.

URI

GET /v1/{project_id}/clusters/{cluster_id}/upgrade-management/avail-versions

Table 5-556 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

Table 5-557 Query parameters

Parameter	Mandatory	Type	Description
offset	No	Integer	Offset
limit	No	Integer	Number of items

Request Parameters

None

Response Parameters

Status code: 200

Table 5-558 Response body parameters

Parameter	Type	Description
count	Integer	Total number of cluster upgrade paths

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Parameter	Type	Description
items	Array of **UpdateItemResp** objects	List of cluster upgrade paths

Table 5-559 UpdateItemResp

Parameter	Type	Description
id	String	ID of an upgrade item
from	String	Source version
to	String	Target version
status	String	Status of the upgrade path
process	String	Upgrade progress
start_time	String	Start time.
end_time	String	End time
job_id	String	Upgrade task ID
failed_reason	String	Cause of failure

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/c719b1a7-c85c-4cb5-a721-7694908c2c11/upgrade-management/avail-versions
```

Example Response

Status code: 200

Response body of the cluster upgrade path.

```
{
"items": [
{
"id": "930d2820-fc17-4a42-9a50-eb695bf05e83",
"from": "8.2.0",
"to": "8.2.0.100",
"status": "Update_Success",
"process": "0",
"start_time": "2023-08-04T06:54:52",
"end_time": "",
"job_id": "2c90804789bf441e0189bf4c78fd0001",
"failed_reason": null,
}
]
}
```

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SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ListUpdatableVersionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ListUpdatableVersionRequest request = new ListUpdatableVersionRequest();
        request.withOffset(<offset>);
        request.withLimit(<limit>);
        try {
            ListUpdatableVersionResponse response = client.listUpdatableVersion(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security
```

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```
risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \

    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ListUpdatableVersionRequest()
        request.offset = <offset>
        request.limit = <limit>
        response = client.list_updatable_version(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ListUpdatableVersionRequest{}
    offsetRequest:= int32(<offset>)
    request.Offset = &offsetRequest
    limitRequest:= int32(<limit>)
    request.Limit = &limitRequest
    response, err := client.ListUpdatableVersion(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
```

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```
    }
}
```

More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Response body of the cluster upgrade path.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

5.17.3 Delivering Cluster Upgrade Operations

Function

This API is used to deliver cluster upgrade operations.

Call Method

For details, see **Calling APIs**.

URI

```
POST /v1/{project_id}/clusters/{cluster_id}/upgrade-management/action
```

Table 5-560 URI parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the ID, see **Obtaining Project ID**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the ID, see **Obtaining the Cluster ID**.

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Request Parameters

Table 5-561 Request body parameters

Parameter	Mandatory	Type	Description
action	Yes	String	Operation to be performed on the current cluster. The options are: • update • retry • rollback • commit
item_id	Yes	String	ID of an upgrade item.

Response Parameters

Table 5-562 Response body parameters

Parameter	Type	Description
job_id	String	ID of the task for delivering upgrade-related operations

Example Request

```
GET https://{Endpoint}/v1/0536cdee2200d5912f7cc00b877980f1/clusters/c719b1a7-c85c-4cb5-a721-7694908c2c11/upgrade-management/action

{
  "item_id" : "xx",
  "action" : "update"
}
```

Example Response

Status code: 200

```
{
  "job_id" : "2c90807d89a6f9540189a9bef01f042b"
}
```

SDK Sample Code

The sample code is as follows:

Java

```
package com.huaweicloud.sdk.test;

import com.huaweicloud.sdk.core.auth.ICredential;
```

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```
import com.huaweicloud.sdk.core.auth.BasicCredentials;
import com.huaweicloud.sdk.core.exception.ConnectionException;
import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
import com.huaweicloud.sdk.core.exception.ServiceResponseException;
import com.huaweicloud.sdk.dws.v2.region.DwsRegion;
import com.huaweicloud.sdk.dws.v2.*;
import com.huaweicloud.sdk.dws.v2.model.*;


public class ExecuteClusterUpgradeActionSolution {

    public static void main(String[] args) {
        // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
        // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
        String ak = System.getenv("CLOUD_SDK_AK");
        String sk = System.getenv("CLOUD_SDK_SK");

        ICredential auth = new BasicCredentials()
                .withAk(ak)
                .withSk(sk);

        DwsClient client = DwsClient.newBuilder()
                .withCredential(auth)
                .withRegion(DwsRegion.valueOf("cn-north-4"))
                .build();
        ExecuteClusterUpgradeActionRequest request = new ExecuteClusterUpgradeActionRequest();
        ExecuteClusterUpgradeActionRequestBody body = new ExecuteClusterUpgradeActionRequestBody();
        body.withItemId("xx");
        body.withAction("update");
        request.withBody(body);
        try {
            ExecuteClusterUpgradeActionResponse response = client.executeClusterUpgradeAction(request);
            System.out.println(response.toString());
        } catch (ConnectionException e) {
            e.printStackTrace();
        } catch (RequestTimeoutException e) {
            e.printStackTrace();
        } catch (ServiceResponseException e) {
            e.printStackTrace();
            System.out.println(e.getHttpStatusCode());
            System.out.println(e.getRequestId());
            System.out.println(e.getErrorCode());
            System.out.println(e.getErrorMsg());
        }
    }
}
```

Python

```
# coding: utf-8

from huaweicloudsdkcore.auth.credentials import BasicCredentials
from huaweicloudsdkdws.v2.region.dws_region import DwsRegion
from huaweicloudsdkcore.exceptions import exceptions
from huaweicloudsdkdws.v2 import *

if __name__ == "__main__":
    # The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    # In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak = os.getenv("CLOUD_SDK_AK")
    sk = os.getenv("CLOUD_SDK_SK")

    credentials = BasicCredentials(ak, sk) \
```

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```
    client = DwsClient.new_builder() \
        .with_credentials(credentials) \
        .with_region(DwsRegion.value_of("cn-north-4")) \
        .build()

    try:
        request = ExecuteClusterUpgradeActionRequest()
        request.body = ExecuteClusterUpgradeActionRequestBody(
            item_id="xx",
            action="update"
        )
        response = client.execute_cluster_upgrade_action(request)
        print(response)
    except exceptions.ClientRequestException as e:
        print(e.status_code)
        print(e.request_id)
        print(e.error_code)
        print(e.error_msg)
```

Go

```
package main

import (
    "fmt"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/core/auth/basic"
    dws "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2"
    "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/model"
    region "github.com/huaweicloud/huaweicloud-sdk-go-v3/services/dws/v2/region"
)

func main() {
    // The AK and SK used for authentication are hard-coded or stored in plaintext, which has great security risks. It is recommended that the AK and SK be stored in ciphertext in configuration files or environment variables and decrypted during use to ensure security.
    // In this example, AK and SK are stored in environment variables for authentication. Before running this example, set environment variables CLOUD_SDK_AK and CLOUD_SDK_SK in the local environment
    ak := os.Getenv("CLOUD_SDK_AK")
    sk := os.Getenv("CLOUD_SDK_SK")

    auth := basic.NewCredentialsBuilder().
        WithAk(ak).
        WithSk(sk).
        Build()

    client := dws.NewDwsClient(
        dws.DwsClientBuilder().
            WithRegion(region.ValueOf("cn-north-4")).
            WithCredential(auth).
            Build())

    request := &model.ExecuteClusterUpgradeActionRequest{}
    request.Body = &model.ExecuteClusterUpgradeActionRequestBody{
        ItemId: "xx",
        Action: "update",
    }
    response, err := client.ExecuteClusterUpgradeAction(request)
    if err == nil {
        fmt.Printf("%+v\n", response)
    } else {
        fmt.Println(err)
    }
}
```

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More SDK Sample Code

For more SDK sample codes of programming languages, visit **API Explorer** and click the **Sample Code** tab. Example codes can be automatically generated.

Status Code

Status Code	Description
200	Operation delivered.
400	Request error.
401	Authentication failed.
403	You do not have required permissions.
500	Internal server error.
503	Service unavailable.

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6 Application Cases

6.1 Using Postman to Call the API for Creating a Cluster

Scenario

Use Postman to create a GaussDB(DWS) cluster. This API is an asynchronous API. It takes 10 to 15 minutes to create a cluster. For details, see **Calling APIs**.

Preparations

- You have registered a Huawei Cloud account and enabled Huawei Cloud services.
- You have obtained the endpoint addresses of GaussDB(DWS) in the region you choose. For details, see **Regions and Endpoints**.
- You have obtained the username, password, account name, and project ID of your Huawei Cloud account. In the upper right corner of the Huawei Cloud management console, choose **My Credentials** > **API Credential**. The username, account name, user password, and region project ID is displayed in the **Projects** area. For details about how to obtain the project ID, see **Obtaining a Project ID**.
- You have created a VPC and obtained the VPC and subnet IDs. For details, see **Virtual Private Cloud (VPC)**.

Procedure

Step 1 Configure the environment.

NOTE

Download Postman (7.24.0 is recommended) and call the snapshot creation service.

Step 2 Obtain the token for authentication.

1. Create a POST request on Postman, select the **Body** tab, and enter the username, password, account name, and project ID.

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> **NOTE**
>
> The region where the Huawei Cloud service for obtaining the token is located must be the same as the region where the called service is located. Otherwise, the calling fails.

2. Click **Send** in the upper right corner to send POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens. Obtain the value of **Headers->X-Subject-Token** in the command output. (The validity period of the token is 24 hours.)

Step 3 Call the API for creating a cluster.

1. Create a POST request on Postman, select **Headers**, add the corresponding KEY and VALUE, and copy the token value to **X-Auth-Token**.
2. Call the API. This service provides two APIs for creating a cluster. The region of the request URL must be the same as that of the invoked service. **project_id** indicates the project ID (mandatory). For details about how to obtain the project ID, see **Preparations**.
   - v1 API:
     ```
     POST https://{Endpoint}/v1.0/{project_id}/clusters
     ```
   - v2 API:
     ```
     POST https://{Endpoint}/v2/{project_id}/clusters
     ```

   > **NOTE**
   >
   > The v2 API is recommended.

3. Click **Body** and add the request parameter values to the request. Parameters vary by services. For details, see the **API Description**.
   ```
   {
      "cluster": {
         "flavor": "dwsx2.rt.xlarge.m6",
         "num_node": 3,
         "subnet_id": "050e154d-9954-4929-b6d3-12af7c9213ac",
         "security_group_id": "",
         "vpc_id": "050e154d-9954-4929-b6d3-12af7c9213ac",
         "db_port": 8000,
         "datastore_version": "8.1.3.320",
         "availability_zones": [
            "cn-north-4c"
         ],
         "name": "dws1",
         "num_cn": 3,
         "db_name": "dbadmin",
         "db_password": "Passw0rd!",
         "public_ip": {
            "public_bind_type": "auto_assign",
            "eip_id": ""
         },
         "volume": {
            "volume": "SSD",
            "capacity": "100"
         }
      }
   }
   ```
4. Click **Send** in the upper right corner to send the request. For example, enter "POST https://dws.**ap-southeast-1**.myhuaweicloud.com/v2/89cd04f168b84af6be287f71730fdb4b/clusters" to view the creation result.
   ```
   {
     "cluster" : {
       "id" : "7d85f602-a948-4a30-afd4-e84f47471c15"
   ```

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```
 }
}
```

----End

FAQs

- DWS.5207 Invalid CN instance quantity.

  In the latest version, the number of CNs in the cluster ranges from 2 to the number of cluster nodes. The maximum value is **20** and the default value is **3**.
- DWS.5240 The selected flavor does not exist.

  If you use the v2 API, enter the flavor name but not the flavor ID.
- ECS.0319 Failed to create a cluster, and the error message "The capacity of flavor am7.xlarge.8 is not sufficient." is displayed.

  The underlying resources for the selected flavor are insufficient. Check the flavor field and select an available flavor.

6.2 Using Postman to Call the API for Creating a Snapshot

Scenarios

Use Postman to call the API for creating a snapshot. For details, see **Calling APIs**.

Involved APIs

When this API is called, authentication is required. The following APIs are involved:

- **Authentication**: This API is used to authenticate identity to obtain the permission to operate APIs.
- **Creating a Snapshot**: This API is used to create a snapshot for a cluster.

Procedure

Step 1 Configure the environment.

NOTE

Download Postman (7.24.0 is recommended) and call the snapshot creation service.

Step 2 Call services.

1. Obtain the token for authentication.

   Create a POST request on Postman, select the **Body** tab, and enter the username, password, account name, and project ID. For details about how to obtain the project ID, see **Obtaining a Project ID**.

   NOTE

   The region where the cloud service for obtaining the token is located must be the same as the region where the called service is located. Otherwise, the calling fails.

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2. Click **Send** in the upper right corner to send **POST https://iam.ap-southeast-1.myhuaweicloud.com/v3/auth/tokens**. Obtain the token value in the returned result. The token validity period is 24 hours.
3. Call the API for creating a snapshot.
   - Create a POST request on Postman, select **Headers**, add the corresponding KEY and VALUE, and copy the token value to **X-Auth-Token**. The region in the request URL must be the same as that of the invoked service. You can obtain the region from **Regions and Endpoints**.
   - Click **Body** and add the request parameter values to the request. Parameters vary by services. For details, see the **API Description**.
   - Click **Send** in the upper right corner to send **POST https://dws.ap-southeast-1.myhuaweicloud.com/v1.0/{*project_id*}/snapshots** and view the creation result.

     ```
     {
       "snapshot": {
          "id": "809bcf6e-4022-496d-9320-bbc700695692"
        }
     }
     ```

----End

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7 Introduction

This section describes fine-grained permissions management for your GaussDB(DWS) service using IAM. You can skip this section if your HUAWEI CLOUD account already satisfies your needs.

By default, new IAM users do not have permissions assigned. You need to add the users to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions. Users are authorized by creating custom policies. For detailed operations, see **Creating a GaussDB(DWS) Custom Policy**.

You can grant users permissions by using **Roles** and **Policies**. Roles are provided by IAM to define service-based permissions depending 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

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

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

Supported Actions

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

- **Permissions**: Allow or deny operations on specified resources under specific conditions.
- **APIs**: RESTful APIs that can be called in a custom policy.

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- **Actions**: Added to a custom policy to control permissions for specific operations.
- **IAM or enterprise projects**: Type of projects for which an action will take effect. Policies that contain actions supporting both IAM and enterprise projects can be assigned to user groups and take effect in both IAM and Enterprise Management. 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. For details about the differences between IAM and enterprise projects, see **What Are the Differences Between IAM and Enterprise Management?**.

  NOTE

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

GaussDB(DWS) supports the following actions that can be defined in custom policies:

- **Managing Clusters**
- **Managing Snapshots**

Managing Clusters

Permissions	APIs	Actions	IAM Project	Enterprise Project
Creating clusters	POST /v1.0/{project_id}/clusters	dws:openAPICluster:create	√	x
Querying the cluster list	GET /v1.0/{project_id}/clusters	dws:openAPICluster:list	√	x
Querying cluster details	GET /v1.0/{project_id}/clusters/{cluster_id}	dws:openAPICluster:getDetail	√	x
Querying the node type	GET /v2/{project_id}/node-types	dws:openAPIFlavors:get	√	x
Deleting clusters	DELETE /v1.0/{project_id}/clusters/{cluster_id}	dws:openAPICluster:delete	√	x
Restarting clusters	POST /v1.0/{project_id}/clusters/{cluster_id}/restart	dws:openAPICluster:restart	√	x

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Permissions	APIs	Actions	IAM Project	Enterprise Project
Scales out a cluster.	POST /v1.0/{project_id}/clusters/{cluster_id}/resize	dws:cluster:scaleOutOrOpenAPIResize	√	x
Resetting the cluster's administrator password	POST /v1.0/{project_id}/clusters/{cluster_id}/reset-password	dws:openAPICluster:resetPassword	√	x
Start a cluster.	POST /v1/{project_id}/clusters/{cluster_id}/start	dws:cluster:startCluster	√	×
Stopping a Cluster	POST /v1/{project_id}/clusters/{cluster_id}/stop	dws:cluster:stopCluster	√	×

NOTE

In the current version, the APIs for starting and stopping a cluster are available only to clusters whose database type is serverless.

Managing Snapshots

Permissions	APIs	Actions	IAM Project	Enterprise Project
Creating snapshots	POST /v1.0/{project_id}/snapshots	dws:openAPISnapshot:create	√	x
Querying the snapshot list	GET /v1.0/{project_id}/snapshots	dws:openAPISnapshot:list	√	x
Querying snapshot details	GET /v1.0/{project_id}/snapshots/{snapshot_id}	dws:openAPISnapshot:detail	√	x

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Permissions	APIs	Actions	IAM Project	Enterprise Project
Deleting snapshots	DELETE /v1.0/{project_id}/snapshots/{snapshot_id}	dws:openAPISnapshot:delete	√	x
Restoring clusters	POST /v1.0/{project_id}/snapshots/{snapshot_id}/actions	dws:openAPISnapshot:restore	√	x

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8 Appendix

8.1 Status Code

Table 8-1 describes the status code.

Table 8-1 Status code

Status Code	Code	Description
100	Continue	The client continues sending the request. This interim response is used to inform the client that the initial part of the request has been received and has not yet been rejected by the server.
101	Switching Protocols	Switching protocols. The target protocol must be more advanced than the source protocol. For example, the current HTTP protocol is switched to a later version.
201	Created	The request for creating a resource has been fulfilled.
202	Accepted	The request has been accepted, but the processing has not been completed.
203	Non-Authoritative Information	The server successfully processed the request, but is returning information that may be from another source.
204	NoContent	The server has successfully processed the request, but has not returned any content. The status code is returned in response to an HTTP OPTIONS request.

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Status Code	Code	Description
205	Reset Content	The server has fulfilled the request, but the requester is required to reset the content.
206	Partial Content	The server has processed certain GET requests.
300	Multiple Choices	There are multiple options for the location of the requested resource. The response contains a list of resource characteristics and addresses from which the user or user agent (such as a browser) can choose the most appropriate one.
301	Moved Permanently	The requested resource has been assigned a new permanent URI, and the new URI is contained in the response.
302	Found	The requested resource resides temporarily under a different URI.
303	See Other	Retrieve a location. The response to the request can be found under a different URI and should be retrieved using a GET or POST method.
304	Not Modified	The requested resource has not been modified. When the server returns this status code, it does not return any resources.
305	Use Proxy	The requested resource must be accessed through a proxy.
306	Unused	The HTTP status code is no longer used.
400	BadRequest	Invalid request. The client should not repeat the request without modifications.
401	Unauthorized	The status code is returned after the client provides the authentication information, indicating that the authentication information is incorrect or invalid.
402	Payment Required	This status code is reserved for future use.
403	Forbidden	The server understood the request, but is refusing to fulfill it. The client should not repeat the request without modifications.
404	NotFound	The requested resource cannot be found. The client should not repeat the request without modifications.

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Status Code	Code	Description
405	MethodNotAllowed	The method specified in the request is not supported for the requested resource. The client should not repeat the request without modifications.
406	Not Acceptable	The server cannot fulfill the request according to the content characteristics of the request.
407	Proxy Authentication Required	This status code is similar to 401, but indicates that the client must first authenticate itself with the proxy.
408	Request Time-out	The request timed out. The client may repeat the request without modifications at any later time.
409	Conflict	The request could not be completed due to a conflict with the current state of the resource. This status code indicates that the resource that the client attempts to create already exits, or the request fails to be processed because of the update of the conflict request.
410	Gone	The requested resource is no longer available. The status code indicates that the requested resource has been deleted permanently.
411	Length Required	The server refuses to process the request without a defined Content-Length.
412	Precondition Failed	The server does not meet one of the preconditions that the requester puts on the request.
413	Request Entity Too Large	The request is larger than that a server is able to process. The server may close the connection to prevent the client from continuing the request. If the server cannot process the request temporarily, the response will contain a Retry-After header field.
414	Request-URI Too Large	The URI provided was too long for the server to process.
415	Unsupported Media type	The server is unable to process the media format in the request.
416	Requested range not satisfiable	The requested range is invalid.
417	Expectation Failed	The server fails to meet the requirements of the Expect request-header field.

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Status Code	Code	Description
422	UnprocessableEntity	The request is well-formed but is unable to be processed due to semantic errors.
429	TooManyRequests	The client has sent more requests than its rate limit is allowed within a given amount of time, or the server has received more requests than it is able to process within a given amount of time. In this case, it is advisable for the client to re-initiate requests after the time specified in the Retry-After header of the response expires.
500	InternalServerError	The server is able to receive the request but it could not understand the request.
501	Not Implemented	The server does not support the requested function.
502	Bad Gateway	The server is acting as a gateway or proxy and receives an invalid request from a remote server.
503	ServiceUnavailable	The requested service is invalid. The client should not repeat the request without modifications.
504	ServerTimeout	The request cannot be fulfilled within a given time. This status code is returned to the client only when the **Timeout** parameter is specified in the request.
505	HTTP Version not supported	The server does not support the HTTP protocol version used in the request.

8.2 Error Code

No data is returned if an API fails to be called. You can locate the cause of error according to the error code of each API. When the calling fails, HTTP status code 4*xx* or 5*xx* is returned. The returned message body contains the specific error code and error information. If you fail to locate the cause of error, contact the database customer service and technical support and provide the error code so that we can help you solve the problem as soon as possible.

If an error code starting with **APIGW** is returned after you call an API, rectify the fault by referring to the instructions provided in **API gateway error codes**.

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Table 8-2 Error code

Status Code	Error Code	Error Information	Description	Solution
400	DWS.5001	Invalid instance name.	Invalid instance name.	Enter a valid instance name according to the instance name description and try again later.
400	DWS.5002	Invalid database type.	Invalid database type.	Enter a valid database type according to the database parameter description and try again later.
400	DWS.5003	Invalid database version.	Invalid database version.	Enter a valid database version according to the database parameter description and try again later.
400	DWS.5004	Empty datastore field.	Empty datastore field.	Enter the correct datastore according to the actual situation and try again later.
400	DWS.5005	Database type or version not supported.	Database type or version not supported.	Enter a valid database type and version according to the database parameter description and try again later.
400	DWS.5006	Invalid specifications.	Invalid specifications.	Select the correct flavor and try again later.
400	DWS.5010	Invalid region.	Invalid region.	Select a valid region and try again.
400	DWS.5011	Invalid AZ.	Invalid AZ.	Select a valid AZ and try again.
400	DWS.5012	The region or AZ does not exist.	The region or AZ does not exist.	Enter a correct region or AZ and try again later.
400	DWS.5013	Invalid password of database **root**.	Invalid password of database **root**.	Enter a valid password according to the password description.
400	DWS.5014	Invalid VPC ID.	Invalid VPC ID.	Enter a valid ID according to the description of parameter **vpc_id**.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5015	Invalid subnet ID.	Invalid subnet ID.	Enter a valid ID according to the description of parameter **subnet_id**.
400	DWS.5016	Invalid security group ID.	Invalid security group ID.	Enter a valid ID according to the description of the security group ID parameter.
400	DWS.5017	Invalid retention period of automated backups.	Invalid retention period of automated backups.	Enter a proper retention period and try again later.
400	DWS.5018	Invalid automated backup period.	Invalid automated backup period.	Enter a proper automated backup period and try again later.
404	DWS.5021	The VPC does not exist or does not belong to the user.	The VPC does not exist or does not belong to the user.	Enter a correct VPC and try again later.
404	DWS.5022	The subnet does not exist or does not belong to the VPC.	The subnet does not exist or does not belong to the VPC.	Enter a correct subnet and try again later.
404	DWS.5023	The security group does not exist or does not belong to the VPC.	The security group does not exist or does not belong to the VPC.	Enter a correct security group and try again later.
400	DWS.5027	Invalid AZ.	Invalid AZ.	Enter a correct AZ and try again later.
400	DWS.5033	The volume size is not a multiple of 10.	The volume size is not a multiple of 10.	Enter a valid size and try again.
400	DWS.5034	Flavors do not match.	Flavors do not match.	Select a correct flavor and try again.

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Status Code	Error Code	Error Information	Description	Solution
403	DWS.5036	Datastore does not exist or does not have sufficient permissions.	Datastore does not exist or does not have sufficient permissions.	Enter a correct Datastore and try again.
400	DWS.5037	The parameter does not exist.	The parameter does not exist.	Enter the correct parameter group and try again.
400	DWS.5038	The parameter value is out of range.	The parameter value is out of range.	Enter a valid parameter and try again.
400	DWS.5039	Duplicate parameters.	Duplicate parameters.	Enter a valid parameter and try again.
400	DWS.5045	The current tenant is not allowed to perform this operation.	The current tenant is not allowed to perform this operation.	Ensure that the current tenant is the same as the tenant to which the cluster belongs and try again.
400	DWS.5046	nics is left black.	nics is left black.	Enter a correct nics and try again.
400	DWS.5047	Invalid instance quantity.	Invalid instance quantity.	Enter a correct instance quantity.
400	DWS.5048	Invalid extended parameter.	Invalid extended parameter.	Enter a valid extended parameter according to the corresponding description of the extended parameter.
409	DWS.5050	The cluster name already exists.	The cluster name already exists.	Enter a correct cluster name and try again later.
400	DWS.5051	Invalid IP address.	Invalid IP address.	Enter a valid IP address and try again.
400	DWS.5052	Invalid value of the AZ.	Invalid value of the AZ.	Enter a correct AZ and try again later.
400	DWS.5053	The value of locality between instances is invalid.	The value of locality between instances is invalid.	Enter a correct locality value and try again later.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5054	The parameter group ID is invalid.	The parameter group ID is invalid.	Enter a correct parameter group ID and try again later.
400	DWS.5056	Invalid string length.	Invalid string length.	Enter a valid string and try again.
400	DWS.5057	The cluster name pattern is invalid.	The cluster name pattern is invalid.	Enter a valid cluster name according to the cluster name description.
400	DWS.5059	Database username contains invalid characters.	Database username contains invalid characters.	Enter a valid database username according to the database username description.
400	DWS.5060	Integer type is of wrong range.	Integer type is of wrong range.	Enter a valid Integer type and try again later.
400	DWS.5061	The volume type is illegal.	The volume type is illegal.	Enter a valid volume type and try again later.
400	DWS.5062	The volume tag is illegal.	The volume tag is illegal.	Enter a valid volume tag and try again later.
400	DWS.5063	Invalid Specific field.	Invalid Specific field.	Enter a correct Specific value and try again later.
400	DWS.5064	Invalid UUID.	Invalid UUID.	Enter a valid UUID and try again.
400	DWS.5065	Invalid format.	Invalid format.	Use a valid format and try again.
400	DWS.5070	Flavor ref is invalid in xml.	Flavor ref is invalid in xml.	Enter correct flavor ref and try again later.
400	DWS.5071	The volume type is invalid in XML.	The volume type is invalid in XML.	Enter a correct disk type and try again later.
400	DWS.5078	Invalid disk size.	Invalid disk size.	Enter a valid disk size and try again later.
400	DWS.5079	The backup period is not permitted.	The backup period is not permitted.	Enter a proper backup period and try again later.
400	DWS.5080	The backup retention period is not permitted.	The backup retention period is not permitted.	Enter a proper backup retention duration and try again later.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5081	The instance disk type is not allowed.	The instance disk type is not allowed.	Select a valid instance type and try again.
400	DWS.5082	The database user name is not supported.	The database user name is not supported.	Enter a valid database username according to the database username description.
400	DWS.5083	Invalid affinity in the XML configuration.	Invalid affinity in the XML configuration.	Enter a valid affinity value and try again.
400	DWS.5084	Incorrect volume configuration in the XML file.	Incorrect volume configuration in the XML file.	Enter a correct volume value and try again later.
400	DWS.5086	The same instance type does not meet flavor consistency requirements.	The same instance type does not meet flavor consistency requirements.	Enter the correct flavor and try again later.
400	DWS.5087	The same instance type does not meet disk consistency requirements.	The same instance type does not meet disk consistency requirements.	Enter a correct disk and try again later.
400	DWS.5089	Unsupported type.	Unsupported type.	Enter a supported type and try again.
400	DWS.5091	The number of nodes has reached the maximum.	The number of nodes has reached the maximum.	Enter a valid node quantity and try again.
400	DWS.5093	Flavor information is invalid.	Flavor information is invalid.	Enter valid flavor information and try again later.
400	DWS.5095	The current instance type does not support this operation.	The current instance type does not support this operation.	Select a correct instance type and try again.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5096	Invalid disk quantity.	Invalid disk quantity.	Enter valid disk quantity and try again later.
400	DWS.5097	Region or AZ does not exist.	Region or AZ does not exist.	Enter a correct region or AZ and try again later.
400	DWS.5098	Invalid EIP binding type.	Invalid EIP binding type.	Enter a correct EIP binding type and try again later.
400	DWS.5104	The subnet of an instance must be unique.	The subnet of an instance must be unique.	Ensure that the subnet of the instance is unique and try again.
400	DWS.5106	Invalid instance type.	Invalid instance type.	Enter a valid instance type and try again later.
400	DWS.5107	Invalid cluster mode.	Invalid cluster mode.	Enter a valid disk mode and try again later.
400	DWS.5111	The backup file ID does not exist.	The backup file ID does not exist.	Enter a correct backup file ID and try again later.
400	DWS.5130	Invalid agency name.	Invalid agency name.	Enter a valid agency name and then try again.
400	DWS.5133	Invalid EIP ID.	Invalid EIP ID.	Enter a valid EIP ID and try again.
400	DWS.5135	The EIP does not exist.	The EIP does not exist.	Enter a valid EIP and try again.
400	DWS.5144	Invalid password of the cluster administrator.	Invalid password of the cluster administrator.	Enter a valid cluster administrator password according to the description of the cluster administrator's password.
400	DWS.5145	The cluster administrator password cannot contain the username, or the username spelled backwards.	The cluster administrator password cannot contain the username, or the username spelled backwards.	Enter a valid cluster administrator password as prompted and try again later.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5146	The ECS group parameter is missing.	The ECS group parameters is missing.	Enter a valid parameter and try again.
400	DWS.5147	Invalid ECS group parameter.	Invalid ECS group parameter.	Enter a valid parameter and try again.
400	DWS.5148	The number of ECS groups has reached the upper limit.	The number of ECS groups has reached the upper limit.	Enter a valid ECS group quantity and try again.
400	DWS.5149	The snapshot ID is invalid.	The snapshot ID is invalid.	Enter a valid snapshot ID according to the snapshot ID description.
400	DWS.5165	Invalid null content in the data file.	Invalid null content in the data file.	Enter the correct control content and try again later.
400	DWS.5166	Invalid noescaping parameter in text format	Invalid noescaping parameter in text format	Enter the correct noescaping parameter and try again later.
400	DWS.5167	Invalid header parameter in the data file. The supported values are true/on and false/off.	Invalid header parameter in the data file. The supported values are true/on and false/off.	Enter the correct header parameter and try again later.
400	DWS.5168	Invalid **fill_missing_fields** parameter in the data file. The supported values are **true/on** and **false/off**.	Invalid **fill_missing_fields** parameter in the data file. The supported values are **true**/**on** and **false**/**off**.	Enter the correct **fill_missing_fields** parameter and try again later.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5169	Invalid **ignore_extra_data** parameter in the data file. The supported values are **true/on** and **false/off**.	Invalid **ignore_extra_data** parameter in the data file. The supported values are **true**/**on** and **false**/**off**.	Enter the correct **ignore_extra_data** parameter and try again later.
400	DWS.5170	Invalid number of incorrect data formats during data import.	Invalid number of incorrect data formats during data import.	Enter the correct number of incorrect data formats and try again later.
400	DWS.5171	Invalid username or password for logging in to the database.	Invalid username or password for logging in to the database.	Enter the correct username or password and try again later.
400	DWS.5172	The database does not exist.	The database does not exist.	Enter the correct database name and try again later.
400	DWS.5173	The schema where the database table resides does not exist.	The schema where the database table resides does not exist.	Enter a correct schema and try again later.
400	DWS.5174	The database table does not exist.	The database table does not exist.	Enter the correct database table and try again later.
400	DWS.5175	The database username cannot be blank.	The database username cannot be blank.	Enter the username and try again later.
400	DWS.5176	The password corresponding to the database username cannot be blank.	The password corresponding to the database username cannot be blank.	Enter the password and try again later.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5177	Name of the database where the table to which data is loaded is located cannot be blank.	Name of the database where the table to which data is loaded is located cannot be blank.	Enter the database name and try again later.
400	DWS.5178	Schema where the table to which data is loaded is located cannot be blank.	Schema where the table to which data is loaded is located cannot be blank.	Enter the schema and try again later.
400	DWS.5179	Database table to which data is loaded cannot be blank.	Database table to which data is loaded cannot be blank.	Enter the database table and try again later.
400	DWS.5180	Invalid path for OBS file loading.	Invalid path for OBS file loading.	Enter a correct OBS loading path and try again later.
400	DWS.5181	Failed to load data. The error information is #failedReason#.	Failed to load data. The error information is #failedReason#.	Rectify the fault according to the error information and try again later.
400	DWS.5182	The current job is stopped.	The current job is stopped.	Select a loading job and cancel it.
400	DWS.5183	The current job has been canceled.	The current job has been canceled.	Select a loading job and cancel it.
400	DWS.5184	Invalid format of the data source file. The supported file formats are CSV and TEXT.	Invalid format of the data source file. The supported file formats are CSV and TEXT.	Enter a correct data source file format and try again later. The supported file formats are CSV and TEXT.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5185	Invalid encoding format of the data file. The supported file formats are GBK, UTF8, Latin1, and SQL_ASCII.	Invalid encoding format of the data file. The supported file formats are GBK, UTF8, Latin1, and SQL_ASCII.	Enter a correct encoding format and try again later. The supported file formats are GBK, UTF8, Latin1, and SQL_ASCII.
400	DWS.5186	Invalid field delimiter of row data in a data source file.	Invalid field delimiter of row data in a data source file.	Enter a correct field delimiter and try again later.
400	DWS.5187	Invalid quote character for a CSV file.	Invalid quote character for a CSV file.	Enter a correct quote character and try again later.
400	DWS.5189	Failed to obtain the AK/SK.	Failed to obtain the AK/SK.	Contact the database customer service or try again later.
400	DWS.5191	The tag does not exist.	The tag does not exist.	Enter the correct tag and try again later.
400	DWS.5194	The number of tags exceeds the maximum value.	The number of tags exceeds the maximum value.	Verify the number of tags for the resource and try again later.
400	DWS.5197	The tag is invalid.	The tag is invalid.	Enter the correct tag and try again later.
400	DWS.5198	Invalid username.	Invalid username.	Enter a correct username and try again.
400	DWS.5199	Invalid password.	Invalid password.	Enter a valid password and try again.
400	DWS.5200	The flavor has been sold out. Switch to another AZ or region.	The flavor has been sold out. Switch to another AZ or region.	Create a cluster of another flavor or switch to another AZ or region.
400	DWS.5202	The subnet ID cannot be left blank.	The subnet ID cannot be left blank.	Enter a correct subnet ID and try again later.

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Status Code	Error Code	Error Information	Description	Solution
400	DWS.5203	The security group ID cannot be left blank.	The security group ID cannot be left blank.	Enter a valid security group ID and try again later.
400	DWS.5206	Databases of this version do not support the function.	Databases of this version do not support the function.	Ensure that the API parameters match the cluster version. If the parameters do not match the version, correct the parameters and try again.

8.3 Creating a VPC

Background

Before creating a cluster, you need to create a VPC to provide a secure and isolated network environment for using GaussDB(DWS).

If you have already created a VPC, you do not need to create it again.

NOTE

For details about how to create a VPC, see **Creating a VPC** in the *Virtual Private Cloud User Guide*.

Procedure

Step 1 Log in to the management console.

Step 2 Under **Network**, click **Virtual Private Cloud**.

Step 3 On the **Virtual Private Cloud** page, click **Create VPC** to create a VPC.

Step 4 Obtain the VPC and subnet ID for subsequent use in **Creating a Cluster**.

Step 5 On the **Virtual Private Cloud** page, choose **Access Control** > **Security Groups** in the navigation tree on the left, and click **Create Security Group** to create a security group.

Step 6 Obtain the security group ID for subsequent use in **Creating a Cluster**.

----End

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8.4 Obtaining Project ID

Obtaining the Project ID by Calling the API

A project ID can also be obtained by calling a specific API. For details, see **Querying Project Information**.

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

The following is an example response. **id** in **projects** indicates the Project ID.

```
{
    "projects": [
        {
            "domain_id": "65382450e8f64ac0870cd180d14e684b",
            "is_domain": false,
            "parent_id": "65382450e8f64ac0870cd180d14e684b",
            "name": "ap-southeast-1",
            "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 the Project ID from the Console

A project ID is required for some URLs when an API is called. To obtain a project ID, perform the following operations:

1. Log in to the management console.
2. Click the username and select **Basic Information** from the drop-down list.
3. On the **Account Info** page, click **Manage**.

   On the **My Credentials** page, view project IDs in the project list.

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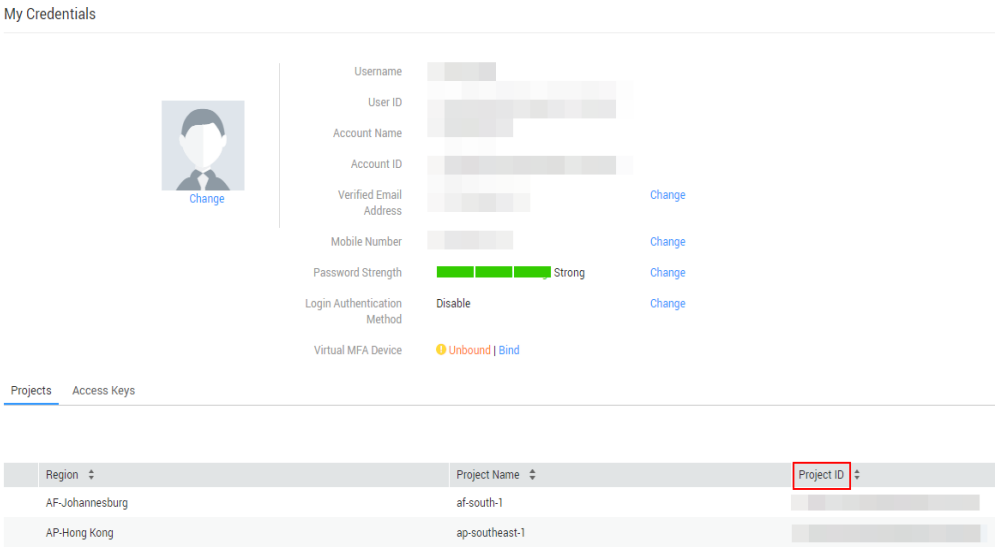
Figure 8-1 Viewing project IDs



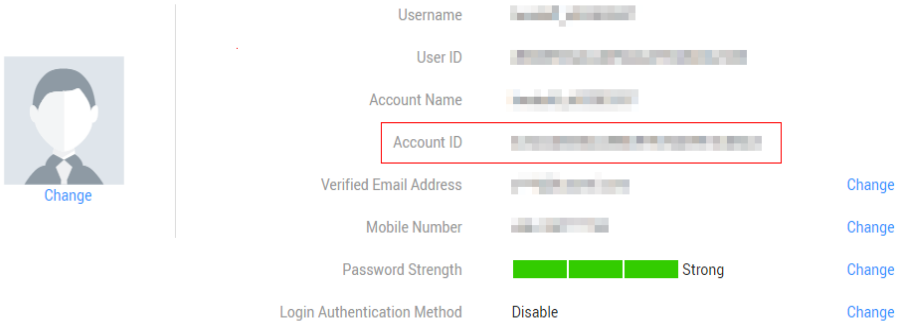
8.5 Obtaining an Account ID

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

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

   On the **My Credential** page, view the **Account ID**.

Figure 8-2 Viewing an account ID



8.6 Obtaining the Cluster ID

A cluster ID (**cluster_id**) is required for some URLs when an API is called. To obtain the cluster ID, perform the following steps:

Obtaining Cluster ID Using APIs

You can obtain the cluster ID by calling the API described in **Querying the Cluster List**.

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The API used to obtain a cluster ID is **GET https://{*Endpoint*}/v1.0/{project_id}/clusters**. *Endpoint* indicates the IAM endpoint, which can be obtained from the **Regions and Endpoints** . For details about Project ID, see **Obtaining Project ID**. For details about interface authentication, see **Authentication**.

The following is an example response. The value of **id** under the specified clusters is the cluster ID.


```
{
  "clusters" : [ {
    "id" : "7d85f602-a948-4a30-afd4-e84f47471c15",
    "name" : "dws-1",
    "status" : "AVAILABLE",
    "version" : "1.2.0",
    "updated" : "2016-02-10T14:28:14Z",
    "created" : "2016-02-10T14:26:14Z",
    "port" : 8000,
    "endpoints" : [ {
      "connect_info" : "dws-1.cn-north-4.myhuaweicloud.com",
      "jdbc_url" : "jdbc:postgresql://dws-1.cn-north-4.myhuaweicloud.com/<YOUR_DATABASE_name>"
    } ],
    "nodes" : [ {
      "id" : "acaf62a4-41b3-4106-bf6b-2f669d88291e",
      "status" : "200"
    }, {
      "id" : "d32de51e-4fcd-4e5a-a9dc-bb903abb494b",
      "status" : "200"
    }, {
      "id" : "d71a4a25-c9bc-4ffd-9f4a-e422aef327f9",
      "status" : "200"
    } ],
    "tags" : [ {
      "key" : "key1",
      "value" : "value1"
    }, {
      "key" : "key2",
      "value" : "value2"
    } ],
    "user_name" : "dbadmin",
    "number_of_node" : 3,
    "recent_event" : 6,
    "availability_zone" : "cn-north-4b",
    "enterprise_project_id" : "0",
    "node_type" : "dws.d1.xlarge.ultrahigh",
    "vpc_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574",
    "subnet_id" : "374eca02-cfc4-4de7-8ab5-dbebf7d9a720",
    "public_ip" : {
      "public_bind_type" : "auto_assign",
      "eip_id" : "85b20d7e-9eb7-4b2a-98f3-3c8843ea3574"
    },
    "public_endpoints" : [ {
      "public_connect_info" : "dws-1.cn-north-4.myhuaweicloud.com",
      "jdbc_url" : "jdbc:postgresql://dws-1.cn-north-4.myhuaweicloud.com/<YOUR_DATABASE_name>"
    } ],
    "action_progress" : {
      "SNAPSHOTTING" : "20%"
    },
    "sub_status" : "READONLY",
    "task_status" : "SNAPSHOTTING",
    "security_group_id" : "dc3ec145-9029-4b39-b5a3-ace5a01f772b"
  } ]
}
```


Obtaining Cluster ID from GaussDB(DWS) Console

Step 1 Log in to the GaussDB(DWS) console.

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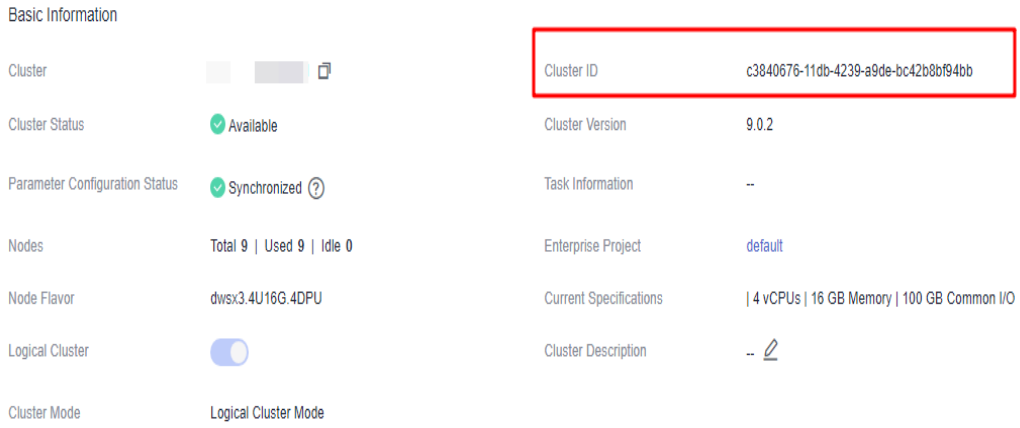
Step 2 In the navigation pane on the left, click **Clusters**.

Step 3 In the cluster list, find the target cluster and click the cluster name. The **Cluster Information** page is displayed.

Step 4 In the Basic Information area, view the cluster ID, as shown in the following figure.

Figure 8-3 Viewing the cluster ID



----End

8.7 User-defined Counter List

Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
AbnormalJob	Abnormal Job Monitoring Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		query_id	String	Specifies the query ID.
		statement	String	Statement executed for exception handling
		block_time	Long	Block time before the statement is executed
		elapsed_time	Long	Elapsed time when the statement is executed

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		total_cpu_time	Long	Total time used by the CPU on the DN when the statement is executed for exception handling
		cpu_skew_percent	Integer	CPU usage skew on the DN when the statement is executed for exception handling
		control_group	String	cgroups used for exception handling during statement execution
		status	String	Status of a statement after exception handling
		action	String	Exception handling action executed by the statement
		abort_info	String	Reason why the statement is processed abnormally
AgentStatus	DMS Cluster Agent Status Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		is_ccn	Boolean	Whether the node is a CCN node
		agent_version	String	Specifies the agent version that matches the DMS version.
		agent_pid_exist	Boolean	Whether the pID file exists

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		agent_start_time	String	Agent startup time
		agent_run_time	String	Agent running time
		agent_sub_thread	Integer	Agent subthread
		config_plugin_count	Integer	Number of configured plugins
		active_plugin_count	Integer	Number of enabled plugins
		config_custom_plugin_count	Integer	Number of customized plug-ins.
		active_custom_plugin_count	Integer	Number of enabled customized plug-ins
		agent_cpu_consume	Float	Agent CPU Usage
		agent_mem_consume	Float	Percentage of consumed agentmem
		workplace_dir_time	String	Time when the workpalce directory is updated.
		config_dir_time	String	Time when the config directory is updated
		log_file_time	String	Time when the log file is updated.
		perflog_file_time	String	perflog file update time
		timestamp_yaml_detail	String	TOPSQL Timestamp
		status_log_detail	String	Status Record Details

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
ClusterHostStatus	Node Status Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		host_name	String	HostName
		host_stat	String	Specifies the VM status.
ClusterInstStatus	Instances by Status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		host_name	String	HostName
		inst_id	Integer	Instance ID
		inst_type	String	Instance Type
		inst_role	String	Instance Role
		inst_stat	String	Specifies the instance status.
		inst_stat_reason	String	Instance Status Cause
ClusterSlowInst	Slow Instance Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		check_time	Long	Detected
		host_id	Integer	ID of the node where data is collected and reported.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_name	String	HostName
		inst_id	String	Instance ID
		inst_name	String	Instance name
ClusterStatus	Cluster status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		cluster_state	String	Cluster status
		balanced	String	Whether an active/standby switchover has occurred
		redistributing	String	Indicates whether redistribution occurs.
		cluster_read_only	String	Whether the current cluster is read-only
CpuStat	CPU status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	String	ID of the node where data is collected and reported.
		cpu_name	String	The default value is all.
		usr	Float	User-Mode CPU Time (%)
		nice	Float	The nice value is the CPU time % of the negative process.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		sys	Float	% of time in kernel mode
		iowait	Float	I/O waiting time %
		irq	Float	Hard Interruption Time (%)
		soft	Float	Software Interrupt Time (%)
		steal	Float	Time spent by the virtual CPU in involuntary waiting when the virtual machine manager serves another virtual processor (%)
		guest	Float	Time spent running the virtual processor (%)
		idle	Float	Idle time % except for disk waiting operations
		ht_possible	Boolean	Hyper-Threading Capability
		ht_enabled	Boolean	Hyper-threading Enabled (Yes/No)
		run_count	Long	Number of processes in the runable state
		blocked_count	Long	Number of processes waiting for I/O completion.
DbActiveStats	Active Sessions	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		db_name	String	Database Name

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		inst_name	String	Instance name, which indicates the CN from which the current value is obtained.
		total_sessions_count	Integer	Number of all user sessions
		user_count	Integer	distinct username
		application_count	Integer	distinct application name
		active_queries	Integer	Number of queries in the'active','fastpathfunctioncall' state
DbSize	Disk Capacity Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		inst_name	String	Instance name, which indicates the CN from which the current value is obtained.
		db_name	String	Database Name
		db_size	Long	TSField
DbStats	Transaction status.	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		db_name	String	Database Name
		inst_name	String	Instance name, which indicates the CN from which the current value is obtained.
		tup_returned	Long	Number of rows returned through a global database scan

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		tup_fetched	Long	Number of rows returned by querying indexes in the database.
		tup_inserted	Long	Number of rows inserted by queries in this database
		tup_updated	Long	Number of rows updated by queries in this database
		tup_deleted	Long	Number of rows deleted by queries in this database
		xact_commit	Long	Number of transactions in this database that have been committed
		xact_rollback	Long	Number of transactions in this database that have been rolled back
		deadlocks	Long	Number of deadlocks detected in this database
		blks_read	Long	Number of disk blocks read in this database
		blks_hit	Long	Number of disk blocks that have been found in the cache. In this case, the read is unnecessary. (This includes only the postgresql buffer cache and does not include the file system cache of the operating system.)
		blk_read_time	Double	Time spent reading data file blocks by backends in this database, in milliseconds

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		blk_write_time	Double	Time spent reading data file blocks by backends in this database, in milliseconds
		conflicts	Long	Number of queries canceled due to conflicts (The conflict occurs only on the standby server.)
		temp_files	Long	Number of temporary files created by queries in this database. All temporary files are counted, regardless of why the temporary file was created (for example, sorting or hashing), and regardless of the log_temp_files setting.
		temp_bytes	Long	Total amount of data written to temporary files by queries in this database. All temporary files are counted, regardless of why the temporary file was created, and regardless of the **log_temp_files** setting.
		db_size	Long	Database Capacity (Unit: Byte)
		delta_tup_returned	Long	Number of rows returned by global database scanning in a unit time.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		delta_tup_fetched	Long	Number of rows returned by querying indexes in the database in a unit time.
		delta_tup_inserted	Long	Number of rows inserted through database query in a unit time.
		delta_tup_updated	Long	Number of rows updated through database query in unit time
		delta_tup_deleted	Long	Number of rows deleted by querying the database in a unit time.
		delta_xact_commit	Long	Number of transactions that have been submitted in the database per unit time.
		delta_xact_rollback	Long	Number of transactions that have been rolled back in the database per unit time.
		delta_deadlocks	Long	Number of deadlocks retrieved in the database per unit time.
FileSystemInodeStat	File handle	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		file_system_name	String	Disk File System Name
		total	Long	Total inode Capacity (KB)

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		used	Long	Used Capacity (KB)
FileSystemStat	Node Disk Usage	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		disk_fs_name	String	Disk File System Name
		total	Long	Total Capacity (KB)
		used	Long	Used Capacity (KB)
		available	Long	Available Capacity (KB)
		used_percentage	Float	Disk usage
IOStat	Node Disk I/O Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		disk_name	String	Disk Name (devicename)
		tps	Float	Number of transmissions per second (transferpersecond) The size of each transmission is unknown.
		kb_read_s	Float	Amount of data read from the device per second (unit: KB)

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		kb_wrtn_s	Float	Amount of data written to the device per second (unit: KB)
		kb_read	Float	Total read data volume (unit: KB)
		kb_wrtn	Float	Total amount of written data (unit: KB)
		rrqm_s	Float	Number of times that read requests to the device are combined per second
		wrqm_s	Float	Number of times that write requests to the device are combined per second
		r_s	Float	Number of completed reads per second
		w_s	Float	Number of completed writes per second
		rkb_s	Float	Amount of data read per second (unit: KB)
		wkb_s	Float	Write Data Volume per Second (KB)
		avgrq_sz	Float	Average data volume of each I/O operation (unit: sector)
		avgqu_sz	Float	Average Request Queue Length
		await	Float	Average waiting time of each I/O request (unit: ms)
		svctm	Float	Average processing time of each I/O request (unit: ms)

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		util	Float	Percentage of the time when the I/O queue is not empty to the total I/O processing time in the statistical period.
InstanceMemory	Instance Memory Monitoring Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		inst_name	String	Instance name
		max_process_memory	Float	Memory size occupied by the instance
		process_used_memory	Float	Memory size used by a process.
		max_dynamic_memory	Float	Maximum dynamic memory
		dynamic_used_memory	Float	Used Dynamic Memory
		dynamic_peak_memory	Float	Dynamic peak memory
		dynamic_used_shrctx	Float	Maximum dynamic shared memory context
		dynamic_peak_shrctx	Float	Dynamic peak value of the shared memory context
		max_shared_memory	Float	Maximum shared memory

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		shared_used_memory	Float	Used Shared Memory
		max_cstore_memory	Float	Maximum memory allowed by column store
		cstore_used_memory	Float	Memory used in column store
		max_comm_memory	Float	Maximum memory that can be used by the communication library.
		comm_used_memory	Float	Used memory size of the communication library.
		comm_peak_memory	Float	Peak memory usage of the communication library
		max_topsql_memory	Float	Maximum memory that can be used by top SQLs to record historical job monitoring information
		topsql_peak_memory	Float	Peak memory usage of the top SQL that records historical job monitoring information
		topsql_used_memory	Float	Memory used by top SQLs to record historical job monitoring information
		other_used_memory	Float	Other used memory
		pooler_conn_memory	Float	Memory size occupied by pooler connections
		pooler_freeconn_memory	Float	Memory size occupied by pooler idle connections

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		storage_compress_memory	Float	Memory size used by column-store compression and decompression
		udf_reserved_memory	Float	Memory reserved for the UDFWorker process
		mmap_used_memory	Float	Memory size used by mmap
InstanceResources	Instance Resource Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		inst_name	String	Instance name
		inst_cpu	Float	Read the value (CPU usage %) in postmaster.pID/ cm_server.pID/gtm.pID/ etcd.pID.
		inst_mem	Float	Read the value (memory usage %) in postmaster.pID/ cm_server.pID/gtm.pID/ etcd.pID.
InstanceSize	Instance Disk Size Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		inst_name	String	Instance name

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		inst_path	String	Storage Path
		inst_size	Long	Disk space used by all databases on the current instance
MemStat	Node Memory Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		mem_total	Long	Size of all available RAMs, that is, the remaining physical memory minus the reserved bits and kernel usage (unit: KB)
		mem_free	Long	Memory that is not used in the system. The value is lowfree +highfree (unit: KB).
		buffers	Long	Size of the cache for the block device, in KB.
		cached	Long	Size of the file buffer (unit: KB)
		swap_total	Long	Total swap space (unit: KB)
		swap_free	Long	Size of the RAM temporarily stored in the swap (unit: KB)
		hardware_corrupted	Long	Memory size of the virus-infected page (unit: KB)
NetIfStat	Network Status Statistics	ctime	Timestamp	Collection time

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		interface_name	String	NIC name.
		up	Boolean	NIC status (up/down)
		speed	Long	Network Adapter Speed (Gigabit/100 Mbit/s)
		recv_bytes	Long	Total data received by the network adapter (unit: byte)
		recv_packets	Long	Total Number of Packets Received by the Network Adapter
		recv_errors	Long	Total Number of NIC Receiving Errors
		recv_drop	Long	Total Number of Data Packets Discarded by the NIC During Receiving
		recv_fifo	Long	Number of FIFO buffer errors during reception
		recv_frame	Long	Number of received packet frame errors
		recv_compressed	Long	Number of received compressed data packets
		recv_multicast	Long	Number of received multicast frames
		send_bytes	Long	Total data sent by the network adapter (unit: byte)

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		send_packets	Long	Total number of packets sent by the NIC
		send_errors	Long	Total Number of NIC Sending Errors
		send_drop	Long	Total Number of Data Packets Discarded by the NIC During Transmission
		send_fifo	Long	Number of FIFO buffer errors during sending
		send_collisions	Long	Number of collisions detected on the sending interface
		send_carrier	Long	Number of carrier losses detected by the device driver during transmission
		send_compressed	Long	Number of sent compressed data packets
		multi_q_possible	Boolean	Specifies whether NIC multi-queue is supported.
		multi_q_enabled	Boolean	Enabling NIC Multi-Queue
		multi_q_smp_affinity	String	CPU Affinity of Multi-Queue NICs
		duplex	String	Whether the network adapter works in duplex mode
		io_rate	Double	Network Rate
NodeSqlCount	Node SQL Statistics	ctime	Timestamp	Collection time

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		virtual_cluster_id	Integer	Virtual cluster ID
		node_name	String	Node name
		user_name	String	User
		select_count	Long	Number of **SELECT** statements
		update_count	Long	Number of **UPDATE** statements
		insert_count	Long	Number of **INSERT** statements
		delete_count	Long	Number of **DELETE** statements
		mergeinto_count	Long	Number of MERGEINTOs
		ddl_count	Long	Number of **DDL** statements
		dml_count	Long	Number of **DML** statements
		dcl_count	Long	Number of **DCL** statements
		total_select_elapse	Long	Total response time of **SELECT** statements
		avg_select_elapse	Long	Average response time of **SELECT** statements
		max_select_elapse	Long	Maximum response time of **SELECT** statements
		min_select_elapse	Long	Minimum response time of **SELECT** statements
		total_update_elapse	Long	Total response time of **UPDATE** statements

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		avg_update_elapse	Long	Maximum response time of **UPDATE** statements
		max_update_elapse	Long	Minimum response time of **UPDATE** statements
		min_update_elapse	Long	Minimum response time of **UPDATE** statements
		total_delete_elapse	Long	Total response time of **DELETE** statements
		avg_delete_elapse	Long	Average response time of **DELETE** statements
		max_delete_elapse	Long	Maximum response time of **DELETE** statements
		min_delete_elapse	Long	Minimum response time of **DELETE** statements
		total_insert_elapse	Long	Total response time of **INSERT** statements
		avg_insert_elapse	Long	Average response time of **INSERT** statements
		max_insert_elapse	Long	Maximum response time of **INSERT** statements
		min_insert_elapse	Long	Minimum response time of **INSERT** statements
		delta_select_count	Long	SELECT quantity difference per unit time
		delta_update_count	Long	Difference in the number of UPDATEs per unit time

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		delta_insert_count	Long	INSERT quantity difference per unit time
		delta_delete_count	Long	DELETE quantity difference per unit time
		delta_mergeinto_count	Long	MERGEINTO quantity difference per unit time
		delta_ddl_count	Long	DDL Quantity Difference per Unit Time
		delta_dml_count	Long	DML quantity difference per unit time
		delta_dcl_count	Long	DCL Quantity Difference per Unit Time
		delta_total_select_elapse	Long	Total SELECT Response Time Difference in Unit Time
		delta_avg_select_elapse	Long	Average SELECT Response Time Difference per Unit Time
		delta_max_select_elapse	Long	Maximum SELECT Response Time Difference per Unit Time
		delta_min_select_elapse	Long	Minimum SELECT response time difference per unit time
		delta_total_update_elapse	Long	Total UPDATE Response Time Difference in Unit Time
		delta_avg_update_elapse	Long	Maximum UPDATE Response Time Difference in Unit Time

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		delta_max_update_elapse	Long	Minimum UPDATE Response Time Difference in Unit Time
		delta_min_update_elapse	Long	Minimum UPDATE Response Time Difference in Unit Time
		delta_total_delete_elapse	Long	Total DELETE Response Time Difference in Unit Time
		delta_avg_delete_elapse	Long	Average DELETE Response Time Difference in Unit Time
		delta_max_delete_elapse	Long	Maximum DELETE Response Time Difference in Unit Time
		delta_min_delete_elapse	Long	Minimum DELETE Response Time Difference in Unit Time
		delta_total_insert_elapse	Long	Total INSERT Response Time Difference in Unit Time
		delta_avg_insert_elapse	Long	Average INSERT Response Time Difference in Unit Time
		delta_max_insert_elapse	Long	Maximum INSERT Response Time Difference in Unit Time
		delta_min_insert_elapse	Long	Minimum INSERT Response Time Difference in Unit Time
OsStat	System Status Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_id	Integer	ID of the node where data is collected and reported.
		tcp_resend_rate	Float	TCP protocol stack retransmission rate (%)
SchemaUsage	Schema Usage Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		db_name	String	Database Name
		schema_name	String	Schema name
		used_space	Long	Used Capacity (Byte)
		perm_space	Long	Total Capacity (Byte)
SessionStats	Session Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		db_name	String	Database Name
		inst_name	String	Instance name, which indicates the CN from which the current value is obtained.
		pid	String	Thread ID (It can be used as a session ID or a connection ID.)
		user_name	String	Database Username
		application_name	String	User application name.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		client_address	String	Client address
		client_hostname	String	Indicates the host name of the client.
		client_port	String	TCP port number used by the client to communicate with the background. If the Unix socket is used, the value is -1.
		backend_start	Long	Time when this process was started, that is, when the client connected to the server
		elapsed_time	Long	Execution time so far.
		curr_xact_start	Long	Time when the current transaction was started (**NULL** if no transactions are active). If the current query is the first of its transaction, the value of this column is the same as that of the **query_start** column.
		state_change	Long	Time when the **status** was changed in the previous time
		waiting	Boolean	Whether the backend is currently waiting on a lock. If yes, the value is **true**.
		state	String	Current overall state of this backend.
		resource_pool	String	Resource pool used by the user

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		query_elapsed_time	Long	Actual execution duration of the statement, in seconds.
		query_id	String	ID of a query
		query_start	Long	Time when a statement starts to be executed
		control_group	String	cgroups currently used by the statement
		lock_type	String	Lock type
		lock_mode	String	Lock mode
		lock_granted	Boolean	Indicates whether to hold a lock when lock waiting exists. The value is true.
		lock_relname	String	Lock Waiting Resource
		stmt_type	String	Statement type.
		query	String	Query SQL
		system_query	Boolean	Indicates whether the query is performed by the system.
		query_band	String	Query Plan
TableDirtyPageRate	Table Dirty Page Rate Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		db_name	String	Database name aaa
		schema_name	String	Schema name
		table_name	String	Table Name (Full Name)

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		table_owner	String	Table owner.
		table_size	Long	Table Size (Bytes)
		dirty_page_rate	Double	Dirty Page Rate
TableSkewRate	Table Skew Monitoring Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		db_name	String	Database Name
		schema_name	String	Schema name
		table_name	String	Table Name (Full Name)
		table_owner	String	Table owner.
		table_size	Long	Table Size (Bytes)
		skew_rate	Double	Skew Rate
WorkloadQueue	Obtaining Resource Pool Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		respool_name	String	Load resource pool
		cpu_quota	Integer	Specifies the CPU quota of the resource pool.
		mem_quota	Integer	Specifies the memory quota of the resource pool.
		disk_quota	Long	Resource Pool Disk Quota

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		max_simple_query	Integer	Maximum number of concurrent simple jobs allowed by the resource pool.
		max_complicated_query	Integer	Maximum number of concurrent queries allowed by the resource pool.
		cpu_usage	Double	CPU usage of the resource pool
		mem_usage	Double	Memory usage of the resource pool
		disk_usage	Double	Resource Pool Disk Usage
		simple_query	Integer	Number of concurrent simple jobs in the resource pool
		complicated_query	Integer	Number of concurrent requests in the resource pool
business_complicated_simple_sql	Collects statistics on the number of SQL statements based on SQL attributes.	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		attribute	String	SQL Properties
		count	Integer	Number of SQL Statements
business_concurrency	Service Concurrency Test	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_id	Integer	ID of the node where data is collected and reported.
		user_name	String	Username.
		coorname	String	CN Name
		state	String	Running status
		count	Integer	Quantity
business_dn_thread_wait	Number of service DN waiting states	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		node_name	String	Node name.
		count	Integer	Quantity
business_enqueue	Service Queuing Status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		user_name	String	User Name
		respool	String	Resource pool name
		queue	String	Queue name.
		count	Integer	Quantity

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
business_hudi_sync_state	Time when the hudi synchronization task is submitted.	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		task_id	String	Task ID.
		latest_sync_end	Timestamp	Last Synchronized Data
		latest_commit	String	Last Submitted Information
		latest_sync_count	Long	Number of Last Synchronized Records
business_hudi_sync_state_log	Hiudi synchronization task submission log	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		task_id	String	Job ID
		last_log	String	Last Task Log
business_obs_latency	OBS bucket access latency	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		node_name	String	Peer name.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		latency_ms	Float	Average delay of OBS during the 10 minutes before **logtime**. The unit is ms.
		req_count	Long	Number of OBS requests during the 10 minutes before **logtime**.
		log_time	Timestamp	Time when the delay information is recorded.
business_obs_read_traffic	OBS bucket read traffic	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		node_name	String	Node name.
		traffic_mb	Float	OBS read traffic statistics during the 10 minutes before **logtime**
		bandwidth_mb_per_s	Float	Average bandwidth, in MB/s
		req_count	Long	Number of OBS reads during the 10 minutes before **logtime**
		log_time	Timestamp	Time when statistics are recorded
business_obs_write_traffic	OBS bucket write traffic	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_id	Integer	ID of the node where data is collected and reported.
		node_name	String	The node name.
		traffic_mb	Float	OBS write traffic statistics during the 10 minutes before **logtime**
		bandwidth_mb_per_s	Float	Average bandwidth, in MB/s
		req_count	Long	Number of OBS writes during the 10 minutes before **logtime**
		log_time	Timestamp	Time when statistics are recorded
business_query_monitor	Real-Time Service Statements	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		db_name	String	Database Name
		coorname	String	CN name
		pid	Long	Thread ID
		query_id	Long	Query ID
		query_band	String	Querying the Job Type
		user_name	String	User Name
		application_name	String	Application name
		client_address	String	Client IP Address

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		client_hostname	String	Indicates the host name of the client.
		client_port	Integer	TCP port number used by a client to communicate with the backend
		waiting	String	If backend is currently waiting for a lock, the value is **true**.
		q_running	Long	Execution Duration
		wlm_start	Long	Time when a statement starts to be executed
		block_time	Long	Block time before the statement is executed. The unit is ms.
		duration	Long	For how long a statement has been executing. The unit is ms.
		enqueue	String	Resource status in workload management
		resource_pool	String	Resource pool used by the user
		control_group	String	Cgroup used by the statement
		max_peak_memory	Integer	Maximum memory peak of a statement across all DNs. The unit is MB.
		average_peak_memory	Integer	Average memory usage during statement execution. The unit is MB.
		memory_skew_percent	Integer	Memory usage skew of a statement among DNs.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		estimate_memory	Integer	Estimated memory used by the statement. The unit is MB.
		spill_info	String	Information about statement flushing into disks on DNs
		max_spill_size	Integer	Maximum spilled data among all DNs when a spill occurs. The unit is MB. The default value is **0**.
		average_spill_size	Integer	Average spilled data among all DNs when a spill occurs. The unit is MB. The default value is **0**.
		spill_skew_percent	Integer	DN spill skew when a spill occurs
		max_dn_time	Long	Maximum execution time of a statement across all DNs. The unit is ms.
		average_dn_time	Long	Average execution time of a statement across all DNs. The unit is ms.
		dntime_skew_percent	Integer	Execution time skew of a statement among DNs.
		max_cpu_time	Long	Maximum CPU time of a statement across all DNs. The unit is ms.
		total_cpu_time	Long	Total CPU time of a statement across all DNs. The unit is ms.
		cpu_skew_percent	Integer	CPU time skew of a statement among DNs.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		warning	String	Alarms related to SQL self-diagnosis and optimization
		max_peak_iops	Integer	Maximum IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
		average_peak_iops	Integer	Average IOPS peak of a statement across all DNs. It is counted by ones in a column-store table and by ten thousands in a row-store table.
		iops_skew_percent	Integer	I/O skew across DNs.
		query	String	Statement that is being executed
		node_group	String	Logical cluster of the user running the statement
		query_status	String	Overall state of the backend
		wlm_status	String	Current status of the statement
		wlm_attrib	String	Statement attributes
		lane	String	Fast or slow lane for statement queries.
		priority	Long	Priority of Cgroup where the statement is located
		stream_cnt	Long	Number of DNs Whose Streaming Thread Level Is Greater Than 0

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		dn_cnt	Long	Number of DNs Whose Streaming Thread Level Is 0
		cn_cnt	Long	CNs
business_table_analyze	Service Table Statistics Status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		dbname	String	Database Name
		schema_name	String	Schema name
		table_name	String	Table name
		total_size	Long	Table size
		last_analyze_time	Timestamp	Last analyze time of the table
business_table_skew_rate	Skew Rate	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		db_name	String	Database Name
		schema_name	String	Schema name
		table_name	String	Table name
		table_size	Long	Table size
		skew_rate	Float	Skew Rate

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
business_thread_wait	Service Waiting Event	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		wait_status	String	Waiting
		wait_event	String	Wait Event
		count	Integer	Quantity
bussiness_active_ratio_warn	Concurrent Service Usage	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		nodename	String	The node name.
		active	Integer	Active Quantity
		used_ratio	Float	Percentage of space used
bussiness_conflict_lock	Conflicting Lock Information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		locktype	String	Type of the locked object

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		nodename	String	Name of the node where the locked object resides
		dbname	String	Name of the database where the locked object resides.
		nspname	String	Name of the namespace of the locked object
		relname	String	Name of the relation targeted by the lock.
		partname	String	Name of the partition targeted by the lock.
		page	Long	Number of the page targeted by the lock.
		tuple	Long	Number of the tuple targeted by the lock.
		transactionid	String	ID of the transaction targeted by the lock.
		username	String	Name of the user who applies for the lock
		gxid	String	ID of the transaction that applies for the lock
		xactstart	Timestamp	Start time of the transaction that applies for the lock
		queryid	Long	Latest query ID of the thread that applies for the lock
		query	String	Latest query statement of the thread that applies for the lock
		pid	Long	ID of the thread that applies for the lock
		mode	String	Lock mode

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		granted	Boolean	Locked or Not
bussiness_connection_ratio	Service Session Usage	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		coorname	String	CN node name
		active	Integer	Number of Active Links
		setting	Integer	Maximum number of links
		used_ratio	Float	Percentage of Used Links
bussiness_respool_info	Resource pool job running information and resource usage information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		rpname	String	Name of the resource pool associated with the query.
		nodegroup	String	Name of the cluster where the query is performed.
		cn_count	Long	Number of CNs in a cluster
		short_acc	Boolean	Whether to enable short query acceleration for a resource pool.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		session_count	Long	Number of sessions associated with the resource pool
		active_count	Long	Number of active sessions associated with the resource pool
		global_wait	Long	Number of jobs associated with the resource pool that are queued because the number of concurrent jobs on a single CN exceeds the value of **max_active_statements**.
		fast_run	Long	Number of jobs associated with the resource pool that are running on the fast lane.
		fast_wait	Long	Number of jobs associated with the resource pool that are queued on the fast lane.
		fast_limit	Long	Maximum number of concurrent jobs on the fast lane in a resource pool.
		slow_run	Long	Number of jobs associated with the resource pool that are running on the slow lane.
		slow_wait	Long	Number of jobs associated with the resource pool that are queued on the slow lane.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		slow_limit	Long	Maximum number of concurrent jobs on the slow lane in a resource pool.
		used_mem	Float	Average memory usage of a resource pool on all DNs
		estimate_mem	Long	Total estimated memory of running jobs in the resource pool
		mem_limit	Float	Specifies the upper limit of available memory in the resource pool.
		query_mem_limit	String	Maximum memory that can be used by a single query in a resource pool.
		used_cpu	Float	Average number of CPU cores occupied by a resource pool on all DNs
		cpu_limit	Long	Average upper limit of available CPUs on all nodes in a resource pool
		read_speed	Float	Average logical I/O read rate of a resource pool on all DNs
		write_speed	Float	Average logical I/O write rate of a resource pool on all DNs
bussiness_respool_user_info	Job running information and resource usage information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_id	Integer	ID of the node where data is collected and reported.
		usename	String	Username
		rpname	String	Name of the resource pool associated with the user
		nodegroup	String	Name of the logical cluster to which the resource pool belongs
		session_count	Long	Number of sessions initiated by the user.
		active_count	Long	Number of sessions initiated by the user
		global_wait	Long	Number of jobs that are queued because the number of concurrent jobs on a single CN exceeds the value of **max_active_statements**.
		fast_run	Long	Number of jobs that are running on the fast lane of the resource pool among all jobs executed by the user.
		fast_wait	Long	Number of jobs queued in the fast lane of the resource pool among all jobs executed by the user.
		slow_run	Long	Number of jobs that are running on the slow lane of the resource pool among all jobs executed by the user.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		slow_wait	Long	Number of jobs queued in the slow lane of the resource pool among all jobs executed by the user.
		used_mem	Float	Average memory used by a user on all DNs, in MB.
		estimate_mem	Long	Total estimated memory used by running jobs, in MB.
		used_cpu	Float	Average number of CPU cores used by a user on all DNs
		read_speed	Long	Average logical I/O read rate of a user on all DNs, in KB/s.
		write_speed	Long	Average logical I/O write rate of a user on all DNs, in KB/s.
		used_space	Long	Used space of user permanent tables, in KB.
		space_limit	Long	Maximum space that can be used by user permanent tables, in KB.
		used_temp_space	Long	Used space of user temporary tables, in KB.
		temp_space_limit	Long	Maximum space that can be used by user temporary tables, in KB.
		used_spill_space	Long	Used space for flushing intermediate result sets, in KB.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		spill_space_limit	Long	Maximum space that can be used for flushing intermediate result sets, in KB.
cluster_snapshot_status	Transaction information on the current GTM	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		xact_min	String	Minimum ID of the running transactions
		xact_max	String	ID of the transaction next to the executed transaction with the maximum ID
		xact_csn	String	Specifies the sequence number of the transaction to be committed.
		xact_oldestxmin	String	Minimum ID of the executed transactions
		xact_cnt	String	Number of the running transactions
		xact_running_xids	String	IDs of the running transactions
cluster_top_sql_size	TopSql Size	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		size	Long	TopSql Size

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
database_cu_check	Column-store small CU	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		database	String	Database Name
		schema	String	shcema name
		tablename	String	Table name
		tablesize	Long	Table size
		rows_per_cu	Long	Column-store small CU
database_dbmonitor_probe	Statement Execution Status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		create_cost	Float	Time required for creating a table
		insert_cost	Float	Insertion Duration
		select_cost	Float	Time Required for Select
		drop_cost	Float	Time required for deleting a table
		commit_cost	Float	Transaction Submission Duration
		create_detail	String	Execution Plan for Table Creation
		insert_detail	String	Inserted Execution Plan

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		select_detail	String	Execution plan of select
		drop_detail	String	Execution plan for deleting a table
database_replication_slots	Information about the replication node	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		slot_name	String	Name of a replication node
		slot_type	String	Type of a replication node
		active	Boolean	Whether the replication node is active
		restart_lsn	String	Xlog file information on the replication node
database_system_tables_size	Database Table Information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		table_name	String	Table name
		table_size	Integer	Table size
database_user_partitions_count	Total number of user table partitions in the database.	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_id	Integer	ID of the node where data is collected and reported.
		database	String	databaseName
		partitions_count	Integer	Number of Partitions
database_user_tables_count	Total number of user tables	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		database	String	databaseName
		column_store_table_count	Integer	Number of column-store tables
		row_store_table_count	Integer	Number of row-store tables
		hstore_table_count	Integer	Number of hstore tables
		ts_table_count	Integer	Number of TS tables
		foreign_table_count	Integer	Number of Foreign Tables
		view_count	Integer	Number of hash tables
		index_count	Integer	Number of replication tables
		sequence_count	Integer	Number of polling tables
		hash_table_count	Integer	Schemas

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		replication_table_count	Integer	Number of views
		polling_table_count	Integer	Number of procs
		schema_count	Integer	Number of indexes
		proc_count	Integer	Number of Sequences
database_wal_sender	Statistics about all WAL replication sending threads on a DN	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		nodename	String	Peer name.
		sender_pid	Long	pID of the current sender
		local_role	String	Local role
		peer_role	String	Peer role
		peer_state	String	Peer status
		state	String	Current sender's replication status
		sender_sent_location	String	Location where the sender sends LSNs
		sender_write_location	String	Location where the sender writes LSNs
		sender_flush_location	String	Location where the sender flushes LSNs
		sender_replay_location	String	Location where the sender replays LSNs

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		receiver_received_location	String	Location where the receiver receives LSNs
		receiver_write_location	String	Location where the receiver writes LSNs
		receiver_flush_location	String	Location where the receiver flushes LSNs
		receiver_replay_location	String	Location where the receiver replays LSNs
inst_tmp_count	Information about flushing temporary instance files to disks	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		instid	Integer	Instance ID
		query_id	Long	query_ID of the SQL statement that causes data flushing to disks.
		query	String	SQL statement that causes data to be written to disks
		files_count	Long	Number of Files Flushed to Disks
instance_checkpoint	Instance Checkpoint Information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		instid	Integer	Instance ID
		label	String	Information Attribute
		value	String	Information Value
instance_mem_warn	Instance Memory Usage	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		nodename	String	Node name.
		process_used_memory	Long	Memory Used by Processes
		max_process_memory	Long	Maximum memory of a process
		used_ratio	Long	Memory usage
instance_process_stat	proc/stat information of the instance process	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		instid	Integer	Instance ID
		insttype	String	Instance Type
		pid	Long	Process pID
		command	String	Process name of the task_struct structure
		state	String	Process status. The value is S.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		ppid	Long	ID of the parent process. (The parent process is in fork mode, and the clone process is not the parent process.)
		pgrp	Long	Process Group ID
		session	Long	Process Session Group ID
		tty_nr	Long	TTY end device ID of the current process.
		tpgid	Long	Foreground process ID of the control process terminal
		flags	Long	Process flag, which is defined in PF_* in include/linux/sched.h,
		minflt	Long	Number of minor page fault interrupts, that is, there is no need to load memory pages from disk. For example, COW and anonymous pages.
		cminflt	Long	The current process waits for the minflt of the child process.
		majflt	Long	Number of major page fault interrupts. Memory pages need to be loaded from disks, such as map files.
		majflt_cow	Long	The current process waits for the majflt of the child process.
		utime	Long	Time when the process is in user mode
		stime	Long	Time when the process is in kernel mode

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		cutime	Long	utime when the current process waits for the child process
		cstime	Long	utime when the current process waits for the child process
		priority	Long	The migration process priority.
		nice	Long	Nice value. The value ranges from 19 to 20.
		num_threads	Long	number of threads
		itrealvalue	Long	This field has been discarded and is always 0.
		starttime	Long	Process creation time after the system is started
		vsize	Long	Virtual memory size of a process
		rss	Long	Memory exclusively occupied by a process + Shared library, in pages
		rsslim	String	rss size upper limit
instance_space	Instance Internal Data Space Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		instid	Integer	Instance ID
		pg_xlog	Long	Xlog file size of a single instance

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		pg_cbm	Long	Size of the CBM file in a single instance
		pg_rewind_bak	Long	Size of the pg_rewind_bak file in a single instance
		pgsql_tmp	Long	Number of files flushed to disks in a single instance
		core	Long	Core file size of a single instance
		coreowner	String	Owner of the core file
node_agent_stat	Information about the dmsagent process on the node	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		instid	Integer	Instance ID
		insttype	String	Instance Type (CN/DN/GTM/CMA)
		pid	Long	Process pID
		command	String	Process name of the task_struct structure
		state	String	Process status. The value is S.
		ppid	Long	ID of the parent process. (The parent process is in fork mode, and the clone process is not the parent process.)
		pgrp	Long	Process Group ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		session	Long	Process Session Group ID
		tty_nr	Long	TTY end device ID of the current process.
		tpgid	Long	Foreground process ID of the control process terminal
		flags	Long	Process flag, which is defined in PF_* in include/linux/sched.h,
		minflt	Long	Number of minor page fault interrupts, that is, there is no need to load memory pages from disk. For example, COW and anonymous pages.
		cminflt	Long	The current process waits for the minflt of the child process.
		majflt	Long	Number of major page fault interrupts. Memory pages need to be loaded from disks, such as map files.
		majflt_cow	Long	The current process waits for the majflt of the child process.
		utime	Long	Time when the process is in user mode
		stime	Long	Time when the process is in kernel mode
		cutime	Long	utime when the current process waits for the child process
		cstime	Long	utime when the current process waits for the child process

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		priority	Long	The migration process priority.
		nice	Long	Nice value. The value ranges from 19 to 20.
		num_threads	Long	number of threads
		itrealvalue	Long	This field has been discarded and is always 0.
		starttime	Long	Process creation time after the system is started
		vsize	Long	Virtual memory size of a process
		rss	Long	Memory exclusively occupied by a process + Shared library, in pages
		rsslim	String	rss size upper limit
node_fd_total_count	Total number of file descriptors on a node	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		alloc_count	Long	Number of allocated file handles.
		alloc_unuse_count	Long	Number of allocated and unused file handles.
		total_count	Long	Maximum number of file handles.
node_fs_size	File System Size	ctime	Timestamp	Collection time

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		filesystem	String	Device Symbol
		total	Long	Size
		used	Long	The used space.
		available	Long	Available Size
		usage_percent	Integer	Utilization
		mounted_on	String	Path
node_meminfo	/proc/meminfo information of the node	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		mem_type	String	Information in the first column in /proc/meminfo
		value_in_kb	String	Memory value of a specific type in /proc/meminfo
node_memory_page	Node Memory Activity	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		pagein_rate	Float	Disk page-in rate per second
		pageout_rate	Float	Disk pageout rate per second
		pagefault_rate	Float	System pagefault rate per second
		majfault_rate	Float	System majorpagefault rate per second
		pagefree_rate	Float	The system clears idle pages per second.
		pagescank_rate	Float	kswapd Task Scanning Volume per Second
		pgscand_rate	Float	System Scanning Volume per Second
		pagesteal_rate	Float	System pagecache reclamation rate
		vmeff_ratio	Float	Calculated by pgsteal/pgscan
node_memory_swap	Node memory swap status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		kbmemfree	Long	Available memory (KB).
		kbmemused	Long	Used Memory (KB)
		memused_ratio	Float	Memory usage
		kbbuffers	Long	Buffer Memory (KB)
		kbcached	Long	Cached Memory (KB)

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		kbcommit	Long	Workload memory (KBRAM/SWAP)
		commit_ratio	Float	Workload Memory Ratio
		kbactive	Long	Active Memory (KB)
		kbinact	Long	Inactive Memory (KB)
		kbdirty	Long	KB of dirty pages to be written back by the pagecache.
node_net_stat	Node network information.	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		interface	String	Network port
		rxpps	Float	Number of received packets per second.
		txpps	Float	Number of sent packets per second
		rxkbps	Float	Number of Received Bytes/s
		txkbps	Float	Number of Sent Bytes/s
		rxcmpps	Float	Number of received compressed packets per second
		txcmpps	Float	Number of sent compressed packets per second
		rxmcstps	Float	Number of Received Multicast Packets per Second

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		ifutil	Float	The usage.
		rxerrps	Float	Number of received error packets per second
		txerrps	Float	Number of error packets sent per second
		collps	Float	Number of Bad Packets/s
		rxdropps	Float	Packet Loss Rate on the Receive Side (s)
		txdropps	Float	Packet Loss Rate on the Transmit Side (s)
		txcarrps	Float	TX-Side CE Packets/s
		rxframps	Float	Bad Frames on the RX Side (s)
		rxfifops	Float	FIFO queue overflow on the receive side/s
		txfifops	Float	FIFO queue overflow on the transmit side/s
		tc_delay	Integer	TC delay configuration
		tc_loss	Float	TC Packet Loss Rate Configuration
		tc_drop	Long	Number of lost TC packets
node_process_count	Node process status	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		d_thread_count	Integer	Number of d threads
		z_thread_count	Integer	Number of z threads
		total_process_count	Integer	Total number of processes in the system
node_process_cpu_top20	Top 20 CPU Processes on a Node	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		username	String	Username
		processid	Long	pID
		cpu_percent	Float	CPU Usage
		mem_percent	Float	Memory usage
		vir_mem_size	String	Virtual Memory
		res_mem_size	String	Memory Usage (rss)
		stat	String	Type
		start	String	Indicates the time when the task is started.
		duration	String	Running Time
		command	String	Run the cmd command.
node_process_mem_top20	Top 20 Memory Processes on a Node	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		host_id	Integer	ID of the node where data is collected and reported.
		username	String	User
		processid	Long	pID
		cpu_percent	Float	CPU Usage
		mem_percent	Float	Memory usage
		vir_mem_size	String	Virtual Memory
		res_mem_size	String	Memory Usage (rss)
		stat	String	Type
		start	String	Indicates the time when the task is started.
		duration	String	Running Time
		command	String	Run the cmd command.
node_task_loadavg	Node Load Information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		runq_size	Integer	Task queue
		total_task_count	Integer	Total number of tasks in the system
		loadavg1	Float	1 min load
		loadavg5	Float	5 min load

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		loadavg15	Float	15 min load
		blocked	Integer	Number of blocked I/Os
node_tcp_snmp	Node / proc/net/snmp information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		rtoalgorithm	Long	It has no specific meaning
		rtomin	Long	It has no specific meaning
		rtomax	Long	It has no specific meaning
		maxconn	Long	Max Connections
		activeopens	Long	Number of TCP connection requests initiated by the server
		passiveopens	Long	Number of TCP requests received by the server
		attemptfails	Long	Number of TCP connection failures (AttemptFails)
		estabresets	Long	It has no specific meaning
		currestab	Long	Number of currently established TCP connections
		insegs	Long	Total number of received fragments

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		outsegs	Long	Total number of sent fragments
		retranssegs	Long	Retransmitted Packets
		inerrs	Long	Number of Received Error Packets
		outrsts	Long	Number of Sent Error Packets
		incsumerrors	Long	It has no specific meaning
node_tcp_state_count	Node TCP Connection Status Statistics	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		established	Integer	Current Connection
		synsent	Integer	The current status is sync_sent.
		synrecv	Integer	The current state is sync_recv.
		finwait1	Integer	The system is in the finwait1 state.
		finwait2	Integer	The system is in the finwait2 state.
		timewait	Integer	The system is in the timewait state.
		closed	Integer	The current status is closed.
		closewait	Integer	The current status is closewait.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		lastack	Integer	The current status is lastack.
		listening	Integer	The port is in listening state.
		closing	Integer	The current state is closing.
warn_conflict_lock_duration	Conflicting Lock Information	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		locktype	String	Type of the locked object
		nodename	String	Name of the node where the locked object resides
		dbname	String	Name of the database where the locked object resides.
		nspname	String	Name of the namespace of the locked object
		relname	String	Name of the relation targeted by the lock.
		partname	String	Name of the partition targeted by the lock.
		page	Long	Number of the page targeted by the lock.
		tuple	Long	Number of the tuple targeted by the lock.
		transactionid	String	ID of the transaction targeted by the lock.

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		username	String	Name of the user who applies for the lock
		gxid	String	ID of the transaction that applies for the lock
		xactstart	Timestamp	Start time of the transaction that applies for the lock
		queryid	Long	Latest query ID of the thread that applies for the lock
		query	String	Latest query statement of the thread that applies for the lock
		pid	Long	ID of the thread that applies for the lock
		mode	String	Lock mode
		duration	Long	Locked or Not
warn_instance_checkpoint	Instance Checkpoint Time	ctime	Timestamp	Collection time
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		instid	Integer	Instance ID
		last_cp_time	Long	Latest checkpoint time.
		since_last_cp	Long	Difference between the current system time and last_cp_time
warn_node_memory	System Memory Overhead of Non-DWS Tasks	ctime	Timestamp	Collection time

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Metric	Metric Description	Indicator Return Parameters	Indicator Return Parameter Type	Indicator Return Parameter Description
		virtual_cluster_id	Integer	Virtual cluster ID
		host_id	Integer	ID of the node where data is collected and reported.
		total_mem	Long	Total memory of a node
		total_use	Long	Used Memory of a Node
		instance_use	Long	Used memory of the instance
		os_ratio	Long	Memory usage of non-GaussDB

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