Relational Database Service

API Reference

Issue 01

Date 2024-03-07

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1 Before You Start

1.1 Overview

Welcome to *Relational Database Service API Reference*. RDS is an online relational database service based on the cloud computing platform. RDS is reliable, scalable, and easy to manage, and immediately ready for use. RDS provides a comprehensive performance monitoring system, multi-level security protection measures, and a professional database management platform, allowing you to easily set up and scale a relational database.

This document describes how to use application programming interfaces (APIs) to perform operations on RDS DB instances, such as DB instance creation, backup and restoration, query, parameter modifications, and deletion. For details about all supported operations, see **API Overview**.

If you plan to access RDS through an API, ensure that you are familiar with RDS concepts. For details, see "Service Overview" in the *Relational Database Service User Guide*.

1.2 API Calling

RDS supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see **Calling APIs**.

1.3 Endpoints

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

1.4 Constraints

- The number of RDS DB instances that you can create is determined by your quota. To view or increase the quota, see section "Managing Quotas" in *Relational Database Service User Guide*.

- For more constraints, see API description.

1.5 Concepts

- Account

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

- IAM User

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

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

- Region

  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.

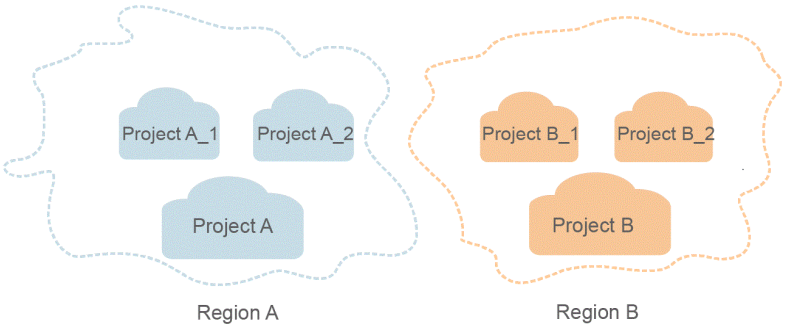
- AZ

  An AZ contains one or more physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. 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.

- Project

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

  Figure 1-1 Project isolating model



- Enterprise Project

  Enterprise projects group and manage resources across regions. Resources in enterprise projects are logically isolated from each other. An enterprise project can contain resources in multiple regions, and resources can be directly transferred between enterprise projects.

1.6 Selecting an API Type

Table 1-1 API type description

Version	Recommended	Description
v3	Yes	APIs for RDS with customized specifications

2 API Overview

RDS APIs enable you to use all RDS functions, including creating DB instances, obtaining log information, and backing up and restoring data.

Type	Subtype	Description
RDS APIs (v3)	API Version Queries	Obtain API versions, including the API version list and API version information.
RDS APIs (v3)	DB Engine Version Queries	Query the DB version information of a specified DB engine.
RDS APIs (v3)	DB Specifications Queries	Query the DB specifications of a specified DB engine version.
RDS APIs (v3)	DB Instance Management	Manage DB instances, including creating a DB instance, adjusting instance storage space, rebooting a DB instance, deleting a DB instance, obtaining a DB instance list, and obtaining detailed information of a specified DB instance.
RDS APIs (v3)	Parameter Configuration	Configure parameters, including obtaining a parameter list, obtaining configuration parameter information, obtaining default parameters of a DB instance, setting configuration parameters, restoring parameters to their default values, obtaining a parameter template list, and obtaining a parameter template.
RDS APIs (v3)	Backup and Restoration	Back up and restore data, including setting an automated backup policy, obtaining an automated backup policy, creating a manual backup, and deleting a manual backup.
RDS APIs (v3)	Tag Management	Manage tags, including adding tags in batches, deleting tags in batches, and querying project tags.

Type	Subtype	Description
RDS APIs (v3)	Task Information Queries	Obtain information about a specified task in the task center.

3 Calling APIs

3.1 Making an API Request

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

Request URI

A request URI consists of the following:

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

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

Table 3-1 Parameters in a URI

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from **Regions and Endpoints**.
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the **resource-path** of the API used to obtain a user token is **/v3/auth/tokens**.
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of "Parameter name=Parameter value". For example, **?limit=10** indicates that a maximum of 10 data records will be displayed.

NOTE

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

Request Methods

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

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.

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

```
POST https://{{Endpoint}}/v3/auth/tokens
```

Request Header

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

Table 3-3 lists common request header fields.

Table 3-3 Common request headers

Name	Description	Mandatory	Example
Host	Specifies the requested server information, which can be obtained from the URL of the service API. The value is in the *hostname[:port]* format. If the port number is not specified, the default port is used. The default port number for **https** is **443**.	No This parameter is mandatory for AK/SK authentication.	code.test.com or code.test.com:443
Content-Type	Specifies the MIME type of the request body. You are advised to use the default value **application/json**. For APIs used to upload objects or images, the value can vary depending on the flow type.	Yes	application/json
Content-Length	Specifies the length of the request body. The unit is byte.	No	3495
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in **Obtaining a Project ID**.	No	e9993fc787d94b6c886cbaa340f9c0f4

Name	Description	Mandatory	Example
X-Auth-Token	Specifies the 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. After the request is processed, the value of **X-Subject-Token** in the message header is the token value.	No This parameter is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZIhvcNAQc-Co...ggg1BBIINPXsidG9rZ

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

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

(Optional) Request Body

This part is optional. The body of a request is often sent in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. If the request body contains Chinese characters, these characters must be coded in UTF-8.

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

In the case of the API used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace ***username***, ***domainname***, ********* (login password), and ***xxxxxxxxxxxxxxxxx*** (project name, such as eu-west-0) with actual values. You can obtain the values from **Regions and Endpoints**.

NOTE

The **scope** parameter specifies where a token takes effect. You can set **scope** to an account or a project under an account. In the following example, the token takes effect only for the resources in a specified project. For more information about this API, see Obtaining a User Token.

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

{
```



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

Token authentication must be performed to call APIs.

Authentication using tokens: General requests are authenticated using tokens.

Token-based Authentication

NOTE

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

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

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



```
        }
      }
    }
}
```

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

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

```
POST https://{{Endpoint}}/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

3.3 Response

Status Code

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

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

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

Response Header

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

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

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

(Optional) Response Body

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

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

```
{
    "token": {
        "expires_at": "2019-02-13T06:52:13.855000Z",
        "methods": [
            "password"
        ],
        "catalog": [
            {
                "endpoints": [
                    {
                        "region_id": "az-01",
......
```

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

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

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

4 Obtaining an API Version

4.1 Querying API Versions

Function

This API is used to query the supported RDS API versions.

NOTICE

The v1 API documentation has been brought offline, and so will the corresponding software. To prevent your services from being affected, you are advised to switch services to the v3 API.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format
  GET https://{*Endpoint*}/rds/
- Example
  https://rds.cn-north-1.myhuaweicloud.com/rds/
- Parameter description
  None

Request

None

Response

- Normal response

Table 4-1 Parameter description

Name	Type	Description
versions	Array of objects	Indicates the list of detailed API version information. For details, see **Table 4-2**.

Table 4-2 versions field data structure description

Name	Type	Description
id	String	Indicates the API version. • **v1**: indicates the API v1 version. **NOTICE** The v1 API documentation has been brought offline, and so will the corresponding software. To prevent your services from being affected, you are advised to switch services to the v3 API. • **v3**: indicates the API v3 version.
links	Array of objects	Indicates the API link information. The value is empty when the version is v1 or v3. For details, see **Table 4-3**.
status	String	Indicates the version status. **CURRENT**: indicates that the version is recommended. **DEPRECATED**: indicates a deprecated version which may be deleted later.

Name	Type	Description
updated	String	Indicates the version update time. The format is yyyy-mm-dd Thh:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the Coordinated Universal Time (UTC).

Table 4-3 links field data structure description

Name	Type	Description
href	String	Indicates the API URL and the value is **""**.
rel	String	Its value is **self**, indicating that **href** is a local link.

- Example normal response

```
{
   "versions": [{
         "id": "v3",
         "links": [],
         "status": "CURRENT",
         "updated": "2019-01-15T12:00:00Z"
      },
      {
         "id": "v1",
         "links": [],
         "status": "DEPRECATED",
         "updated": "2017-02-07T17:34:02Z"
      }
   ]
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

4.2 Querying a Specified API Version

Function

This API is used to query the specified API version.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/rds/{*version*}
- Example

  https://rds.cn-north-1.myhuaweicloud.com/rds/v1
- Parameter description

  Table 4-4 Parameter description

Name	Mandatory	Description
version	Yes	Specifies the API version. It is case-sensitive. For details, see **id** in **Table 4-2** in section **Querying API Versions**.

Request

None

Response

- Normal response

  Table 4-5 Parameter description

Name	Type	Description
versions	Object	Indicates the list of detailed API version information. For details, see **Table 4-6**.

Name	Type	Description
version	Object	Indicates the list of detailed API version information. For details, see **Table 4-6**.

Table 4-6 versions field data structure description

Name	Type	Description
id	String	Indicates the API version.
links	Array	Indicates the API version link information. Its value is empty. For details, see **Table 4-7**.
status	String	Indicates the version status.
updated	String	Indicates the version update time. The format is yyyy-mm-dd Thh:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the UTC.

Table 4-7 links field data structure description

Name	Type	Description
href	String	Indicates the API URL and the value is **""**.
rel	String	Its value is **self**, indicating that **href** is a local link.

- Example normal response

```
{
  "version": {
    "id": "v1",
```



```
    "links": [],
    "status": "CURRENT",
    "updated": "2017-02-07T17:34:02Z"
   },
   "versions": {
    "id": "v1",
    "links": [],
    "status": "CURRENT",
    "updated": "2017-02-07T17:34:02Z"
   }
}
```


- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5 API v3 (Recommended)

5.1 Querying Version Information About a DB Engine

Function

This API is used to query the database version information of a specified DB engine.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{*project_id*}/datastores/{*database_name*}
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/619d3e78f61b4be68bc5aa0b59edcf7b/datastores/mysql
- Parameter description

  Table 5-1 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Name	Mandatory	Description
database_name	Yes	Specifies the DB engine. Its value can be any of the following and is case-insensitive: • MySQL • PostgreSQL

Request

None

Response

- Normal response

  Table 5-2 Parameter description

Name	Type	Description
dataStores	Array of objects	Indicates the list of database versions. For details, see **Table 5-3**.

  Table 5-3 dataStores field data structure description

Name	Type	Description
id	String	Indicates the database version ID. Its value is unique.
name	String	Indicates the database version number. Only the major version number (two digits) is returned. For example, if the version number is MySQL 5.6.X, only 5.6 is returned.

- Example normal response

```
{
   "dataStores": [{
      "id": "87620726-6802-46c0-9028-a8785e1f1921",
      "name": "8.0"
   }, {
      "id": "87620726-6802-46c0-9028-a8785e1f1922",
      "name": "5.7"
   }, {
      "id": "e8a8b8cc-63f8-4fb5-8d4a-24c502317a62",
      "name": "5.6"
   }]
}
```


- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.2 Querying Database Specifications

Function

This API is used to query the database specifications of a specified DB engine version.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/flavors/{database_name}?version_name={version_name}&spec_code={spec_code}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/flavors/mysql?version_name=5.7&spec_code=rds.mysql.m1.xlarge.rr

- Parameter description

  Table 5-4 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
database_name	Yes	Specifies the DB engine name. Its value can be any of the following and is case-insensitive: • MySQL • PostgreSQL

Name	Mandatory	Description
version_name	No	Specifies the database version. For details about how to obtain the database version, see section **Querying Version Information About a DB Engine**.
spec_code	No	Specifies the specification code.

Request

None

Response

- Normal response

Table 5-5 Parameter description

Name	Type	Description
flavors	Array of objects	Indicates the DB instance specifications information list. For details, see **Table 5-6**.

Table 5-6 flavors field data structure description

Name	Type	Description
vcpus	String	Indicates the CPU size. For example, the value **1** indicates 1 vCPU.
ram	Integer	Indicates the memory size in GB.
spec_code	String	Indicates the resource specification code. Use **rds.mysql.m1.xlarge.rr** as an example. • **rds**: indicates the RDS product. • **mysql**: indicates the DB engine. • **m1.xlarge**: indicates the high memory performance specifications. • **rr**: indicates the read replica (**.ha** indicates primary/standby DB instances).

Name	Type	Description
instance_mode	String	Indicates the DB instance type. Its value can be any of the following: • **ha**: indicates primary/standby DB instances. • **replica**: indicates read replicas. • **single**: indicates single DB instances.
az_status	Map<String, String>	Indicates the status of the AZ to which the DB instance specifications belong. Its value can be any of the following: • **normal**: indicates that the AZ is on sale. • **unsupported**: indicates that the DB instance specifications are not supported by the AZ. • **sellout**: indicates that the DB instance specifications are sold out.

- Example normal response

```
{
   "flavors": [{
      "vcpus": "1",
      "ram": 2,
      "spec_code": "rds.mysql.c2.medium.ha",
      "instance_mode": "ha",
      "az_status": {
         "az1": "normal",
         "az2": "normal"
      }
   }, {
      "vcpus": "1",
      "ram": 2,
      "spec_code": "rds.mysql.c2.medium.rr",
      "instance_mode": "replica",
      "az_status": {
         "az1": "normal",
         "az2": "normal"
      }
   }]
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3 DB Instance Management

5.3.1 Creating a DB Instance

Function

This API is used to create a single RDS DB instance, primary/standby DB instances, or a read replica.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances
- Parameter description

  Table 5-7 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

Table 5-8 Parameter description (creating single, primary/standby, and distributed DB instances)

Name	Mandatory	Type	Description
name	Yes	String	Specifies the DB instance name. DB instances of the same type can have same names under the same tenant. The value must be 4 to 64 characters in length and start with a letter. It is case-sensitive and can contain only letters, digits, hyphens (-), and underscores (_).
datastore	Yes	Object	Specifies the database information. For details, see **Table 5-10**.
ha	No	Object	Specifies the HA configuration parameters, which are used when creating primary/standby DB instances. For details, see **Table 5-11**.
configuration_id	No	String	Specifies the parameter template ID. For details, see **id** in **Table 5-55** in section **Obtaining a Parameter Template List**.

Name	Mandatory	Type	Description
port	No	String	Specifies the database port information. • The MySQL database port ranges from 1024 to 65535 (excluding 12017 and 33071, which are occupied by the RDS system and cannot be used). • The PostgreSQL database port ranges from 2100 to 9500. If this parameter is not set, the default value is as follows: • For MySQL, the default value is **3306**. • For PostgreSQL, the default value is **5432**.
password	No	String	Specifies the database password. Valid value: The value contains 8 to 32 characters, including uppercase letters, lowercase letters, digits, and the following special characters: ~!@#%^*-_=+? You are advised to enter a strong password to improve security, preventing security risks such as brute force cracking.
backup_strategy	No	Object	Specifies the advanced backup policy. For details, see **Table 5-12**.

Name	Mandatory	Type	Description
flavor_ref	Yes	String	Specifies the specification code. The value cannot be empty. For details, see **spec_code** in **Table 5-6** in section **Querying Database Specifications**.
volume	Yes	Object	Specifies the volume information. For details, see **Table 5-13**.
region	Yes	String	Specifies the region ID. The value cannot be empty. For details about how to obtain this parameter value, see **Regions and Endpoints**.
availability_zone	Yes	String	Specifies the AZ ID. If the DB instance is not a single instance, you need to specify an AZ for each node of the instance and separate the AZs with commas (,). For details, see the example. The value cannot be empty. For details about how to obtain this parameter value, see **Regions and Endpoints**.

Name	Mandatory	Type	Description
vpc_id	Yes	String	Specifies the VPC ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and view the VPC ID in the VPC details. • Method 2: See the "Querying VPCs" section in the *Virtual Private Cloud API Reference*.
subnet_id	Yes	String	Specifies the network ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** page. You can view the network ID on the displayed page. • Method 2: See the "Querying Subnets" section in the *Virtual Private Cloud API Reference*.

Name	Mandatory	Type	Description
data_vip	No	String	Specifies the floating IP address of a DB instance. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** page. You can view the subnet CIDR block on the displayed page. • Method 2: See the "Querying Subnets" section in the *Virtual Private Cloud API Reference*.
security_group_id	Yes	String	Specifies the security group which the RDS DB instance belongs to. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console. Choose **Access Control** > **Security Groups** in the navigation pane on the left. On the displayed page, click the target security group. You can view the security group ID on the displayed page. • Method 2: See the "Querying Security Groups" section in the *Virtual Private Cloud API Reference*.
charge_info	No	Object	Specifies the billing information. For details, see **Table 5-14**.

Name	Mandatory	Type	Description
time_zone	No	String	Specifies the UTC time zone. • If this parameter is not specified, the time zone of each engine is as follows: – RDS for MySQL uses UTC by default. – RDS for PostgreSQL uses UTC by default. • For MySQL or PostgreSQL, if this parameter is specified, the value ranges from UTC-12:00 to UTC +12:00 at the full hour. For example, the parameter can be UTC+08:00 rather than UTC+08:30.

Table 5-9 Parameter description

Name	Mandatory	Type	Description
name	Yes	String	Specifies the DB instance name. The DB instance name of the same type must be unique for the same tenant. The value must be 4 to 64 characters in length and start with a letter. It is case-sensitive and can contain only letters, digits, hyphens (-), and underscores (_).

Name	Mandatory	Type	Description
replica_of_id	Yes	String	Specifies the primary DB instance ID for creating a read replica. For details, see **id** in **Table 5-45** in section **Querying Details About DB Instances**.
flavor_ref	Yes	String	Specifies the specification code. The value cannot be empty. For details, see **spec_code** in **Table 5-6** in section **Querying Database Specifications**.
volume	Yes	Object	Specifies the volume information. For details, see **Table 5-13**.
region	No	String	Specifies the region ID. Currently, read replicas can be created only in the same region as that of the primary DB instance. The value cannot be empty. For details about how to obtain this parameter value, see **Regions and Endpoints**.
availability_zone	Yes	String	Specifies the AZ ID. The value cannot be empty. For details about how to obtain this parameter value, see **Regions and Endpoints**.
charge_info	No	Object	Specifies the billing information. For details, see **Table 5-14**.

Table 5-10 datastore field data structure description

Name	Mandatory	Type	Description
type	Yes	String	Specifies the DB engine. Value: • MySQL • PostgreSQL
version	Yes	String	Specifies the database version. • MySQL databases support 5.6, 5.7, and 8.0. Example value: 5.7 • PostgreSQL databases support PostgreSQL 1.0 (Enhanced Edition), 9.5, 9.6, 10, 11, and 12. Example value: 9.6 For details about supported database versions, see section **Querying Version Information About a DB Engine**.

Table 5-11 ha field data structure description

Name	Mandatory	Type	Description
mode	Yes	String	Specifies the DB instance type. The value is **Ha** (primary/standby DB instances) and is case-insensitive.

Name	Mandatory	Type	Description
replication_mode	Yes	String	Specifies the replication mode for the standby DB instance. Value: • For MySQL, the value is **async** or **semisync**. • For PostgreSQL, the value is **async** or **sync**. **NOTE** • **async** indicates the asynchronous replication mode. • **semisync** indicates the semi-synchronous replication mode. • **sync** indicates the synchronous replication mode.

Table 5-12 backup_strategy field data structure description

Name	Mandatory	Type	Description
start_time	Yes	String	Specifies the backup time window. Automated backups will be triggered during the backup time window. The value cannot be empty. It must be a valid value in the "hh:mm-HH:MM" format. The current time is in the UTC format. • The **HH** value must be 1 greater than the **hh** value. • The values of **mm** and **MM** must be the same and must be set to any of the following: **00**, **15**, **30**, or **45**. Example value: • 08:15-09:15 • 23:00-00:00

Name	Mandatory	Type	Description
keep_days	No	Integer	Specifies the retention days for specific backup files. The value range is from 0 to 732. If this parameter is not specified or set to **0**, the automated backup policy is disabled. To extend the retention period, contact customer service. Automated backups can be retained for up to 2562 days.

Table 5-13 volume field data structure description

Name	Mandatory	Type	Description
type	Yes	String	Specifies the volume type. Its value can be any of the following and is case-sensitive: • **COMMON**: indicates the SATA type. • **ULTRAHIGH**: indicates the SSD type.
size	Yes	Integer	Specifies the volume size. Its value must be a multiple of 10 and the value range is from 40 GB to 4000 GB. **NOTE** For read replicas, this parameter is invalid. The volume size is the same as that of the primary DB instance by default.

Table 5-14 chargeInfo field data structure description

Name	Mandatory	Type	Description
charge_mode	Yes	String	Specifies the billing mode. Value: **postPaid**

Table 5-15 Mapping between time zones and UTC offsets

Time Zone	Standard Time Offset	Remarks
Afghanistan Standard Time	UTC+04:30	Kabul
Alaskan Standard Time	UTC-09:00	Alaska
Arabian Standard Time	UTC+04:00	Abu Dhabi, Muscat
Atlantic Standard Time	UTC-04:00	Atlantic Time (Canada)
AUS Central Standard Time	UTC+09:30	Darwin
AUS Eastern Standard Time	UTC+10:00	Canberra, Melbourne, Sydney
Belarus Standard Time	UTC+03:00	Minsk
Canada Central Standard Time	UTC-06:00	Saskatchewan
Cape Verde Standard Time	UTC-01:00	Cape Verde Is.
Cen. Australia Standard Time	UTC+09:30	Adelaide
Central America Standard Time	UTC-06:00	Central America
Central Asia Standard Time	UTC+06:00	Astana
Central Brazilian Standard Time	UTC-04:00	Cuiaba
Central Europe Standard Time	UTC+01:00	Belgrade, Bratislava, Budapest, Ljubljana, Prague
Central European Standard Time	UTC+01:00	Sarajevo, Skopje, Warsaw, Zagreb
Central Pacific Standard Time	UTC+11:00	Solomon Islands, New Caledonia
Central Standard Time	UTC-06:00	Central Time (US and Canada)
China Standard Time	UTC+08:00	Beijing, Chongqing, Hong Kong, and Urumqi
E. Africa Standard Time	UTC+03:00	Nairobi
E. Australia Standard Time	UTC+10:00	Brisbane

Time Zone	Standard Time Offset	Remarks
E. Europe Standard Time	UTC+02:00	Chisinau
E. South America Standard Time	UTC-03:00	Brasilia
Eastern Standard Time	UTC-05:00	Eastern Time (US and Canada)
Georgian Standard Time	UTC+04:00	Tbilisi
GMT Standard Time	UTC	Dublin, Edinburgh, Lisbon, London
Greenland Standard Time	UTC–03:00	Greenland
Greenwich Standard Time	UTC	Monrovia, Reykjavik
GTB Standard Time	UTC+02:00	Athens, Bucharest
Hawaiian Standard Time	UTC-10:00	Hawaii
India Standard Time	UTC+05:30	Chennai, Kolkata, Mumbai, New Delhi
Jordan Standard Time	UTC+02:00	Amman
Korea Standard Time	UTC+09:00	Seoul
Middle East Standard Time	UTC+02:00	Beirut
Mountain Standard Time	UTC-07:00	Mountain Time (US and Canada)
US Mountain Standard Time	UTC-07:00	Arizona
New Zealand Standard Time	UTC+12:00	Auckland, Wellington
Newfoundland Standard Time	UTC-03:30	Newfoundland
Pacific SA Standard Time	UTC-03:00	Santiago
Pacific Standard Time	UTC-08:00	Pacific Time (US and Canada)
Russian Standard Time	UTC+03:00	Moscow, St. Petersburg, Volgograd
SA Pacific Standard Time	UTC-05:00	Bogota, Lima, Quito, Rio Branco
SE Asia Standard Time	UTC+07:00	Bangkok, Hanoi, Jakarta

Time Zone	Standard Time Offset	Remarks
China Standard Time	UTC+08:00	Kuala Lumpur, Singapore
Tokyo Standard Time	UTC+09:00	Osaka, Sapporo, Tokyo
US Eastern Standard Time	UTC-05:00	Indiana (East)
UTC	UTC	Coordinated Universal Time
UTC-02	UTC-02:00	Coordinated Universal Time–02
UTC-08	UTC-08:00	Coordinated Universal Time–08
UTC-09	UTC-09:00	Coordinated Universal Time–09
UTC-11	UTC-11:00	Coordinated Universal Time–11
UTC+12	UTC+12:00	Coordinated Universal Time+12
W. Australia Standard Time	UTC+08:00	Perth
W. Central Africa Standard Time	UTC+01:00	West Central Africa
W. Europe Standard Time	UTC+01:00	Berlin, Bern, Rome, Stockholm, Vienna

- Request example

  Creating a single DB instance:

```
{
    "name": "rds-instance-rep2",
    "datastore": {
        "type": "MySQL",
        "version": "5.6"
    },
    "flavor_ref": "rds.mysql.s1.large",
    "volume": {
        "type": "ULTRAHIGH",
        "size": 100
    },


    "region": "aaa",

    "availability_zone": "bbb",
    "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
    "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",
    "data_vip": "192.168.0.147",
```



```
    "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",
    "port": 8635,
    "backup_strategy": {
        "start_time": "08:15-09:15",
        "keep_days": 12
    },
    "charge_info": {
        "charge_mode": "postPaid"
    },
    "password": "Test@12345678",
    "configuration_id": "452408-ef4b-44c5-94be-305145fg"

,
}
```

Creating primary/standby DB instances:

```
{
    "name": "rds-instance-rep2",
    "datastore": {
        "type": "MySQL",
        "version": "5.6"
    },
    "ha": {
        "mode": "ha",
        "replication_mode": "semisync"
    },
    "flavor_ref": "rds.mysql.s1.large.ha",
    "volume": {
        "type": "ULTRAHIGH",
        "size": 100
    },

    "region": "aaa",
    "availability_zone": "bbb,ccc",
    "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
    "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",
    "data_vip": "192.168.0.147",
    "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",
    "port": 8635,
    "backup_strategy": {
        "start_time": "08:15-09:15",
        "keep_days": 12
    },
    "charge_info": {
        "charge_mode": "postPaid"
    },
    "password": "Test@12345678",
    "configuration_id": "452408-ef4b-44c5-94be-305145fg"
```



```
}
```

Creating a read replica:

```
{
    "name": "rds-instance-rep2",
    "replica_of_id": "afdsad-fds-fdsagin01",
    "flavor_ref": "rds.mysql.s1.large.rr",
    "volume": {
        "type": "ULTRAHIGH",
        "size": 100
    },

    "region": "aaa",
    "availability_zone": "bbb"
}
```

Response

- Normal response

Table 5-16 Parameter description

Name	Type	Description
instance	Object	Indicates the DB instance information. For details, see **Table 5-17**.
job_id	String	Indicates the ID of the DB instance creation task.

Table 5-17 instance field data structure description

Name	Type	Description
id	String	Indicates the DB instance ID. **NOTE** The v3 DB instance ID is incompatible with the v1 DB instance ID.
name	String	Indicates the DB instance name. Indicates the DB instance name. DB instances of the same type can have same names under the same tenant. The value must be 4 to 64 characters in length and start with a letter. It is case-insensitive and can contain only letters, digits, hyphens (-), and underscores (_).
status	String	Indicates the DB instance status. For example, **BUILD** indicates that the DB instance is being created.
datastore	Object	Indicates the database information. For details, see **Table 5-18**.
ha	Object	Indicates the HA configuration parameters. This parameter is returned only when primary/standby DB instances are created. For details, see **Table 5-19**.

Name	Type	Description
configuration_id	String	Indicates the parameter template ID. This parameter is returned only when a custom parameter template is used during DB instance creation.
port	String	Indicates the database port, which is the same as the request parameter.
backup_strategy	Object	Indicates the automated backup policy. For details, see **Table 5-20**.
flavor_ref	String	Indicates the specification code. The value cannot be empty. For details, see **spec_code** in **Table 5-6** in section **Querying Database Specifications**.
volume	Object	Indicates the volume information. For details, see **Table 5-21**.
region	String	Indicates the region ID.
availability_zone	String	Indicates the AZ ID.
vpc_id	String	Indicates the VPC ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and view the VPC ID in the VPC details. • Method 2: See the "Querying VPCs" section in the *Virtual Private Cloud API Reference*.

Name	Type	Description
subnet_id	String	Indicates the network ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** page. You can view the network ID on the displayed page. • Method 2: See the "Querying Subnets" section in the *Virtual Private Cloud API Reference*.
security_group_id	String	Indicates the security group which the RDS DB instance belongs to. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console. Choose **Access Control** > **Security Groups** in the navigation pane on the left. On the displayed page, click the target security group. You can view the security group ID on the displayed page. • Method 2: See the "Querying Security Groups" section in the *Virtual Private Cloud API Reference*.
charge_info	Object	Indicates the billing information. For details, see **Table 5-22**.

Table 5-18 datastore field data structure description

Name	Type	Description
type	String	Indicates the DB engine. Value: • MySQL • PostgreSQL
version	String	Indicates the database version. For details about supported database versions, see section **Querying Version Information About a DB Engine**.

Table 5-19 ha field data structure description

Name	Type	Description
mode	String	Indicates the DB instance type. The value is **Ha** (primary/standby DB instances).
replication_mode	String	Indicates the replication mode for the standby DB instance. This parameter is valid when the **mode** is **Ha**. Value: • For MySQL, the value is **async** or **semisync**. • For PostgreSQL, the value is **async** or **sync**. **NOTE** • **async** indicates the asynchronous replication mode. • **semisync** indicates the semi-synchronous replication mode. • **sync** indicates the synchronous replication mode.

Table 5-20 backupStrategy field data structure description

Name	Type	Description
start_time	String	Specifies the backup time window. Automated backups will be triggered during the backup time window. The value cannot be empty. It must be a valid value in the "hh:mm-HH:MM" format. The current time is in the UTC format. • The **HH** value must be 1 greater than the **hh** value. • The values of **mm** and **MM** must be the same and must be set to any of the following: **00**, **15**, **30**, or **45**. Example value: • 08:15-09:15 • 23:00-00:00 If **backup_strategy** in the request body is empty, **02:00-03:00** is returned for **start_time** by default.
keep_days	Integer	Indicates the retention days for specific backup files. The value range is from 0 to 732. If this parameter is not specified or set to **0**, the automated backup policy is disabled. To extend the retention period, contact customer service. Automated backups can be retained for up to 2562 days. If **backup_strategy** in the request body is empty, **7** is returned for **keep_days** by default.

Table 5-21 volume field data structure description

Name	Type	Description
type	String	Indicates the volume type. Its value can be any of the following and is case-sensitive: • **ULTRAHIGH**: indicates the SSD type.

Name	Type	Description
size	Integer	Indicates the volume size. Its value range is from 40 GB to 4000 GB. The value must be a multiple of 10.

Table 5-22 chargeInfo field data structure description

Name	Type	Description
charge_mode	String	Indicates the billing information.

- Example normal response

  Creating a single DB instance:

```
{
    "instance": {
        "id": "dsfae23fsfdsae3435in01",
        "name": "trove-instance-rep2",
        "datastore": {
            "type": "MySQL",
            "version": "5.6"
        },
        "flavor_ref": "rds.mysql.s1.large",
        "volume": {
            "type": "ULTRAHIGH",
            "size": 100
        },



              "region": "aaa",
        "availability_zone": "bbb",
        "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
        "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",
        "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",
        "port": "8635",
        "backup_strategy": {
            "start_time": "08:15-09:15",
            "keep_days": 3
        },
        "configuration_id": "452408-44c5-94be-305145fg",
        "charge_info": {
            "charge_mode": "postPaid"
        }
    },
    "job_id": "dff1d289-4d03-4942-8b9f-463ea07c000d"
}
```

  Creating primary/standby DB instances:

```
{
  "instance":{
          "id": "dsfae23fsfdsae3435in01",
          "name": "trove-instance-rep2",
          "datastore": {
            "type": "MySQL",
```



```
          "version": "5.6"
         },
        "ha": {
         "mode": "ha",
         "replication_mode": "semisync"
        },
        "flavor_ref": "rds.mysql.s1.large.ha",
        "volume": {
           "type": "ULTRAHIGH",
           "size": 100
         },



        "region": "aaa",
        "availability_zone": "bbb,ccc",
        "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
        "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",
        "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",
        "port": "8635",
        "backup_strategy": {
         "start_time": "08:15-09:15",
         "keep_days": 3
        },
        "configuration_id": "452408-44c5-94be-305145fg",
        "charge_info": {
               "charge_mode": "postPaid"
                     },
      },
 "job_id": "dff1d289-4d03-4942-8b9f-463ea07c000d"
}
```

Creating a read replica:

```
{
 "instance":{
          "id": "dsfae23fsfdsae3435in01",
          "name": "trove-instance-rep2",
          "flavor_ref": "rds.mysql.s1.large.rr",
          "volume": {
            "type": "ULTRAHIGH",
            "size": 100
          },

        "region": "aaa",
        "availability_zone": "bbb",
        "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
        "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",
        "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",
        "port": "8635",
        "configuration_id": "452408-44c5-94be-305145fg"
      },
"job_id": "dff1d289-4d03-4942-8b9f-463ea07c000d"

}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3.2 Changing DB Instance Specifications

Function

This API is used to change DB instance specifications.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

NOTE

Services will be interrupted for 5 to 10 minutes when you change DB instance specifications. Exercise caution when performing this operation.

Constraints

- The new DB instance specifications must be different from the original DB instance specifications.
- The instance class can be modified only for DB instances whose status is **Available**.
- The specifications of a DB instance can be changed only to the specifications of the same DB instance type. (For example, the specifications of a single DB instance cannot be changed to those of primary/standby DB instances.)

URI

- URI format

  POST https://{*Endpoint*}/v3/{*project_id*}/instances/{*instance_id*}/action

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/action

- Parameter description

  Table 5-23 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

Table 5-24 Parameter description

Name	Mandatory	Type	Description
resize_flavor	Yes	Object	For details, see **Table 5-25**.

Table 5-25 resize_flavor field data structure description

Name	Mandatory	Type	Description
spec_code	Yes	String	Specifies the resource specification code. Use **rds.mysql.m1.xlarge** as an example. **rds** indicates RDS, **mysql** indicates the DB engine, and **m1.xlarge** indicates the performance specification (large-memory). The parameter containing **rr** indicates the read replica specifications. The parameter not containing **rr** indicates the single or primary/standby DB instance specifications.

– Request example

```
{
   "resize_flavor": {
      "spec_code": rds.mysql.m1.xlarge"

   }
}
```


Response

- **Pay-per-use**
  - Normal response

    Table 5-26 Parameter description

Name	Type	Description
job_id	String	Indicates the task ID.

  - Example normal response

    ```
    {
      "job_id": "2b414788a6004883a02390e2eb0ea227"
    }
    ```

  - Abnormal response

    For details, see **Abnormal Request Results**.

- **Yearly/Monthly**
  - Normal response

    Table 5-27 Parameter description

Name	Type	Description
order_id	String	Indicates the order ID.

  - Example normal response

    ```
    {
      "order_id": "CS2009151216NO2U1"
    }
    ```

  - Abnormal response

    For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3.3 Scaling Up Storage Space of a DB Instance

Function

This API is used to scale up storage space of a DB instance.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The sizes of the primary and standby DB instances are the same. When you scale the primary DB instance, its standby DB instance is also scaled.
- The DB instances can be scaled when they are in the **Available** state.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/action
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/action
- Parameter description

  Table 5-28 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

  Table 5-29 Parameter description

Name	Mandatory	Type	Description
enlarge_volume	Yes	Object	Specifies the target storage space after scaling up. For details, see **Table 5-30**.

Table 5-30 enlarge_volume field data structure description

Name	Mandatory	Type	Description
size	Yes	Integer	The minimum start value of each scaling is 10 GB. A DB instance can be scaled up only by a multiple of 10 GB. Value range: 10 GB to 4000 GB

- Request example

```
{
   "enlarge_volume": {
      "size": 400

   }
}
```

Response

- **Pay-per-use**
  - Normal response

    Table 5-31 Parameter description

Name	Type	Description
job_id	String	Indicates the task ID.

  - Example normal response

```
{
   "job_id": "2b414788a6004883a02390e2eb0ea227"
}
```

  - Abnormal response

    For details, see **Abnormal Request Results**.

- **Yearly/Monthly**
  - Normal response

    Table 5-32 Parameter description

Name	Type	Description
order_id	String	Indicates the order ID.

  - Example normal response

```
{
   "order_id": "CS2009151216NO2U2"
}
```

  - Abnormal response

For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3.4 Changing a Single DB Instance to Primary/Standby DB Instances

Function

This API is used to change a single DB instance to primary/standby DB instances.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- Single DB instances with certain specifications cannot be changed to primary/standby DB instances.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/action
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/action
- Parameter description

  Table 5-33 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

Table 5-34 Parameter description

Name	Mandatory	Type	Description
single_to_ha	Yes	Object	For details, see **Table 5-35**.

Table 5-35 single_to_ha field data structure description

Name	Mandatory	Type	Description
az_code_new_node	Yes	String	Specifies the AZ code of the DB instance node.

- Request example

```
{
    "single_to_ha": {
        "az_code_new_node": "az2xahz",
        "password": "Test@1234567"
    }
}
```

Response

- Normal response

Table 5-36 Parameter description

Name	Type	Description
job_id	String	Indicates the task ID.

- Example normal response

```
{
    "job_id": "2b414788a6004883a02390e2eb0ea227"
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3.5 Rebooting a DB Instance

Function

This API is used to reboot a DB instance.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

NOTICE

The RDS DB instance will be unavailable during the reboot process. Exercise caution when performing this operation.

Constraints

The DB instance cannot reboot when it is being created, scaled, backed up, restored, or its instance class or port is being changed.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/action

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/action

- Parameter description

  Table 5-37 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

Table 5-38 Parameter description

Name	Mandatory	Type	Description
restart	Yes	None	This parameter is left blank.

- Request example

```
{
    "restart": {}
}
```

Response

- Normal response

Table 5-39 Parameter description

Name	Type	Description
job_id	String	Indicates the task ID.

- Example normal response

```
{
   "job_id": "2b414788a6004883a02390e2eb0ea227"
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3.6 Deleting a DB Instance

Function

This API is used to delete a DB instance.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  DELETE https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}

- Example

https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01

- Parameter description

  Table 5-40 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID compliant with the UUID format.

Request

None

Response

- Normal response

  Table 5-41 Parameter description

Name	Type	Description
job_id	String	Indicates the ID of the instance deletion task.

- Example normal response

```
{
    "job_id": "dff1d289-4d03-4942-8b9f-463ea07c000d"
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.3.7 Querying Details About DB Instances

Function

This API is used to query DB instances according to search criteria.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/instances?id={id}&name={name}&type={type}&datastore_type={datastore_type}&vpc_id={vpc_id}&subnet_id={subnet_id}&offset={offset}&limit={limit}&tags={key}={value}

- Example
  - Querying all DB instances

    https://rds.cn-north-1.myhuaweicloud.com/v3/97b026aa9cc4417888c14c84a1ad9860/instances

  - Querying DB instances based on search criteria

    https://rds.cn-north-1.myhuaweicloud.com/v3/97b026aa9cc4417888c14c84a1ad9860/instances?id=ed7cc6166ec24360a5ed5c5c9c2ed726in01&name=hy&type=Ha&datastore_type=MySQL&vpc_id=19e5d45d-70fd-4a91-87e9-b27e71c9891f&subnet_id=bd51fb45-2dcb-4296-8783-8623bfe89bb7&offset=0&limit=10&tags=rds001=001,rds002=002

- Parameter description

  Table 5-42 Parameter description

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

Name	Type	Mandatory	Description
id	String	No	Specifies the DB instance ID. The asterisk (*) is reserved for the system. If the instance ID starts with *, it indicates that fuzzy match is performed based on the value following * Otherwise, the exact match is performed based on the instance ID. The value cannot contain only asterisks (*).
name	String	No	Specifies the DB instance name. The asterisk (*) is reserved for the system. If the instance name starts with *, it indicates that fuzzy match is performed based on the value following * Otherwise, the exact match is performed based on the instance name. The value cannot contain only asterisks (*).
type	String	No	Specifies the instance type-based query. The value is **Single**, **Ha**, **Replica**, or **Enterprise**, which correspond to single instance, primary/standby instances, read replica, and distributed instance (enterprise) respectively.
datastore_type	String	No	Specifies the database type. Its value can be any of the following and is case-sensitive: • MySQL • PostgreSQL
vpc_id	String	No	Specifies the VPC ID. • Method 1: Log in to VPC console and view the VPC ID in the VPC details. • Method 2: See the "Querying VPCs" section in the *Virtual Private Cloud API Reference*.

Name	Type	Mandatory	Description
subnet_id	String	No	Specifies the network ID of the subnet. • Method 1: Log in to VPC console and click the target subnet on the **Subnets** page. You can view the network ID on the displayed page. • Method 2: See the "Querying Subnets" section in the *Virtual Private Cloud API Reference*.
offset	Integer	No	Specifies the index position. If **offset** is set to *N*, the resource query starts from the N+1 piece of data. The value is **0** by default, indicating that the query starts from the first piece of data. The value must be a positive number.
limit	Integer	No	Specifies the number of records to be queried. The default value is **100**. The value cannot be a negative number. The minimum value is **1** and the maximum value is **100**.
tags	Array of objects	No	Specifies queries based on the instance tag keys and values. • {key} indicates the tag key. It must be unique and cannot be empty. • {value} indicates the tag value, which can be left empty. To query instances with multiple tag keys and values, separate key-value pairs with commas (,). A maximum of 10 key-value pairs are supported. For details, see **Table 5-43**.

Table 5-43 tags field data structure description

Name	Type	Mandatory	Description
key	String	Yes	Specifies the tag key, which contains a maximum of 127 Unicode characters. **key** cannot be an empty string, a space, or left blank. Before using **key**, delete single-byte character (SBC) spaces before and after the value. The value cannot contain the following special characters: +/?#&=,%
value	String	No	Specifies the tag value, which contains a maximum of 255 Unicode characters. Before using **value**, delete SBC spaces before and after the value. The value cannot contain the following special characters: +/?#&=,% If the value is empty, it indicates **any_value** (querying any value).

Request

None

Response

- Normal response

Table 5-44 Parameter description

Name	Type	Description
instances	Array of objects	Indicates the DB instance information. For details, see **Table 5-45**.
total_count	Integer	Indicates the total number of resources.

Table 5-45 instances field data structure description

Name	Type	Description
id	String	Indicates the DB instance ID.

Name	Type	Description
name	String	Indicates the created DB instance name.
status	String	Indicates the DB instance status. Value: If the value is **BUILD**, the DB instance is being created. If the value is **ACTIVE**, the DB instance is normal. If the value is **FAILED**, the DB instance is abnormal. If the value is **MODIFYING**, the DB instance is being scaled up. If the value is **REBOOTING**, the DB instance is being rebooted. If the value is **RESTORING**, the DB instance is being restored. If the value is **MODIFYING INSTANCE TYPE**, the DB instance is changing from primary to standby. If the value is **SWITCHOVER**, the primary/standby switchover is being performed. If the value is **MIGRATING**, the DB instance is being migrated. If the value is **BACKING UP**, the DB instance is being backed up. If the value is **MODIFYING DATABASE PORT**, the database port is being changed.
private_ips	List<String>	Indicates the private IP address list. It is a blank string until an ECS is created.
private_dns_names	List<String>	Indicates the private domain name list of the DB instance. After a DB instance is created, you need to manually apply for a private domain name.
public_ips	List<String>	Indicates the public IP address list.

Name	Type	Description
port	Integer	Indicates the database port number. • The MySQL database port ranges from 1024 to 65535 (excluding 12017 and 33071, which are occupied by the RDS system and cannot be used). • The PostgreSQL database port ranges from 2100 to 9500. If this parameter is not set, the default value is as follows: • For MySQL, the default value is **3306**. • For PostgreSQL, the default value is **5432**.
type	String	The value is **Single**, **Ha**, **Replica**, or **Enterprise**, which correspond to single instance, primary/standby instances, read replica, and distributed instance (enterprise), respectively.
ha	Object	Indicates the primary/standby DB instance information. Returned only when you obtain a primary/standby DB instance list. For details, see **Table 5-46**.
region	String	Indicates the region where the DB instance is deployed.
datastore	Object	Indicates the database information. For details, see **Table 5-47**.
created	String	Indicates the creation time in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, if the time zone offset is one hour, the value of **Z** is **+0100**. The value is empty when the DB instance is being created. After the DB instance is created, the value is not empty.

Name	Type	Description
updated	String	Indicates the update time. The format is the same as that of the **created** field. The value is empty when the DB instance is being created. After the DB instance is created, the value is not empty.
db_user_name	String	Indicates the default username.
vpc_id	String	Indicates the VPC ID.
subnet_id	String	Indicates the network ID of the subnet.
security_group_id	String	Indicates the security group ID.
flavor_ref	String	Indicates the specification code.
volume	Object	Indicates the volume information. For details, see **Table 5-48**.
switch_strategy	String	Indicates the database switchover policy. The value can be **reliability** or **availability**, indicating the reliability first and availability first, respectively.
backup_strategy	Object	Indicates the backup policy. For details, see **Table 5-49**.
maintenance_window	String	Indicates the start time of the maintenance time window in the UTC format.
nodes	Array of objects	Indicates the primary/standby DB instance information. For details, see **Table 5-50**.
related_instance	Array of objects	Indicates the list of associated DB instances. For details, see **Table 5-51**.
time_zone	String	Indicates the time zone.
tags	Array of objects	Indicates the tag list. If there is no tag in the list, an empty array is returned. For details, see **Table 5-52**.

Table 5-46 ha field data structure description

Name	Type	Description
replication_mode	String	Indicates the replication mode for the standby DB instance. The value cannot be empty. • For MySQL, the value is **async** or **semisync**. • For PostgreSQL, the value is **async** or **sync**. **NOTE** • **async** indicates the asynchronous replication mode. • **semisync** indicates the semi-synchronous replication mode. • **sync** indicates the synchronous replication mode.

Table 5-47 datastore field data structure description

Name	Type	Description
type	String	Indicates the DB engine.
version	String	Indicates the database version.

Table 5-48 volume field data structure description

Name	Type	Description
type	String	Indicates the volume type.
size	Integer	Indicates the volume size.

Table 5-49 backup_strategy field data structure description

Name	Type	Description
start_time	String	Indicates the backup time window. Automated backups will be triggered during the backup time window. The time is in the UTC format.

Name	Type	Description
keep_days	Integer	Indicates the number of days to retain the generated backup files. The value ranges from 0 to 732. If the value is **0**, the automated backup policy is not configured or has been disabled. To extend the retention period, contact customer service. Automated backups can be retained for up to 2562 days.

Table 5-50 nodes field data structure description

Name	Type	Description
id	String	Indicates the node ID.
name	String	Indicates the node name.
role	String	Indicates the node type. The value can be **master**, **slave**, or **readreplica**, indicating the primary node, standby node, and read replica node, respectively.
status	String	Indicates the node status.
availability_zone	String	Indicates the AZ.

Table 5-51 related_instance field data structure description

Name	Type	Description
id	String	Indicates the associated DB instance ID.
type	String	Indicates the associated DB instance type. • **replica_of**: indicates the primary DB instance. • **replica**: indicates read replicas.

Table 5-52 tags field data structure description

Name	Type	Description
key	String	Indicates the tag key.

Name	Type	Description
value	String	Indicates the tag value.

NOTE

The values of **region** and **availability_zone** are used as examples.

- Example normal response

  Query DB instances based on search criteria.

```
{
   "instances": [{
   "id": "ed7cc6166ec24360a5ed5c5c9c2ed726in01",
   "status": "ACTIVE",
   "name": "mysql-0820-022709-01",
   "port": 3306,
   "type": "Single",
   "region": "aaa",
   "datastore": {
      "type": "MySQL",
      "version": "5.7"
   },
   "created": "2018-08-20T02:33:49+0800",
   "updated": "2018-08-20T02:33:50+0800",
   "volume": {
      "type": "ULTRAHIGH",
      "size": 100
   },
   "nodes": [{
      "id": "06f1c2ad57604ae89e153e4d27f4e4b8no01",
      "name": "mysql-0820-022709-01_node0",
      "role": "master",
      "status": "ACTIVE",
      "availability_zone": "bbb"
   }],
   "private_ips": ["192.168.0.142"],

   "public_ips": ["10.154.219.187", "10.154.219.186"],
   "db_user_name": "root",
   "vpc_id": "b21630c1-e7d3-450d-907d-39ef5f445ae7",
   "subnet_id": "45557a98-9e17-4600-8aec-999150bc4eef",
   "security_group_id": "38815c5c-482b-450a-80b6-0a301f2afd97",
   "flavor_ref": "rds.mysql.s1.large",
   "switch_strategy": "",



   "backup_strategy": {
      "start_time": "19:00-20:00",
      "keep_days": 7
   },
   "maintenance_window": "02:00-06:00",
   "related_instance": [],


   "time_zone": "",
      "tags" [
         {
```



```
            "key": "rds001",
            "value": "001"
        },
        {
            "key": "rds002",
            "value": "002"
        }
    ]

}], "total_count": 1
}
```


- Query all DB instances.


```
{
   "instances": [{
      "id": "ed7cc6166ec24360a5ed5c5c9c2ed726in01",
      "status": "ACTIVE",
      "name": "mysql-0820-022709-01",
      "port": 3306,
      "type": "Single",
      "region": "aaa",
      "datastore": {
         "type": "MySQL",
         "version": "5.7"
      },
      "created": "2018-08-20T02:33:49+0800",
      "updated": "2018-08-20T02:33:50+0800",
      "volume": {
         "type": "ULTRAHIGH",
         "size": 100
      },
      "nodes": [{
         "id": "06f1c2ad57604ae89e153e4d27f4e4b8no01",
         "name": "mysql-0820-022709-01_node0",
         "role": "master",
         "status": "ACTIVE",
         "availability_zone": "bbb"
      }],
      "private_ips": ["192.168.0.142"],

      "public_ips": ["10.154.219.187", "10.154.219.186"],
      "db_user_name": "root",
      "vpc_id": "b21630c1-e7d3-450d-907d-39ef5f445ae7",
      "subnet_id": "45557a98-9e17-4600-8aec-999150bc4eef",
      "security_group_id": "38815c5c-482b-450a-80b6-0a301f2afd97",
      "flavor_ref": "rds.mysql.s1.large",
      "switch_strategy": "",



      "backup_strategy": {
         "start_time": "19:00-20:00",
         "keep_days": 7
      },
      "maintenance_window": "02:00-06:00",
      "related_instance": [],


      "time_zone": "",
               "tags" [
          {
                  "key": "rds001",
```



```
                    "value": "001"
                },
                {
                    "key": "rds002",
                    "value": "002"
                }
            ]

    }, {
        "id": "ed7cc6166ec24360a5ed5c5c9c2ed726in02",
        "status": "ACTIVE",
        "name": "mysql-0820-022709-02",
        "port": 3306,
        "type": "Single",
        "region": "aaa",
        "datastore": {
            "type": "MySQL",
            "version": "5.7"
        },
        "created": "2018-08-20T02:33:49+0800",
        "updated": "2018-08-20T02:33:50+0800",
        "volume": {
            "type": "ULTRAHIGH",
            "size": 100
        },
        "nodes": [{
            "id": "06f1c2ad57604ae89e153e4d27f4e4b8no01",
            "name": "mysql-0820-022709-01_node0",
            "role": "master",
            "status": "ACTIVE",
            "availability_zone": "bbb"
        }],
        "private_ips": ["192.168.0.142"],

        "public_ips": ["10.154.219.187", "10.154.219.186"],
        "db_user_name": "root",
        "vpc_id": "b21630c1-e7d3-450d-907d-39ef5f445ae7",
        "subnet_id": "45557a98-9e17-4600-8aec-999150bc4eef",
        "security_group_id": "38815c5c-482b-450a-80b6-0a301f2afd97",
        "flavor_ref": "rds.mysql.s1.large",
        "switch_strategy": "",



        "backup_strategy": {
            "start_time": "19:00-20:00",
            "keep_days": 7
        },
        "maintenance_window": "02:00-06:00",
        "related_instance": [],


        "time_zone": "",
                "tags" [
            {
                    "key": "rds001",
                    "value": "001"
                },
                {
                    "key": "rds002",
                    "value": "002"
                }
```



```
            ]

    }],
    "total_count": 2
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4 Parameter Configuration

5.4.1 Obtaining a Parameter Template List

Function

This API is used to obtain the parameter template list, including default parameter templates of all databases and those created by users.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.

URI

- URI format

  GET https://{*Endpoint*}/v3/{*project_id*}/configurations

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/configurations

- Parameter description

Table 5-53 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

None

Response

- Normal response

Table 5-54 Parameter description

Name	Type	Description
configurations	Array of objects	Indicates the parameter template list. For details, see **Table 5-55**.

Table 5-55 configurations field data structure description

Name	Type	Description
id	String	Indicates the parameter template ID.
name	String	Indicates the parameter template name.
description	String	Indicates the parameter template description.
datastore_version_name	String	Indicates the database version name.
datastore_name	String	Indicates the database name.
created	String	Indicates the creation time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.

Name	Type	Description
updated	String	Indicates the update time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
user_defined	Boolean	Indicates whether the parameter template is created by users. • **false**: The parameter template is a default parameter template. • **true**: The parameter template is a custom template.

- Example normal response

```
{
   "configurations": [{
         "id": "887ea0d1bb0843c49e8d8e5a09a95652pr01",
         "name": "configuration_test",
         "description": "configuration_test",
         "datastore_version_name": "5.6",
         "datastore_name": "mysql",
         "created": "2019-05-15T11:53:34+0000",
         "updated": "2019-05-15T11:53:34+0000",
         "user_defined": true
      },
      {
         "id": "3bc1e9cc0d34404b9225ed7a58fb284epr01",
         "name": "Default-MySQL-5.7",
         "description": "Default parameter group for MySQL 5.7",
         "datastore_version_name": "5.7",
         "datastore_name": "mysql",
         "created": "2019-05-27T03:38:51+0000",
         "updated": "2019-05-27T03:38:51+0000",
         "user_defined": false
      }
   ]
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.2 Creating a Parameter Template

Function

This API is used to create a parameter template and configure the name, description, DB engine, and parameter values in the parameter template.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.
- The name of the created parameter template cannot be the same as that of the default or an existing parameter template.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/configurations
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/configurations
- Parameter description

  Table 5-56 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

- Parameter description

Table 5-57 Parameter description

Name	Mandatory	Type	Description
name	Yes	String	Specifies the parameter template name. It contains a maximum of 64 characters and can contain only uppercase letters, lowercase letters, digits, hyphens (-), underscores (_), and periods (.).
description	No	String	Specifies the parameter template description. It contains a maximum of 256 characters and cannot contain the following special characters: >!<"&'= Its value is left blank by default.
values	No	Map<String,String>	Specifies the parameter values defined by users based on the default parameter templates. By default, the parameter values cannot be changed. For details, see **Table 5-58**.
datastore	Yes	Object	Specifies the database object. For details, see **Table 5-59**.

Table 5-58 values field data structure description

Name	Mandatory	Type	Description
key	No	String	Specifies the parameter name. For example, in **"max_connections": "10"**, the key is **max_connections**. If **key** is left blank, the parameter **value** cannot be changed. If **key** is not empty, the parameter **value** cannot be empty, either.
value	No	String	Specifies the parameter value. For example, in **"max_connections": "10"**, the value is **10**.

Table 5-59 datastore field data structure description

Name	Mandatory	Type	Description
type	Yes	String	Specifies the DB engine. Its value can be any of the following and is case-insensitive: • MySQL • PostgreSQL
version	Yes	String	Specifies the database version. For details, see **Constraints**. Example values: • MySQL: **5.7** • PostgreSQL: **9.5**

- Request example

```
{
    "name": "configuration_test",
    "description": "configuration_test",
    "values": {
        "max_connections": "10",
        "autocommit": "OFF"
    },
    "datastore": {
        "type": "mysql",
        "version": "5.6"
    }
}
```

Response

- Normal response

Table 5-60 Parameter description

Name	Type	Description
configuration	Object	Indicates the parameter template information. For details, see **Table 5-61**.

Table 5-61 configuration field data structure description

Name	Type	Description
id	String	Indicates the parameter template ID.
name	String	Indicates the parameter template name.

Name	Type	Description
datastore_version_name	String	Indicates the database version name.
datastore_name	String	Indicates the database name.
description	String	Indicates the parameter template description.
created	String	Indicates the creation time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
updated	String	Indicates the update time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.

- Example normal response

```
{
    "configuration": {
        "id": "463b4b58-d0e8-4e2b-9560-5dea4552fde9",
        "name": "configuration_test",
        "datastore_version_name": "5.6",
        "datastore_name": "mysql",
        "description": "configuration_test",
        "created": "2017-04-09T08:27:56+0800",
        "updated": "2017-04-09T08:27:56+0800"
    }
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.3 Modifying a Parameter Template

Function

This API is used to modify a specified parameter template, including the name, description, and values of specified parameters in the parameter template.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.
- The modified parameter template name must be different from the name of an existing or a default parameter template. Default parameter templates cannot be modified.
- The values of the edited parameters must be within the default value range of the specified database version. For details about the range of parameter values, see "Modifying Parameters in a Parameter Template" in the *Relational Database Service User Guide*.
- The parameter values to be changed cannot be left blank at the same time.

URI

- URI format

  PUT https://{*Endpoint*}/v3/{*project_id*}/configurations/{config_id}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/configurations/463b4b58-d0e8-4e2b-9560-5dea4552fde9

- Parameter description

  Table 5-62 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
config_id	Yes	Specifies the parameter template ID.

Request

- Parameter description

NOTICE

At least one parameter in the request body must be specified. Otherwise, the request fails to be delivered.

Table 5-63 Parameter description

Name	Mandatory	Type	Description
name	No	String	Specifies the parameter template name. It contains a maximum of 64 characters and can contain only uppercase letters, lowercase letters, digits, hyphens (-), underscores (_), and periods (.).
description	No	String	Specifies the parameter template description. It contains a maximum of 256 characters and does not support the following special characters: !<>='&" Its value is left blank by default.
values	No	Map<String,String>	Specifies the parameter values defined by users based on the default parameter templates. If this parameter is left blank, the parameter value cannot be changed. For details, see **Table 5-64**.

Table 5-64 values field data structure description

Name	Mandatory	Type	Description
key	No	String	Specifies the parameter name. For example, in **"max_connections": "10"**, the key is **max_connections**. If **key** is not empty, the parameter **value** cannot be empty, either.

Name	Mandatory	Type	Description
value	No	String	Specifies the parameter value. For example, in **"max_connections": "10"**, the value is **10**.

- Request example

```
{
   "name": "configuration_test",
   "description": "configuration_test",
   "values": {
      "max_connections": "10",
      "autocommit": "OFF"
   }
}
```

Response

- Normal response

  None
- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.4 Applying a Parameter Template

Function

This API is used to apply a parameter template to one or more DB instances.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.

URI

- URI format

  PUT https://{*Endpoint*}/v3/{*project_id*}/configurations/{config_id}/apply
- Example

https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/configurations/463b4b58-d0e8-4e2b-9560-5dea4552fde9/apply

- Parameter description

Table 5-65 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
config_id	Yes	Specifies the parameter template ID.

Request

- Parameter description

Table 5-66 Parameter description

Name	Mandatory	Type	Description
instance_ids	Yes	Array of strings	Specifies the DB instance ID list object.

- Request example

```
{
    "instance_ids": ["73ea2bf70c73497f89ee0ad4ee008aa2in01",
"fe5f5a07539c431181fc78220713aebein01"]
}
```

Response

- Normal response

Table 5-67 Parameter description

Name	Type	Description
configuration_id	String	Specifies the parameter template ID.
configuration_name	String	Specifies the parameter template name.

Name	Type	Description
apply_results	Array of objects	Specifies the result of applying the parameter template. For details, see **Table 5-68**.
success	Boolean	Indicates whether each parameter template is applied to DB instances successfully. • **true**: Each parameter template is applied to DB instances successfully. • **false**: One or more parameter templates failed to be applied.

Table 5-68 apply_results field data structure description

Name	Type	Description
instance_id	String	Indicates the DB instance ID.
instance_name	String	Indicates the DB instance name.
restart_required	Boolean	Indicates whether a reboot is required. • **true**: A reboot is required. • **false**: A reboot is not required.
success	Boolean	Indicates whether each parameter template is applied to DB instances successfully. • **true**: The application is successful. • **false**: The application failed.

- Example normal response

```
{
  "configuration_id": "cf49bbd7d2384878bc3808733c9e9d8bpr01",
```



```
    "configuration_name": "paramsGroup-bcf9",
    "apply_results": [{
        "instance_id": "fe5f5a07539c431181fc78220713aebein01",
        "instance_name": "zyy1",
        "restart_required": false,
        "success": false
    }, {
        "instance_id": "73ea2bf70c73497f89ee0ad4ee008aa2in01",
        "instance_name": "zyy2",
        "restart_required": false,
        "success": false
    }],
    "success": false
}
```


- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.5 Modifying Parameters of a Specified DB Instance

Function

This API is used to modify parameters in the parameter template of a specified DB instance.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.
- The values of the edited parameters must be within the default value range of the specified database version. For details about the range of parameter values, see "Modifying Parameters in a Parameter Template" in the *Relational Database Service User Guide*.

URI

- URI format

  PUT https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/configurations

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/configurations

- Parameter description

Table 5-69 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

Table 5-70 Parameter description

Name	Mandatory	Type	Description
values	Yes	Map<String,String>	Specifies the parameter values defined by users based on the default parameter templates. For details, see **Table 5-71**.

Table 5-71 values field data structure description

Name	Mandatory	Type	Description
key	Yes	String	Specifies the parameter name. For example, in **"max_connections": "10"**, the key is **max_connections**.
value	Yes	String	Specifies the parameter value. For example, in **"max_connections": "10"**, the value is **10**.

- Request example

```
{
   "values": {
      "xxx": "10",
      "yyy": "OFF"
   }
}
```

Response

- Normal response

  Table 5-72 Parameter description

Name	Type	Description
restart_required	Boolean	Indicates whether a reboot is required. • **true**: A reboot is required. • **false**: A reboot is not required.

- Example normal response

```
{
  "restart_required": false
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.6 Obtaining the Parameter Template of a Specified DB Instance

Function

This API is used to obtain information about the parameter template of a specified DB instance.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/configurations

- Example

https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/configurations

- Parameter description

Table 5-73 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID compliant with the UUID format.

Request

None

Response

- Normal response

Table 5-74 Parameter description

Name	Type	Description
datastore_version_name	String	Indicates the database version name.
datastore_name	String	Indicates the database name.
created	String	Indicates the creation time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.

Name	Type	Description
updated	String	Indicates the update time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
configuration_parameters	Array of objects	Indicates the parameters defined by users based on the default parameter templates. For details, see **Table 5-75**.

Table 5-75 configuration_parameters field data structure description

Name	Type	Description
name	String	Indicates the parameter name.
value	String	Indicates the parameter value.
restart_required	Boolean	Indicates whether a reboot is required. • **false**: A reboot is not required. • **true**: A reboot is required.
readonly	Boolean	Indicates whether the parameter is read-only. • **false**: The parameter is not read-only. • **true**: The parameter is read-only.
value_range	String	Indicates the parameter value range. If the type is Integer, the value is **0** or **1**. If the type is Boolean, the value is **true** or **false**.
type	String	Indicates the parameter type, which can be **integer**, **string**, **boolean**, **list**, or **float**.
description	String	Indicates the parameter description.

- Example normal response

```
{
    "datastore_version_name": "5.7",
    "datastore_name": "mysql",
    "created": "2018-10-11 11:40:44",
    "updated": "2018-10-11 11:40:44",
    "configuration_parameters": [{
```

```
        "name": "auto_increment_increment",
        "value": "1",
        "restart_required": false,
        "readonly": false,
        "value_range": "1-65535",
        "type": "integer",
        "description": auto_increment_increment and auto_increment_offset are used for master-to-master replication and to control the operations of the AUTO_INCREMENT column.
    }]
}
```


- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.7 Obtaining Parameters in a Specified Parameter Template

Function

This API is used to obtain parameters of a specified parameter template.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/configurations/{config_id}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/configurations/463b4b58-d0e8-4e2b-9560-5dea4552fde9

- Parameter description

Table 5-76 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
config_id	Yes	Specifies the parameter template ID. When this parameter is empty (not space), the URL of the parameter template list is obtained. For details, see **Obtaining a Parameter Template List**.

Request

None

Response

- Normal response

Table 5-77 Parameter description

Name	Type	Description
id	String	Indicates the parameter template ID.
name	String	Indicates the parameter template name.
datastore_version_name	String	Indicates the database version name.
datastore_name	String	Indicates the database name.
description	String	Indicates the parameter template description.
created	String	Indicates the creation time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.

Name	Type	Description
updated	String	Indicates the update time in the following format: yyyy-MM-ddTHH:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
configuration_parameters	Array of objects	Indicates the parameters defined by users based on the default parameter templates. For details, see **Table 5-78**.

Table 5-78 configuration_parameters field data structure description

Name	Type	Description
name	String	Indicates the parameter name.
value	String	Indicates the parameter value.
restart_required	Boolean	Indicates whether a restart is required. • **false** indicates that a restart is not required. • **true** indicates that a restart is required.
readonly	Boolean	Indicates whether the parameter is read-only. • **false**: The parameter is not read-only. • **true**: The parameter is read-only.
value_range	String	Indicates the parameter value range. For example, the value of **integer** is 0–1, and the value of **boolean** is **true** or **false**.

Name	Type	Description
type	String	Indicates the parameter type, which can be **integer**, **string**, **boolean**, **list**, or **float**.
description	String	Indicates the parameter description.

- Example normal response

```
{
   "id": "07fc12a8e0e94df7a3fcf53d0b5e1605pr01",
   "name": "default-mysql-5.6",
   "datastore_version_name": "5.6",
   "datastore_name": "mysql",
   "description": "Default parameter group for mysql 5.6",
   "created": "2017-05-05T04:40:51+0800",
   "updated": "2017-05-05T04:40:51+0800",
   "configuration_parameters": [
     {
       "name": "auto_increment_increment",
       "value": "1",
       "restart_required": false,
       "readonly": true,
       "value_range": "1-65535",
       "type": "integer",
       "description": "auto_increment_increment and auto_increment_offset are intended for use with master-to-master replication, and can be used to control the operation of AUTO_INCREMENT columns."
     },
     {
       "name": "autocommit",
       "value": "ON",
       "restart_required": false,
       "readonly": true,
       "value_range": "ON|OFF",
       "type": "boolean",
       "description": "The autocommit mode. If set to ON, all changes to a table take effect immediately. If set to OFF, you must use COMMIT to accept a transaction or ROLLBACK to cancel it. "
     }
   ]
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.4.8 Deleting a Parameter Template

Function

This API is used to delete a specified parameter template.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The following DB engines are supported: MySQL, PostgreSQL, and Microsoft SQL Server.
- Default parameter templates cannot be deleted.

URI

- URI format

  DELETE https://{*Endpoint*}/v3/{project_id}/configurations/{config_id}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/configurations/463b4b58-d0e8-4e2b-9560-5dea4552fde9

- Parameter description

  Table 5-79 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
config_id	Yes	Specifies the parameter template ID.

Request

None

Response

- Normal response

  None

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5 Backup and Restoration

5.5.1 Setting an Automated Backup Policy

Function

This API is used to set an automated backup policy.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  PUT https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/backups/policy

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/backups/policy

- Parameter description

  Table 5-80 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

Table 5-81 Parameter description

Name	Mandatory	Type	Description
backup_policy	Yes	Object	Specifies the backup policy objects, including the backup retention period (days) and backup start time. For details, see **Table 5-82**.

Table 5-82 backup_policy field data structure description

Name	Mandatory	Type	Description
keep_days	Yes	Integer	Specifies the number of days to retain the generated backup files. The value range is from 0 to 732. The value **0** indicates that the automated backup policy is disabled. To extend the retention period, contact customer service. Automated backups can be retained for up to 2562 days. **NOTICE** Once the automated backup policy is disabled, automated backups are no longer created and all incremental backups are deleted immediately. Operations related to the incremental backups, including downloads, replications, restorations, and rebuilds, may fail.

Name	Mandatory	Type	Description
start_time	No	String	Specifies the backup time window. Automated backups will be triggered during the backup time window. This parameter is mandatory except that the automated backup policy is disabled. The value must be a valid value in the "hh:mm-HH:MM" format. The current time is in the UTC format. ● The **HH** value must be 1 greater than the **hh** value. ● The values of **mm** and **MM** must be the same and must be set to any of the following: **00**, **15**, **30**, or **45**. Example value: ● 08:15-09:15 ● 23:00-00:00

Name	Mandatory	Type	Description
period	No	String	Specifies the backup cycle configuration. Data will be automatically backed up on the selected days every week. This parameter is mandatory except that the automated backup policy is disabled. Value range: The value is a number separated by commas (,), indicating the days of the week. For example, the value **1,2,3,4** indicates that the backup period is Monday, Tuesday, Wednesday, and Thursday.

- Request example

  Modifying the automated backup policy:

```
{
   "backup_policy": {
      "keep_days": 7,
      "start_time": "19:00-20:00",
      "period": "1,2"
   }
}
```

  Disabling the automated backup policy:

```
{
   "backup_policy": {
      "keep_days": 0
   }

}
```


Response

- Normal response

  None
- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.2 Obtaining an Automated Backup Policy

Function

This API is used to obtain an automated backup policy.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/backups/policy
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/backups/policy
- Parameter description

  Table 5-83 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

None

Response

- Normal response

  Table 5-84 Parameter description

Name	Type	Description
backup_policy	Object	Indicates the backup policy objects, including the backup retention period (days) and backup start time. For details, see **Table 5-85**.

  Table 5-85 backup_policy field data structure description

Name	Type	Description
keep_days	Integer	Indicates the number of days to retain the backup files.
start_time	String	Indicates the backup time window. Automated backups will be triggered during the backup time window.
period	String	Indicates the backup cycle configuration. Data will be automatically backed up on the selected days every week.

- Example normal response

  When the automated backup policy is disabled:

```
{
    "backup_policy": {
        "keep_days": 0
    }
}
```

  When the automated backup policy is enabled:

```
{
    "backup_policy": {
```



```
        "keep_days": 7,
        "start_time": "19:00-20:00",
        "period": "1,2"
    }
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.3 Creating a Manual Backup

Function

This API is used to create a manual backup.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- Microsoft SQL Server supports batch calling of this API to create manual backups for one database.
- Read replicas do not support manual backup creation.
- The backup name must be unique.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/backups

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/backups

- Parameter description

Table 5-86 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

- Parameter description

  Table 5-87 Parameter description

Name	Mandatory	Type	Description
instance_id	Yes	String	Specifies the DB instance ID.
name	Yes	String	Specifies the backup name. It must be 4 to 64 characters in length and start with a letter. It is case-sensitive and can contain only letters, digits, hyphens (-), and underscores (_). The backup name must be unique.
description	No	String	Specifies the backup description. It contains a maximum of 256 characters and cannot contain the following special characters: >! <"&'=

- Request example

  Creating a manual backup for a MySQL or PostgreSQL DB instance:


```
{
   "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01",
   "name": "backup",
   "description": "manual backup"
}
```

Response

- Normal response

Table 5-88 Parameter description

Name	Type	Description
backup	Object	Indicates the backup information. For details, see **Table 5-89**.

Table 5-89 backup field data structure description

Name	Type	Description
id	String	Indicates the backup ID.
instance_id	String	Indicates the DB instance ID.
name	String	Indicates the backup name.
description	String	Indicates the backup description.
begin_time	String	Indicates the backup start time in the "yyyy-mm-ddThh:mm:ssZ" format, where "T" indicates the start time of the time field, and "Z" indicates the time zone offset.

Name	Type	Description
status	String	Indicates the backup status. Value: • BUILDING: Backup in progress • COMPLETED: Backup completed • FAILED: Backup failed • DELETING: Backup being deleted
type	String	Indicates the backup type. Value: • auto: automated full backup • manual: manual full backup • fragment: differential full backup • incremental: automated incremental backup

- Example normal response

  Creating a manual backup for a MySQL or PostgreSQL DB instance:

```
{
   "backup": {
      "id": "2f4ddb93-b901-4b08-93d8-1d2e472f30fe",
      "name": "backupDemo",
      "description": "This is a description",
      "begin_time": "2016-09-12T01:17:05",
      "status": "BUILDING",
      "type": "manual",
      "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01"
   }
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.4 Obtaining Details About Backups

Function

This API is used to obtain details about backups.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

This API is used to query full backups of MySQL, PostgreSQL, and Microsoft SQL Server databases and incremental backups of MySQL and PostgreSQL databases.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/backups?instance_id={instance_id}&backup_id={backup_id}&backup_type={backup_type}&offset={offset}&limit={limit}&begin_time={begin_time}&end_time={end_time}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/backups?instance_id=43e4feaab48f11e89039fa163ebaa7e4br01&backup_id=c0c9f155c7b7423a9d30f0175998b63bbr01&backup_type=auto&offset=0&limit=10&begin_time=2018-08-06T10:41:14+0800&end_time=2018-08-16T10:41:14+0800

- Parameter description

  Table 5-90 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.
backup_id	No	Specifies the backup ID.
backup_type	No	Specifies the backup type. Value: • **auto**: automated full backup • **manual**: manual full backup • **fragment**: differential full backup • **incremental**: automated incremental backup

Name	Mandatory	Description
offset	No	Specifies the index position. If **offset** is set to *N*, the resource query starts from the N+1 piece of data. The value is **0** by default, indicating that the query starts from the first piece of data. The value must be a positive number.
limit	No	Specifies the number of records to be queried. The default value is **100**. The value cannot be a negative number. The minimum value is **1** and the maximum value is **100**.
begin_time	No	Specifies the start time for obtaining the backup list. The format of the start time is "yyyy-mm-ddThh:mm:ssZ". **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**. **NOTE** When **begin_time** is not empty, **end_time** is mandatory.
end_time	No	Specifies the end time for obtaining the backup list. The format of the end time is "yyyy-mm-ddThh:mm:ssZ" and the end time must be later than the start time. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**. **NOTE** When **end_time** is not empty, **begin_time** is mandatory.

Request

None

Response

- Normal response

Table 5-91 Parameter description

Name	Type	Description
backups	Array of objects	Indicates the backup list. For details, see **Table 5-92**.
total_count	Integer	Indicates the total number of records.

Table 5-92 backups field data structure description

Name	Type	Description
id	String	Indicates the backup ID.
name	String	Indicates the backup name.
type	String	Indicates the backup type. Value: • **auto**: automated full backup • **manual**: manual full backup • **fragment**: differential full backup • **incremental**: automated incremental backup
size	Long	Indicates the backup size in KB.
status	String	Indicates the backup status. Value: • BUILDING: Backup in progress • COMPLETED: Backup completed • FAILED: Backup failed • DELETING: Backup being deleted

Name	Type	Description
begin_time	String	Indicates the backup start time in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
end_time	String	Indicates the backup end time. • In a full backup, it indicates the full backup end time. • In a MySQL incremental backup, it indicates the time when the last transaction in the backup file is submitted. The format is yyyy-mm-ddThh:mm:ssZ. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
datastore	Object	Indicates the database version. For details, see **Table 5-93**.
instance_id	String	Indicates the ID of the DB instance for which the backup is created.
associated_with_ddm	Boolean	Indicates whether a DDM instance has been associated.

Table 5-93 datastore field data structure description

Name	Type	Description
type	String	Indicates the DB engine. Its value can be any of the following and is case-insensitive: • MySQL • PostgreSQL
version	String	Indicates the database version.

- Example normal response

  Obtaining a backup list of a MySQL DB instance:

```
{
   "backups": [{
      "id": "43e4feaab48f11e89039fa163ebaa7e4br01",
      "name": "xxxx.xxx",
      "type": "auto",
      "size": 2803,
      "status": "COMPLETED",
      "begin_time": "2018-08-06T12:41:14+0800",
      "end_time": "2018-08-06T12:43:14+0800",
      "datastore": {
         "type": "MySQL",
         "version": "5.6"
      },
      "instance_id": "a48e43ff268f4c0e879652d65e63d0fbin01",
      "associated_with_ddm": false
   }],
   "total_count": 1
}
```

  Obtaining a backup list of a PostgreSQL DB instance:

```
{
   "backups": [{
      "id": "43e4feaab48f11e89039fa163ebaa7e4br03",
      "name": "xxxx.xxx",
      "type": "incremental",
      "size": 2803,
      "status": "COMPLETED",
      "begin_time": "2018-08-06T12:41:14+0800",
      "end_time": "2018-08-06T12:43:14+0800",
      "datastore": {
         "type": "PostgreSQL",
         "version": "9.6"
      },
      "instance_id": "a48e43ff268f4c0e879652d65e63d0fbin03 ",
      "associated_with_ddm": false
   }],
   "total_count": 1
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.5 Obtaining the Link for Downloading a Backup File

Function

This API is used to obtain the link for downloading a backup file.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

This API is used to query full backups of MySQL, PostgreSQL, and Microsoft SQL Server databases and incremental backups of MySQL and PostgreSQL databases.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/backup-files?backup_id={backup_id}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/97b026aa9cc4417888c14c84a1ad9860/backup-files?backup_id=c0c9f155c7b7423a9d30f0175998b63bbr01

- Parameter description

  Table 5-94 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
backup_id	Yes	Specifies the backup ID.

Request

None

Response

- Normal response

  Table 5-95 Parameter description

Name	Type	Description
files	Array of objects	Indicates the list of backup files. For details, see **Table 5-96**.
bucket	String	Indicates the name of the bucket where the file is located.

Table 5-96 files field data structure description

Name	Type	Description
name	String	Indicates the file name.
size	Long	Indicates the file size in KB.
download_link	String	Indicates the link for downloading the backup file.
link_expired_time	String	Indicates the link expiration time. The format is "yyyy-mm-ddThh:mm:ssZ". **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0000**.

- Example normal response

```
{
  "files": [
   {
      "name": "43e4feaab48f11e89039fa163ebaa7e4br01.xxx",
      "size": 2803,
      "download_link":"https://obs.domainname.com/rdsbucket.username.1/xxxxxx",
      "link_expired_time":"2018-08-016T10:15:14+0000"
   }
   ],
  "bucket": "rdsbucket.bucketname"
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.6 Deleting a Manual Backup

Function

This API is used to delete a manual backup.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  DELETE https://{*Endpoint*}/v3/{project_id}/backups/{backup_id}
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/backups/2f4ddb93-b901-4b08-93d8-1d2e472f30fe
- Parameter description

  Table 5-97 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
backup_id	Yes	Specifies the ID of the manual backup.

Request

None

Response

- Normal response

  None
- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.7 Querying the Restoration Time Range

Function

This API is used to query the restoration time range of a DB instance.

- Before calling an API, you need to understand the API in **Authentication**.

- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/restore-time

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/dsfae23fsfdsae3435in01/restore-time

- Parameter description

  Table 5-98 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.
date	No	Specifies the date to be queried. The value is in the yyyy-mm-dd format, and the time zone is UTC.

Request

None

Response

- Normal response

  Table 5-99 Parameter description

Name	Type	Description
restore_time	Array of objects	Indicates the list of the restoration time range. For details, see **Table 5-100**.

Table 5-100 restore_time field data structure description

Name	Type	Description
start_time	Integer	Indicates the start time of the restoration time range in the UNIX timestamp format. The unit is millisecond and the time zone is UTC.
end_time	Integer	Indicates the end time of the restoration time range in the UNIX timestamp format. The unit is millisecond and the time zone is UTC.

- Example normal response

```
{
   "restore_time": [
      {
         "start_time": 1532001446987,
         "end_time": 1532742139000
      }
   ]
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.8 Restoring Data to a New DB Instance

Function

This API is used to restore data to a new DB instance (v3).

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- The DB engine of the original DB instance must be the same as that of the target DB instance. For example, if the original DB instance is running MySQL, the target DB instance must also run MySQL.
- All DB engine versions of the original and new DB instances must be consistent.

- The total volume size of the new DB instance must be greater than or equal to that of the original DB instance.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances

- Parameter description

Table 5-101 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

- Parameter description

Table 5-102 Parameter description

Name	Mandatory	Type	Description
name	Yes	String	Specifies the DB instance name. The DB instance name of the same type must be unique for the same tenant. The value must be 4 to 64 characters in length and start with a letter. It is case-insensitive and can contain only letters, digits, hyphens (-), and underscores (_).

Name	Mandatory	Type	Description
ha	No	Object	Specifies the HA configuration parameters, which are used when creating primary/standby DB instances. For details, see **Table 5-103**.
configuration_id	No	String	Specifies the parameter template ID.
port	No	String	Specifies the database port information. • The MySQL database port ranges from 1024 to 65535 (excluding 12017 and 33071, which are occupied by the RDS system and cannot be used). • The PostgreSQL database port ranges from 2100 to 9500. If this parameter is not set, the default value is as follows: • For MySQL, the default value is **3306**. • For PostgreSQL, the default value is **5432**.

Name	Mandatory	Type	Description
password	Yes	String	Specifies the database password. Valid value: The value cannot be empty and should contain 8 to 32 characters, including uppercase and lowercase letters, digits, and the following special characters: ~!@#%^*-_=+? You are advised to enter a strong password to improve security, preventing security risks such as brute force cracking.
backup_strategy	No	Object	Specifies the advanced backup policy. For details, see **Table 5-104**.
flavor_ref	Yes	String	Specifies the specification code. The value cannot be empty. For details, see **spec_code** in section **Querying Database Specifications**.
volume	Yes	Object	Specifies the volume information. For details, see **Table 5-105**.

Name	Mandatory	Type	Description
availability_zone	Yes	String	Specifies the AZ ID. If the DB instance is not a single instance, you need to specify an AZ for each node of the instance and separate the AZs with commas (,). For details, see the example. The value cannot be empty. For details about how to obtain this parameter value, see **Regions and Endpoints**.
vpc_id	Yes	String	Specifies the VPC ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and view the VPC ID in the VPC details. • Method 2: See the "Querying VPCs" section in the *Virtual Private Cloud API Reference*.

Name	Mandatory	Type	Description
subnet_id	Yes	String	Specifies the network ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** page. You can view the network ID on the displayed page. • Method 2: See the "Querying Subnets" section in the *Virtual Private Cloud API Reference*.

Name	Mandatory	Type	Description
security_group_id	No	String	Specifies the security group which the RDS DB instance belongs to. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console. Choose **Access Control** > **Security Groups** in the navigation pane on the left. On the displayed page, click the target security group. You can view the security group ID on the displayed page. • Method 2: See the "Querying Security Groups" section in the *Virtual Private Cloud API Reference*.
restore_point	Yes	Object	Specifies the restoration information. For details, see **Table 5-106**.

Table 5-103 ha field data structure description

Name	Mandatory	Type	Description
mode	Yes	String	Specifies the DB instance type. The value is **Ha** (primary/standby DB instances) and is case-insensitive.
replication_mode	Yes	String	Specifies the replication mode for the standby DB instance. The value cannot be empty. • For MySQL, the value is **async** or **semisync**. • For PostgreSQL, the value is **async** or **sync**. **NOTE** • **async** indicates the asynchronous replication mode. • **semisync** indicates the semi-synchronous replication mode. • **sync** indicates the synchronous replication mode.

Table 5-104 backup_strategy field data structure description

Name	Mandatory	Type	Description
start_time	Yes	String	Specifies the backup time window. Automated backups will be triggered during the backup time window. The value cannot be empty. It must be a valid value in the "hh:mm-HH:MM" format. The current time is in the UTC format. ● The **HH** value must be 1 greater than the **hh** value. ● The values of **mm** and **MM** must be the same and must be set to any of the following: **00**, **15**, **30**, or **45**. Example value: ● 08:15-09:15 ● 23:00-00:00

Name	Mandatory	Type	Description
keep_days	No	Integer	Specifies the retention days for specific backup files. The value range is from 0 to 732. If this parameter is not specified or set to **0**, the automated backup policy is disabled. To extend the retention period, contact customer service. Automated backups can be retained for up to 2562 days.

Table 5-105 volume field data structure description

Name	Mandatory	Type	Description
type	Yes	String	Specifies the volume type. Its value can be any of the following and is case-sensitive: • **ULTRAHIGH**: indicates the SSD type.

Name	Mandatory	Type	Description
size	Yes	Integer	Specifies the volume size. Its value range is from 40 GB to 4000 GB. The value must be a multiple of 10. **NOTICE** The volume size of the new DB instance must be greater than or equal to that of the original DB instance.

Table 5-106 restore_point field data structure description

Name	Mandatory	Type	Description
instance_id	Yes	String	Specifies the DB instance ID.
type	Yes	String	Specifies the restoration mode. Enumerated values include: • **backup**: indicates restoration from backup files. In this mode, **backup_id** is mandatory when **type** is not mandatory. • **timestamp**: indicates point-in-time restoration. In this mode, **restore_time** is mandatory when **type** is mandatory.

Name	Mandatory	Type	Description
backup_id	No	String	Specifies the ID of the backup used to restore data. This parameter must be specified when the backup file is used for restoration. **NOTICE** When **type** is not mandatory, **backup_id** is mandatory.
restore_time	No	Integer	Specifies the time point of data restoration in the UNIX timestamp. The unit is millisecond and the time zone is UTC. **NOTICE** When **type** is mandatory, **restore_time** is mandatory.

- Request example

  Use backup files for restoration:

```
{
    "name": "targetInst",
    "availability_zone": "bbb,ccc",
    "ha": {
        "mode": "ha",
        "replication_mode": "async"
    },
    "flavor_ref": "rds.mysql.s1.large",
    "volume": {
        "type": "ULTRAHIGH",
        "size": 40
    },

    "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
    "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",

    "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",
    "backup_strategy": {
        "keep_days": 2,
        "start_time": "19:00-20:00"
    },
    "password": "Demo@12345678",
```



```
    "configuration_id": "52e86e87445847a79bf807ceda213165pr01",

    "time_zone": "UTC+04:00",
    "restore_point": {
        "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01",
        "type": "backup",
        "backup_id": "2f4ddb93-b901-4b08-93d8-1d2e472f30fe"
    }
}
```

Use PITR for restoration:

```
{
    "name": "targetInst",
    "availability_zone": "bbb,ccc",
    "ha": {
        "mode": "ha",
        "replication_mode": "async"
    },
    "flavor_ref": "rds.mysql.s1.large",
    "volume": {
        "type": "ULTRAHIGH",
        "size": 40
    },

    "vpc_id": "490a4a08-ef4b-44c5-94be-3051ef9e4fce",
    "subnet_id": "0e2eda62-1d42-4d64-a9d1-4e9aa9cd994f",
    "security_group_id": "2a1f7fc8-3307-42a7-aa6f-42c8b9b8f8c5",

    "backup_strategy": {
        "keep_days": 2,
        "start_time": "19:00-20:00"
    },
    "password": "Demo@12345678",
    "configuration_id": "52e86e87445847a79bf807ceda213165pr01",


    "restore_point": {
        "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01",
        "type": "timestamp",
        "restore_time": 1532001446987
    }
}
```

Response

- Normal response

Table 5-107 Parameter description

Name	Type	Description
instance	Object	Indicates the DB instance information. For details, see **Table 5-108**.
job_id	String	Indicates the ID of the DB instance creation task.

Table 5-108 instance description

Name	Type	Description
id	String	Indicates the DB instance ID.
name	String	Indicates the DB instance name. The DB instance name of the same type must be unique for the same tenant. The value must be 4 to 64 characters in length and start with a letter. It is case-insensitive and can contain only letters, digits, hyphens (-), and underscores (_).
status	String	Indicates the DB instance status. For example, **BUILD** indicates that the DB instance is being created.
datastore	Object	Indicates the database information. For details, see **Table 5-109**.
ha	Object	Indicates the HA configuration parameters. This parameter is returned only when primary/ standby DB instances are created. For details, see **Table 5-110**.
configuration_id	String	Indicates the parameter template ID. This parameter is returned only when a custom parameter template is used during DB instance creation.

Name	Type	Description
port	String	Indicates the database port information. • The MySQL database port ranges from 1024 to 65535 (excluding 12017 and 33071, which are occupied by the RDS system and cannot be used). • The PostgreSQL database port ranges from 2100 to 9500. If this parameter is not set, the default value is as follows: • For MySQL, the default value is **3306**. • For PostgreSQL, the default value is **5432**.
backup_strategy	Object	Indicates the automated backup policy. For details, see **Table 5-111**.
flavor_ref	String	Indicates the specification ID. For details, see **spec_code** in **Table 5-6** in section **Querying Database Specifications**.
volume	Object	Indicates the volume information. For details, see **Table 5-112**.
region	String	Indicates the region ID.
availability_zone	String	Indicates the AZ ID.

Name	Type	Description
vpc_id	String	Indicates the VPC ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and view the VPC ID in the VPC details. • Method 2: See the "Querying VPCs" section in the *Virtual Private Cloud API Reference*.
subnet_id	String	Indicates the network ID. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** page. You can view the network ID on the displayed page. • Method 2: See the "Querying Subnets" section in the *Virtual Private Cloud API Reference*.

Name	Type	Description
security_group_id	String	Indicates the security group which the RDS DB instance belongs to. To obtain this parameter value, use either of the following methods: • Method 1: Log in to VPC console. Choose **Access Control** > **Security Groups** in the navigation pane on the left. On the displayed page, click the target security group. You can view the security group ID on the displayed page. • Method 2: See the "Querying Security Groups" section in the *Virtual Private Cloud API Reference*.

Table 5-109 datastore field data structure description

Name	Mandatory	Type	Description
type	Yes	String	Indicates the DB engine. Its value can be any of the following and is case-insensitive: • MySQL • PostgreSQL
version	Yes	String	Indicates the database version. For details about supported database versions, see section **Querying Version Information About a DB Engine**.

Table 5-110 ha field data structure description

Name	Mandatory	Type	Description
mode	Yes	String	Indicates the DB instance type. The value is **Ha** (primary/standby DB instances).
replication_mode	Yes	String	Indicates the replication mode for the standby DB instance. The value cannot be empty. • For MySQL, the value is **async** or **semisync**. • For PostgreSQL, the value is **async** or **sync**. **NOTE** • **async** indicates the asynchronous replication mode. • **semisync** indicates the semi-synchronous replication mode. • **sync** indicates the synchronous replication mode.

Table 5-111 backupStrategy field data structure description

Name	Mandatory	Type	Description
start_time	Yes	String	Indicates the backup time window. Automated backups will be triggered during the backup time window. The value cannot be empty. It must be a valid value in the "hh:mm-HH:MM" format. The current time is in the UTC format. ● The **HH** value must be 1 greater than the **hh** value. ● The values of **mm** and **MM** must be the same and must be set to any of the following: **00**, **15**, **30**, or **45**. Example value: ● 08:15-09:15 ● 23:00-00:00

Name	Mandatory	Type	Description
keep_days	No	Integer	Indicates the retention days for specific backup files. The value range is from 0 to 732. If this parameter is not specified or set to **0**, the automated backup policy is disabled. To extend the retention period, contact customer service. Automated backups can be retained for up to 2562 days.

Table 5-112 volume field data structure description

Name	Mandatory	Type	Description
type	Yes	String	Indicates the volume type. Its value can be any of the following and is case-sensitive: • **COMMON**: indicates the SATA type. • **ULTRAHIGH**: indicates the SSD type.
size	Yes	Integer	Indicates the volume size. Its value range is from 40 GB to 4000 GB. The value must be a multiple of 10.

- Example normal response


```
{
   "instance": {
      "id": "f5ffdd8b1c98434385eb001904209eacin01",
      "name": "demoname",
      "status": "BUILD",
      "datastore": {
         "type": "MySQL",
         "version": "5.6.41"
      },
      "port": "3306",
      "volume": {
         "type": "ULTRAHIGH",
         "size": "40"
      },

      "region": "aaa",
      "backup_strategy": {
         "start_time": "02:00-03:00",
         "keep_days": "7"
      },
      "flavor_ref": "rds.mysql.s1.large",

      "availability_zone": "bbb",
      "vpc_id": "19e5d45d-70fd-4a91-87e9-b27e71c9891f",
      "subnet_id": "bd51fb45-2dcb-4296-8783-8623bfe89bb7",
      "security_group_id": "23fd0cd4-15dc-4d65-bdb3-8844cc291be0"
   },
   "job_id": "bf003379-afea-4aa5-aa83-4543542070bc"
}
```


- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.5.9 Restoring Data to an Existing or Original DB Instance

Function

This API is used to restore a database to an existing or the original DB instance.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- Microsoft SQL Server supports batch calling of this API to restore one database to an existing DB instance.
- This API does not support PostgreSQL instance restoration.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances/recovery

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/recovery

- Parameter description

Table 5-113 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

- Parameter description

Table 5-114 Parameter description

Name	Mandatory	Type	Description
source	Yes	Object	Specifies the restoration information. For details, see **Table 5-115**.
target	Yes	Object	Specifies the restoration target. For details, see **Table 5-116**.

Table 5-115 source field data structure description

Name	Mandatory	Type	Description
instance_id	Yes	String	Specifies the DB instance ID.

Name	Mandatory	Type	Description
type	No	String	Specifies the restoration mode. Enumerated values include: • **backup**: indicates using backup files for restoration. In this mode, **type** is not mandatory and **backup_id** is mandatory. • **timestamp**: indicates the point-in-time restoration mode. In this mode, **type** is mandatory and **restore_time** is no mandatory.
backup_id	No	String	Specifies the ID of the backup used to restore data. This parameter must be specified when the backup file is used for restoration.
restore_time	No	Integer	Specifies the time point of data restoration in the UNIX timestamp. The unit is millisecond and the time zone is UTC.

Table 5-116 target field data structure description

Name	Mandatory	Type	Description
instance_id	Yes	String	Specifies the ID of the DB instance which the backup will be restored to.

- Request example

  Use backup files for restoration:

```
{
   "source": {
      "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01",
      "type": "backup",
      "backup_id": "2f4ddb93-b901-4b08-93d8-1d2e472f30fe"
   },
   "target": {
      "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01"
   }
}
```

  Use PITR for restoration:

```
{
   "source": {
      "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01",
      "type": "timestamp",
      "restore_time": 1532001446987
   },
   "target": {
      "instance_id": "d8e6ca5a624745bcb546a227aa3ae1cfin01"
   }
}
```

Response

- Normal response

Table 5-117 Parameter description

Name	Type	Description
job_id	String	Indicates the task ID.

- Example normal response

```
{
   "job_id": "ff80808157127d9301571bf8160c001d"
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.6 Log Information Queries

5.6.1 Querying Database Error Logs

Function

This API is used to query the latest 2000 database error logs.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/errorlog?start_date={start_date}&end_date={end_date}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/cee5265e1e5845649e354841234567dfin01/errorlog?offset=1&limit=10&start_date=2018-08-06T10:41:14+0800&end_date=2018-08-07T10:41:14+0800&level=ALL

- Parameter description

  Table 5-118 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the ID of the queried DB instance.
start_date	Yes	Specifies the start time in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.

Name	Mandatory	Description
end_date	Yes	Specifies the end time in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**. You can only query error logs generated within a month.
offset	No	Specifies the page offset, such as 1, 2, 3, or 4. The parameter value is **1** by default if it is not specified.
limit	No	Specifies the number of records on each page. Its value range is from 1 to 100. The parameter value is **10** by default if it is not specified.
level	No	Specifies the log level. The default value is **ALL**. Valid value: • ALL • INFO • LOG • WARNING • ERROR • FATAL • PANIC • NOTE

Request

None

Response

- Normal response

Table 5-119 Parameter description

Name	Type	Description
error_log_list	Array of objects	Indicates detailed information. For details, see **Table 5-120**.

Name	Type	Description
total_record	Integer	Indicates the total number of records.

Table 5-120 error_log_list field data structure description

Name	Type	Description
time	String	Indicates the time in the UTC format.
level	String	Indicates the log level.
content	String	Indicates the log content.

- Example normal response

```
{
    "error_log_list": [{
        "time": "2018-12-04T14:24:42",
        "level": "ERROR",
        "content": "Slave I/O for channel '': error connecting to master
'rdsRepl@172.16.30.111:3306' - retry-time: 60  retries: 1, Error_code: 203"
    }, {
        "time": "2018-12-04T14:24:42",
        "level": "ERROR",
        "content": "Slave I/O for channel '': error connecting to master
'rdsRepl@172.11.11.111:8081' - retry-time: 60  retries: 1, Error_code: 203"
    }],
    "total_record": 2
}
```

- Abnormal Response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.6.2 Querying Database Slow Logs

Function

This API is used to query the latest 2000 database slow query logs.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

Only the MySQL DB instances are supported.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/slowlog?start_date={start_date}&end_date={end_date}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/cee5265e1e5845649e354841234567dfin01/slowlog?offset=1&limit=10&start_date=2018-08-06T10:41:14+0800&end_date=2018-08-07T10:41:14+0800&type=INSERT

- Parameter description

  Table 5-121 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the ID of the queried DB instance.
start_date	Yes	Specifies the start date in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
end_date	Yes	Specifies the end time in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**. You can only query slow logs generated within a month.
offset	No	Specifies the page offset, such as 1, 2, 3, or 4. The parameter value is **1** by default if it is not specified.
limit	No	Specifies the number of records on each page. Its value range is from 1 to 100. The parameter value is **10** by default if it is not specified.

Name	Mandatory	Description
type	No	Specifies the statement type. If it is left blank, all statement types are queried. Valid value: • INSERT • UPDATE • SELECT • DELETE • CREATE

Request

None

Response

- Normal response

Table 5-122 Parameter description

Name	Type	Description
slow_log_list	Array of objects	Indicates detailed information. For details, see **Table 5-123**.
total_record	Integer	Indicates the total number of records.

Table 5-123 slow_log_list field data structure description

Name	Type	Description
count	String	Indicates the number of executions.
time	String	Indicates the execution time.
lock_time	String	Indicates the lock wait time.
rows_sent	String	Indicates the number of sent rows.
rows_examined	String	Indicates the number of scanned rows.
database	String	Indicates the database which the slow log belongs to.
users	String	Indicates the account.

Name	Type	Description
query_sample	String	Indicates the execution syntax.
type	String	Indicates the statement type.
start_time	String	Indicates the time in the UTC format.
client_ip	String	Indicates the IP address.

- Example normal response

```
{
   "total_record": 1,
   "slow_log_list": [
      {
         "count": "1",
         "time": "1.04899 s",
         "lock_time": "0.00003 s",
         "rows_sent": "0",
         "rows_examined": "0",
         "database": "mysql",
         "users": "root",
         "query_sample": "INSERT INTO time_zone_name (Name, Time_zone_id) VALUES
(N, @time_zone_id);",
         "type": "INSERT",
         "start_time": "2018-08-06T10:41:14",
         "client_ip": "192.*.*.1"
      }
   ]
}
```

- Abnormal Response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.7 Tag Management

5.7.1 Adding Tags in Batches

Function

This API is used to add tags in batches.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/tags/action

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/cee5265e1e5845649e354841234567dfin01/tags/action

- Parameter description

  Table 5-124 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

  Table 5-125 Parameter description

Name	Mandatory	Type	Description
action	Yes	String	Specifies the operation identifier (case sensitive), which is **create** during the creation operation.
tags	Yes	Array of objects	Specifies the tag list. A maximum of 10 tags can be added for each DB instance. For details, see **Table 5-126**.

Table 5-126 tags field data structure description

Name	Mandatory	Type	Description
key	Yes	String	Specifies the tag key, which contains a maximum of 36 Unicode characters. The key cannot be left blank or an empty string. It can be any of Unicode characters (\u4E00-\u9FFF) or the following character set: A-Z, a-z, 0-9, hyphens (-), and underscores (_).
value	Yes	String	Specifies the tag value, which contains a maximum of 43 Unicode characters. The value can be an empty character string. It can be any of Unicode characters (\u4E00-\u9FFF) or the following character set: A-Z, a-z, 0-9, periods (.), hyphens (-), and underscores (_).

- Request example

```
{
   "action": "create",
   "tags": [{
      "key": "key1",
      "value": "value1"
   }, {
      "key": "key2",
      "value": "value2"
   }]
}
```

Response

- Normal response

  None

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.7.2 Deleting Tags in Batches

Function

This API is used to delete tags in batches.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  POST https://{*Endpoint*}/v3/{project_id}/instances/{instance_id}/tags/action
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/instances/cee5265e1e5845649e354841234567dfin01/tags/action
- Parameter description

  Table 5-127 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
instance_id	Yes	Specifies the DB instance ID.

Request

- Parameter description

  Table 5-128 Parameter description

Name	Mandatory	Type	Description
action	Yes	String	Specifies the operation identifier (case sensitive), which is **delete** during the deletion operation.
tags	Yes	Array of objects	Specifies the tag list. For details, see **Table 5-129**.

Table 5-129 tags field data structure description

Name	Mandatory	Type	Description
key	Yes	String	Specifies the tag key, which contains a maximum of 127 Unicode characters. The key cannot be left blank or an empty string.
value	No	String	Specifies the tag value, which contains a maximum of 255 Unicode characters. Deletion remarks: • If **value** is not empty, delete tags by **key**/**value**. • If **value** is empty, delete tags by **key**.

- Request example

```
{
   "action": "delete",
   "tags": [{
      "key": "key1"
   }, {
      "key": "key2",
      "value": "value2"
   }]
}
```

Response

- Normal response

  None

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.7.3 Querying Project Tags

Function

This API is used to query project tags.

- Before calling an API, you need to understand the API in **Authentication**.

- Before calling this API, obtain the required **region and endpoint**.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/tags
- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/tags
- Parameter description

  Table 5-130 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.

Request

None

Response

- Normal response

  Table 5-131 Parameter description

Name	Type	Description
tags	Array of objects	Specifies the tag list. If there is no tag in the list, an empty array is returned. For details, see **Table 5-132**.

  Table 5-132 tags field data structure description

Name	Type	Description
key	String	Specifies the tag key.
values	List<String>	Specifies the lists the tag values.

- Example normal response

```
{
   "tags": [{
```



```
        "key": "key1",
        "values": ["value1"]
    }, {
        "key": "key2",
        "values": ["value2"]
    }]
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

5.8 Obtaining Task Information

5.8.1 Obtaining Information About a Task with a Specified ID

Function

This API is used to obtain information about a task with a specified ID in the task center.

- Before calling an API, you need to understand the API in **Authentication**.
- Before calling this API, obtain the required **region and endpoint**.

Constraints

- This API is used to query only asynchronous tasks of the last one month in the task center.
- Information of the following asynchronous tasks can be obtained: creating single or primary/standby DB instances, creating read replicas, changing single DB instances to primary/standby instances, switching primary/standby DB instances, scaling up storage space, and binding or unbinding EIPs.

URI

- URI format

  GET https://{*Endpoint*}/v3/{project_id}/jobs?id={id}

- Example

  https://rds.cn-north-1.myhuaweicloud.com/v3/0483b6b16e954cb88930a360d2c4e663/jobs?id=a9767ede-fe0f-4888-9003-e843a4c90514

- Parameter description

Table 5-133 Parameter description

Name	Mandatory	Description
project_id	Yes	Specifies the project ID of a tenant in a region. For details about how to obtain the project ID, see **Obtaining a Project ID**.
id	Yes	Specifies the task ID.

Request

None

Response

- Normal response

Table 5-134 Parameter description

Name	Type	Description
job	Object	Indicates the task information. For details, see **Table 5-135**.

Table 5-135 job field data structure description

Name	Type	Description
id	String	Indicates the task ID.
name	String	Indicates the task name.
status	String	Indicates the task execution status. Value: • **Running**: The task is being executed. • **Completed**: The task is successfully executed. • **Failed**: The task fails to be executed.

Name	Type	Description
created	String	Indicates the creation time in the "yyyy-mm-ddThh:mm:ssZ" format. **T** is the separator between the calendar and the hourly notation of time. **Z** indicates the time zone offset. For example, in the Beijing time zone, the time zone offset is shown as **+0800**.
process	String	Indicates the task execution progress. **NOTE** The execution progress (such as 60%) is displayed only when the task is being executed. Otherwise, **""** is returned.
instance	Object	Indicates information of the DB instance on which the task is executed. For details, see **Table 5-136**.
entities	Object	The displayed information varies depending on the tasks. For details, see the following: • **Table 5-137** • **Table 5-140** • **Table 5-142** • **Table 5-143** **NOTE** For asynchronous tasks without the **entities** field description, **{}** is returned.
fail_reason	String	Indicates the error information displayed when a task failed.

Table 5-136 instances field data structure description

Name	Type	Description
id	String	Indicates the DB instance ID.
name	String	Indicates the DB instance name.

Table 5-137 entities field data structure description (creating DB instances, changing single DB instances to primary/standby, or creating read replicas)

Name	Type	Description
instance	Object	Indicates the information about the queried DB instance. For details, see **Table 5-138**.
resource_ids	List<String>	Indicates the queried resource ID.

Table 5-138 entities.instance field data structure description

Name	Type	Description
endpoint	String	Indicates the DB instance connection address.
type	String	The value is **Single**, **Ha**, or **Replica**, indicating the single DB instance, primary/standby DB instances, and read replica, respectively.
datastore	Object	Indicates the database information. For details, see **Table 5-139**.
replica_of	String	Indicates the primary DB instance ID. This parameter is returned only when a read replica is created.

Table 5-139 datastore field data structure description

Name	Type	Description
type	String	Indicates the DB engine.
version	String	Indicates the database version.

Table 5-140 entities field data structure description (resizing a DB instance)

Name	Type	Description
volume	Object	Indicates the information about the resized disk. For details, see **Table 5-141**.

Name	Type	Description
resource_ids	List<String>	Indicates the queried resource ID.

Table 5-141 volume field data structure description

Name	Type	Description
type	String	Indicates the volume type.
original_size	String	Indicates the original disk size of the DB instance.
target_size	String	Indicates the target disk size of the DB instance.

Table 5-142 entities field data structure description (binding/unbinding EIPs or enabling/disabling remote access)

Name	Type	Description
public_ip	String	Indicates the EIP bound to the DB instance.

Table 5-143 entities field data structure description (primary/standby switchover)

Name	Type	Description
switch_strategy	String	Indicates the primary/standby switchover policy.

NOTE

In the response example, some tasks in the task center are used as examples.

- Example normal response

  Creating a DB instance:

```
{
   "job": {
      "id": "31b8ae23-c687-4d80-b7b4-42a66c9bb886",
      "name": "CreateMysqlSingleHAInstance",
      "status": "Completed",
      "created": "2018-08-06T10:41:14+0000",

      "process": "",
      "instance": {
         "id": "a48e43ff268f4c0e879652d65e63d0fbin01",
```



```
            "name": "DO-NOT-TOUCH-mgr2-mysql-single"
        },
        "entities": {
            "instance": {
                "endpoint": "192.168.1.203:3306",
                "type": "Single",
                "datastore": {
                    "type": "mysql",
                    "version": "5.7"
                }
            },
            "resource_id": ["a48e43ff268f4c0e879652d65e63d0fbin01.vm",
"a48e43ff268f4c0e879652d65e63d0fbin01.volume"]
        }
    }
}
```

Creating a read replica:

```
{
    "job": {
        "id": "31b8ae23-c687-4d80-b7b4-42a66c9bb886",
        "name": " CreateMysqlReplicaInstance",
        "status": "Completed",
        "created": "2018-08-06T10:41:14+0000",

        "process": "",
        "instance": {
            "id": "288caaa9d05f4ec1a1f58de2e0945685in01",
            "name": "mysql-replica"
        },
        "entities": {
            "instance": {
                "endpoint": "192.168.1.203:3306",
                "type": "replica",
                "datastore": {
                    "type": "mysql",
                    "version": "5.7"
                },
                "replica_of": "a48e43ff268f4c0e879652d65e63d0fbin01"
            },
            "resource_ids": ["288caaa9d05f4ec1a1f58de2e0945685in01.vm",
"288caaa9d05f4ec1a1f58de2e0945685in01.volume"]
        }
    }
}
```

Binding an EIP:

```
{
    "job": {
        "id": "31b8ae23-c687-4d80-b7b4-42a66c9bb886",
        "name": "MysqlBindEIP",
        "status": "Completed",
        "created": "2018-08-06T10:41:14+0000",

        "process": "",
        "instance": {
            "id": "a48e43ff268f4c0e879652d65e63d0fbin01",
            "name": "DO-NOT-TOUCH-mgr2-mysql-single"
        },
        "entities": {
            "public_ip": "10.154.218.254"
        }
```



```
    }
}
```

Rebooting a DB instance:

```
{
    "job": {
        "id": "31b8ae23-c687-4d80-b7b4-42a66c9bb886",
        "name": " RestartMysqlInstance",
        "status": "Completed",
        "created": "2018-08-06T10:41:14+0000",

        "process": "",
        "instance": {
            "id": "a48e43ff268f4c0e879652d65e63d0fbin01",
            "name": "DO-NOT-TOUCH-mgr2-mysql-single"
        },
        "entities": {}
    }
}
```

Task being executed:

```
{
    "job": {
        "id": "31 b8ae23 - c687 - 4 d80 - b7b4 - 42 a66c9bb886",
        "name": "CreateMysqlSingleHAInstance"," status": "Running",
        "created": "2018-08-06T10:41:14+0000",
        "process": "60 % ",
        "instance": {
            "id": "a48e43ff268f4c0e879652d65e63d0fbin01",
            "name": "DO-NOT-TOUCH-mgr2-mysql-single"
        },
        "entities": {
            "instance": {
                "type": "Single",
                "datastore": {
                    "type": "mysql",
                    "version": "5.7"
                }
            }
        }
    }
}
```

Task fails to be executed:

```
{
    "job": {
        "id": "31 b8ae23 - c687 - 4 d80 - b7b4 - 42 a66c9bb886",
        "name": "CreateMysqlSingleHAInstance",
        "status": "Failed",
        "created": "2018-08-06T10:41:14+0000",

        "process": "",
        "instance": {
            "id": "a48e43ff268f4c0e879652d65e63d0fbin01",
            "name": "DO-NOT-TOUCH-mgr2-mysql-single"
        },
        "entities": {
            "instance": {
                "type": "Single",
                "datastore": {
                    "type": "mysql",
                    "version": "5.7"
                }
```



```
            }
        },
        "fail_reason": "createVM failed."
    }
}
```

- Abnormal response

  For details, see **Abnormal Request Results**.

Status Code

For details, see **Status Codes**.

Error Code

For details, see **Error Codes**.

6 Appendix

6.1 Abnormal Request Results

v3 APIs

Abnormal response description

Table 6-1 Abnormal response description

Name	Type	Description
error_code	String	Specifies the error returned when a task submission exception occurs.
error_msg	String	Specifies the description of the error returned when a task submission exception occurs.

Response example

```
{
   "error_code": "DBS.200022",
   "error_msg": "The DB instance name already exists."
}
```

6.2 Status Codes

Table 6-2 describes status codes.

Table 6-2 Status codes

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

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

Status Code	Message	Description
409	Conflict	The request could not be processed due to a conflict. This status code indicates that the resource that the client attempts to create already 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 requested resource has been deleted permanently.
411	Length Required	The server refuses to process the request without a defined Content-Length.
412	Precondition Failed	The server does not meet one of the preconditions that the requester puts on the request.
413	Request Entity Too Large	The request is larger than that a server is able to process. The server may close the connection to prevent the client from continuing the request. If the server temporarily cannot process the request, the response will contain a Retry-After header field.
414	Request-URI Too Large	The URI provided was too long for the server to process.
415	Unsupported Media Type	The server is unable to process the media format in the request.
416	Requested range not satisfied	The requested range is invalid.
417	Expectation Failed	The server fails to meet the requirements of the Expect request-header field.
422	UnprocessableEntity	The request is well-formed but is unable to be processed due to semantic errors.
429	TooManyRequests	The client has sent more requests than its rate limit is allowed within a given amount of time, or the server has received more requests than it is able to process within a given amount of time. In this case, it is advisable for the client to re-initiate requests after the time specified in the Retry-After header of the response expires.
500	InternalServerError	The server is able to receive the request but it could not understand the request.

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

6.3 Error Codes

The following table describes error codes.

Table 6-3 V3 error codes

Error Code	Response Code	Description
DBS.108000	500	Server failure.
DBS.108002	500	Server failure.
DBS.108005	500	Server failure.
DBS.200001	400	Parameter error.
DBS.200002	404	The DB instance does not exist.
DBS.200004	400	Parameter error.
DBS.200005	500	Server failure.
DBS.200006	400	The request is null. Enter a request parameter.
DBS.200008	404	The ECS information of the DB instance cannot be found.
DBS.200010	403	The DB instance ID or user ID may be null, or the operation is not authorized.
DBS.200011	409	Another operation is being performed on the DB instance or the DB instance is faulty.

Error Code	Response Code	Description
DBS.200013	404	The original DB instance does not exist.
DBS.200019	409	Another operation is being performed on the DB instance or the DB instance is faulty.
DBS.200021	400	Invalid DB instance name.
DBS.200022	409	The DB instance name already exists.
DBS.200023	400	Storage space is out of range.
DBS.200024	400	Invalid region.
DBS.200025	400	Invalid AZ.
DBS.200026	400	Invalid storage type.
DBS.200027	400	Storage space must be a multiple of 10.
DBS.200040	400	The DB engine or version is not supported.
DBS.200041	400	Invalid database version.
DBS.200042	400	The DB engine does not exist.
DBS.200043	400	Invalid synchronize model.
DBS.200044	403	Resource not found or permission denied.
DBS.200045	404	The DB instance does not exist.
DBS.200046	413	The number of DB instances has reached the quota.
DBS.200047	409	Another operation is being performed on the DB instance or the DB instance is faulty.
DBS.200048	400	Invalid VPC ID.
DBS.200049	400	Invalid network ID.
DBS.200050	404	The security group does not exist or does not belong to the VPC.
DBS.200051	400	Invalid HA mode.
DBS.200052	400	Invalid database root password.
DBS.200053	400	The selected specifications do not exist.
DBS.200054	400	Invalid specifications.
DBS.200055	400	Invalid replica_of_id.
DBS.200056	400	The maximum number of nodes has been reached.

Error Code	Response Code	Description
DBS.200086	400	This operation is not allowed by the DB instance status.
DBS.200087	400	The number of tags added for the DB instance has reached the quota.
DBS.200098	400	The tag already exists.
DBS.200203	400	Failed to query the DB instance.
DBS.200302	400	Storage space must be a multiple of 10.
DBS.200303	400	The scale-up times have reached the maximum value.
DBS.200306	400	The new storage space must be greater than or equal to the original storage space.
DBS.200308	400	The new storage space after scaling up cannot be greater than that of the primary DB instance.
DBS.200316	409	This operation cannot be performed because the DB instance status is Storage full.
DBS.200402	409	Invalid operation.
DBS.200405	400	Parameter error.
DBS.200408	404	The DB instance does not exist.
DBS.200461	400	The parameter value is out of range.
DBS.200470	404	The region or AZ does not exist.
DBS.200501	404	The subnet does not exist or does not belong to the VPC.
DBS.200503	404	The VPC does not exist or does not belong to the user.
DBS.200504	400	Invalid database version.
DBS.200506	400	Invalid KMS.
DBS.200543	400	The job does not exist.
DBS.200602	404	The DB instance does not exist.
DBS.200604	403	The DB instance ID or user ID may be null, or the operation is not authorized.
DBS.200811	500	Failed to create the database.
DBS.201003	403	Resource not found or permission denied.

Error Code	Response Code	Description
DBS.201010	404	The backup information does not exist.
DBS.201014	400	This operation is not allowed by the DB instance status.
DBS.201028	404	The DB instance does not exist.
DBS.201035	400	The database name must be different from the original and target database names.
DBS.201101	400	Invalid backup cycle.
DBS.201103	400	Invalid backup start time.
DBS.201106	400	Invalid retention days.
DBS.201201	409	The object already exists.
DBS.201202	409	Another operation is being performed on the DB instance or the DB instance is faulty.
DBS.201203	400	The backup file does not exist.
DBS.201205	409	Backup is in progress, please wait.
DBS.201207	400	The DB engine or version is not supported.
DBS.201208	400	The operation is not allowed by the backup status.
DBS.212001	404	The parameter template does not exist.
DBS.212002	400	Incorrect parameter template quota.
DBS.212003	400	Operation not allowed.
DBS.212004	400	Parameter template update error.
DBS.212005	400	The node does not belong to the group.
DBS.212006	409	Another operation is being performed on the DB instance or the DB instance is faulty.
DBS.212007	400	The DB engine does not exist.
DBS.212008	400	The DB engine is not supported.
DBS.212009	400	Task processing failed.
DBS.212010	400	The parameter template is being applied.
DBS.212011	400	Application failed.
DBS.212012	400	The parameter does not exist.
DBS.212013	404	The object does not exist.

Error Code	Response Code	Description
DBS.212014	400	The node does not have a default parameter template.
DBS.212015	400	Partial success
DBS.212016	400	Parameter update failed.
DBS.212017	400	Invalid parameter.
DBS.212019	422	The parameter cannot be processed.
DBS.212025	400	Update failed.
DBS.212030	400	Parameter error
DBS.212032	400	The parameter template has been applied.
DBS.212037	400	Parameters are incorrectly set.
DBS.213004	500	Failed to process the request.
DBS.216028	400	Insufficient internal resource quota.
DBS.280001	400	Parameter error.
DBS.280015	403	Resource not found or permission denied.
DBS.280056	403	Invalid token.
DBS.280127	400	Invalid backup description.
DBS.280128	400	The database name does not exist.
DBS.280204	400	Invalid parameter.
DBS.280214	400	The backup does not exist.
DBS.280216	400	Invalid backup start time.
DBS.280235	400	Invalid database type.
DBS.280238	400	The DB engine or version is not supported.
DBS.280239	400	Invalid specifications.
DBS.280241	400	Invalid storage type.
DBS.280246	400	Invalid database root password.
DBS.280250	400	Invalid backup retention days.
DBS.280251	400	Invalid backup cycle.
DBS.280253	400	Invalid backup start time.
DBS.280270	400	The parameter does not exist.
DBS.280271	400	The parameter value is out of range.

Error Code	Response Code	Description
DBS.280272	400	The tag key must be unique.
DBS.280277	400	Invalid object name.
DBS.280285	400	Invalid AZ.
DBS.280404	400	Invalid DB instance ID or node ID format.
DBS.280449	400	Operation not allowed on frozen objects.
DBS.280450	400	The DB instance specifications are sold out.
DBS.290000	400	Parameter error.
DBS.290001	400	Invalid parameter letter case.
DBS.290002	404	The selected specifications do not exist.
DBS.290003	413	The number of DB instances has reached the quota.
DBS.290005	404	The DB instance does not exist.
DBS.290006	500	Failed to process the request.
DBS.290011	404	The DB instance does not exist.
DBS.290013	404	Resource not found.
DBS.290015	500	Failed to process the request.

6.4 Obtaining a Project ID

Scenarios

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

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

Obtaining the Project ID by Calling an API

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

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

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



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

Obtain a Project ID from the Console

Step 1 Register yourself on the management console and log in to it.

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

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

----End

Step 1 Obtain the token.

Step 2 Obtain the project ID.

The API for obtaining the project ID is **GET https://iam.eu-west-0.myhuaweicloud.com/v3/*projects***.

Add **X-Auth-Token** to the request header, and set the value of **X-Auth-Token** to the token obtained in the preceding step.

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

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

----End

6.5 Replication Mode Table

Replication mode table

Replication Mode	Description	Remarks
async	Asynchronous	N/A
semisync	Semi-synchronous	N/A
sync	Synchronous	N/A

6.6 RDS Monitoring Metrics Description

Function Description

This section describes namespaces, descriptions, and dimensions of monitoring metrics reported to Cloud Eye. You can query monitoring metrics and alarm information reported to Cloud Eye over its API.

Namespace

SYS.RDS

Monitoring Metrics

Table 6-4 RDS performance metrics

Metric	Name	Description	Value Range	Remarks
rds001_cpu_util	CPU Usage	CPU usage of the monitored object	0%–100%	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds002_mem_util	Memory Usage	Memory usage of the monitored object	0%–100%	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL

Metric	Name	Description	Value Range	Remarks
rds003_iops	IOPS	Average number of I/O requests processed by the system in a specified period	≥ 0 counts/s	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds004_bytes_in	Network Input Throughput	Incoming traffic in bytes per second	≥ 0 bytes/s	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds005_bytes_out	Network Output Throughput	Outgoing traffic in bytes per second	≥ 0 bytes/s	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds006_conn_count	Total Connections	Total number of connections that attempt to connect to the MySQL server	≥ 0 counts	Monitored object: database Monitored instance type: MySQL instances
rds007_conn_active_count	Current Active Connections	Number of current active connections	≥ 0 counts	Monitored object: database Monitored instance type: MySQL instances
rds008_qps	QPS	Query times of SQL statements (including storage procedures) per second	≥ 0 times/s	Monitored object: database Monitored instance type: MySQL instances

Metric	Name	Description	Value Range	Remarks
rds009_tps	TPS	Execution times of submitted and rollback transactions per second	≥ 0 times/s	Monitored object: database Monitored instance type: MySQL instances
rds010_innodb_buf_usage	Buffer Pool Usage	Ratio of dirty data to all data in the InnoDB buffer	0-1	Monitored object: database Monitored instance type: MySQL instances
rds011_innodb_buf_hit	Buffer Pool Hit Rate	Ratio of read hits to read requests in the InnoDB buffer	0-1	Monitored object: database Monitored instance type: MySQL instances
rds012_innodb_buf_dirty	Buffer Pool Dirty Block Rate	Ratio of used pages to total pages in the InnoDB buffer	0-1	Monitored object: database Monitored instance type: MySQL instances
rds013_innodb_reads	InnoDB Read Throughput	Number of read bytes per second in the InnoDB buffer	≥ 0 bytes/s	Monitored object: database Monitored instance type: MySQL instances
rds014_innodb_writes	InnoDB Write Throughput	Number of write bytes per second in the InnoDB buffer	≥ 0 bytes/s	Monitored object: database Monitored instance type: MySQL instances
rds015_innodb_read_count	InnoDB File Read Frequency	Number of times that InnoDB reads data from files per second	≥ 0 times/s	Monitored object: database Monitored instance type: MySQL instances

Metric	Name	Description	Value Range	Remarks
rds016_innodb_write_count	InnoDB File Write Frequency	Number of times that InnoDB writes data to files per second	≥ 0 times/s	Monitored object: database Monitored instance type: MySQL instances
rds017_innodb_log_write_req_count	InnoDB Log Write Requests per Second	Number of InnoDB log write requests per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds018_innodb_log_write_count	InnoDB Log Physical Write Frequency	Number of InnoDB physical write times to log files per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds019_innodb_log_fsync_count	InnoDB Log fsync() Write Frequency	Number of completed fsync() write times to InnoDB log files per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds020_temp_tbl_count	Temporary Tables	Number of temporary tables automatically created on hard disks when MySQL statements are executed	≥ 0 counts	Monitored object: database Monitored instance type: MySQL instances
rds021_myisam_buf_usage	Key Buffer Usage	MyISAM key buffer usage	0-1	Monitored object: database Monitored instance type: MySQL instances

Metric	Name	Description	Value Range	Remarks
rds022_myisam_buf_write_hit	Key Buffer Write Hit Ratio	MyISAM key buffer write hit ratio	0-1	Monitored object: database Monitored instance type: MySQL instances
rds023_myisam_buf_read_hit	Key Buffer Read Hit Ratio	MyISAM key buffer read hit ratio	0-1	Monitored object: database Monitored instance type: MySQL instances
rds024_myisam_disk_write_count	MyISAM Disk Write Frequency	Number of times that indexes are written to disks per second	≥ 0 times/s	Monitored object: database Monitored instance type: MySQL instances
rds025_myisam_disk_read_count	MyISAM Disk Read Frequency	Number of times that indexes are read from disks per second	≥ 0 times/s	Monitored object: database Monitored instance type: MySQL instances
rds026_myisam_buf_write_count	MyISAM Buffer Pool Write Requests per Second	Number of requests for writing indexes into the MyISAM buffer pool per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds027_myisam_buf_read_count	MyISAM Buffer Pool Read Requests per Second	Number of requests for reading indexes from the MyISAM buffer pool per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds028_comdml_del_count	DELETE Statements per Second	Number of DELETE statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances

Metric	Name	Description	Value Range	Remarks
rds029_comdml_ins_count	INSERT Statements per Second	Number of INSERT statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds030_comdml_ins_sel_count	INSERT_SELECT Statements per Second	Number of INSERT_SELECT statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds031_comdml_rep_count	REPLACE Statements per Second	Number of REPLACE statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds032_comdml_rep_sel_count	REPLACE_SELECTION Statements per Second	Number of REPLACE_SELECTION statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds033_comdml_sel_count	SELECT Statements per Second	Number of SELECT statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds034_comdml_upd_count	UPDATE Statements per Second	Number of UPDATE statements executed per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds035_innodb_del_row_count	Row Delete Frequency	Number of rows deleted from the InnoDB table per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances

Metric	Name	Description	Value Range	Remarks
rds036_innodb_ins_row_count	Row Insert Frequency	Number of rows inserted into the InnoDB table per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds037_innodb_read_row_count	Row Read Frequency	Number of rows read from the InnoDB table per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds038_innodb_upd_row_count	Row Update Frequency	Number of rows updated into the InnoDB table per second	≥ 0 counts/s	Monitored object: database Monitored instance type: MySQL instances
rds039_disk_util	Storage Space Usage	Storage space usage of the monitored object	0%–100%	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds040_transaction_logs_usage	Transaction Logs Usage	Storage space usage of transaction logs	≥ 0 MB	Monitored object: database Monitored instance type: PostgreSQL instances
rds041_replication_slot_usage	Replication Slot Usage	Storage space usage of replication slot files	≥ 0 MB	Monitored object: database Monitored instance type: PostgreSQL instances
rds042_database_connections	Database Connections in Use	Number of database connections in use	≥ 0 counts	Monitored object: database Monitored instance type: PostgreSQL instances

Metric	Name	Description	Value Range	Remarks
rds043_maximum_used_transaction_ids	Maximum Used Transaction IDs	Maximum number of transaction IDs that have been used	≥ 0 counts	Monitored object: database Monitored instance type: PostgreSQL instances
rds044_transaction_logs_generations	Transaction Logs Generation	Size of transaction logs generated per second	≥ 0 MB/s	Monitored object: database Monitored instance type: PostgreSQL instances
rds045_oldest_replication_slot_lag	Oldest Replication Slot Lag	Lagging size of the most lagging replica in terms of WAL data received	≥ 0 MB	Monitored object: database Monitored instance type: PostgreSQL instances
rds046_replication_lag	Replication Lag	Replication lag delay	≥ 0 ms	Monitored object: database Monitored instance type: PostgreSQL instances
rds047_disk_total_size	Total Storage Space	Total storage space of the monitored object	40–4000 GB	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds048_disk_used_size	Used Storage Space	Used storage space of the monitored object	0–4000 GB	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds049_disk_read_throughput	Disk Read Throughput	Number of bytes read from the disk per second	≥ 0 bytes/s	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL

Metric	Name	Description	Value Range	Remarks
rds050_disk_write_throughput	Disk Write Throughput	Number of bytes written into the disk per second	≥ 0 bytes/s	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds051_avg_disk_sec_per_read	Disk Read Time	Average time required for each disk read in a specified period	≥ 0 ms	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds052_avg_disk_sec_per_write	Disk Write Time	Average time required for each disk write in a specified period	> 0 ms	Monitored object: ECS. Monitored DB instance type: • MySQL • PostgreSQL
rds053_avg_disk_queue_length	Average Disk Queue Length	Number of processes to be written into the monitored object	≥ 0	Monitored object: ECS. Monitored DB instance type: • MySQL
rds077_buff_write_rate	Buffer Pool Write Frequency	Write frequency of the database buffer pool	≥ 0 counts/s	Monitored object: database Monitored instance type:
rds078_buff_read_rate	Buffer Pool Read Frequency	Read frequency of the database buffer pool	≥ 0 counts/s	Monitored object: database Monitored instance type:
rds079_disk_write_rate	Disk Write Frequency	Write frequency of the database disk	≥ 0 counts/s	Monitored object: database Monitored instance type:
rds080_disk_read_rate	Disk Read Frequency	Read frequency of the database disk	≥ 0 counts/s	Monitored object: database Monitored instance type:

Dimension

Key	Value
rds_instance_id	Specifies the MySQL DB instance ID.
postgresql_instance_id	Specifies the PostgreSQL DB instance ID.

API Calling

Use APIs to search for RDS monitoring metrics. For details about calling methods and parameter description, see section "Querying Monitoring Data" in the *Cloud Eye API Reference*.

Examples:

- Request

```
/V1.0/{project_id}/metric-data?
namespace=SYS.RDS&metric_name=rds001_cpu_usage&dim.0=rds_instance_id,5ea170ad-cc6b-49cd-9020-e94fdbeea391&from=1484123686000&to=1568188853000&period=300&filter=average
```

- Response:

```
{
   "datapoints": [
      {
         "average": 0.35,
         "timestamp": 1484123400000,
         "unit": "Ratio"
      },
      {
         "average": 0.11,
         "timestamp": 1484123700000,
         "unit": "Ratio"
      }
   ],
   "metric_name": "rds001_cpu_usage",
   "httpcode" : 200,
   "header" : {
   "Transfer-Encoding" : "chunked",
   "Server" : "Web Server",
   "X-Request-Id" : "te-I-CES-APISVR25.id-0418d62a-1e76-46ff-9a5f-9ce40b336e29.ts-1484123744291.c-15046",
   "X-Content-Type-Options" : "nosniff",
   "Connection" : "keep-alive",
   "X-Download-Options" : "noopen",
   "Date" : "Wed, 11 Jan 2017 08:35:44 GMT",
   "X-Frame-Options" : "DENY",
   "Strict-Transport-Security" : "max-age=31536000; includeSubdomains;",
   "Cache-Control" : "no-cache",
   "X-XSS-Protection" : "1; mode=block;",
   "Content-Length" : "165",
   "Content-Type" : "application/json"
}
}
```

