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ApsaraDB for RDS

SDK Reference

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Document conventions

Style	Description	Example
⚠ Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	⚠ **Danger:** Resetting will result in the loss of user configuration data.
🔔 Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	🔔 **Warning:** Restarting will cause business interruption. About 10 minutes are required to restart an instance.
🔊 Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	🔊 **Notice:** If the weight is set to 0, the server no longer receives new requests.
? Note	A note indicates supplemental instructions, best practices, tips, and other content.	? **Note:** You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click **Settings> Network> Set network type**.
Bold	Bold formatting is used for buttons , menus, page names, and other UI elements.	Click **OK**.
Courier font	Courier font is used for commands	Run the `cd /d C:/window` command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	`bae log list --instanceid` *Instance_ID*
[] or [a|b]	This format is used for an optional value, where only one item can be selected.	`ipconfig [-all|-t]`
{} or {a|b}	This format is used for a required value, where only one item can be selected.	`switch {active|stand}`

Table of Contents

1.SDK reference

ApsaraDB for RDS supports various software development kits (SDKs) such as Java, Python, and Go.

ApsaraDB for RDS supports the following SDKs:

- Java SDK

- Python SDK

- PHP SDK

- .NET SDK

SDK download

2.Install and use RDS SDK for Java

This topic describes how to install and use RDS SDK for Java. RDS SDK for Java allows you to access your ApsaraDB for RDS instance without the need of complex programming.

Debugging

Alibaba Cloud provides OpenAPI Explorer to simplify API usage. You can use OpenAPI Explorer to search for API operations, call API operations, and dynamically generate SDK sample code.

Prerequisites

- An AccessKey pair is created. For more information, see Create an AccessKey.

  > ⑦ **Note** We recommend that you create a RAM user and grant the RAM user the permissions to access ApsaraDB for RDS instances. Then, you can use the AccessKey pair of the RAM user to call RDS SDK for Java. This allows you to protect the AccessKey pair of your Alibaba Cloud account. For more information, see Implement access control by using RAM.

- Java is installed. RDS SDK for Java requires JDK 1.6 or later.

Install RDS SDK for Java

1. Visit the Java SDK page at GitHub.

2. Download the RDS SDK for Java package and install the SDK by following the instructions provided in the README file.

Procedure

1. Configure the following parameters:

```
IClientProfile profile
        = DefaultProfile.getProfile(
    "regionId",    //The ID of the region where your RDS instance resides.
    "accessKeyId",    //The AccessKey ID of your RAM user.
    "accessKeySecret"    //The AccessKey secret of your RAM user.
);
```

2. Configure the endpoint that is used to connect to your RDS instance.

```
DefaultProfile.addEndpoint(
    "endpointName",    //The name of the endpoint.
    "regionId",    //The ID of the region where your RDS instance resides.
    "product(Rds)",    //The product code for ApsaraDB for RDS. Enter Rds.
    "domain(endpoint)"    //The endpoint.
);
```

  > ⑦ **Note** For more information, see Request structure.

3. Configure the parameters that are used to initialize the request.

   For example, configure the following parameters to initialize the request that is used to call the DescribeDBInstanceAttribute operation:

```
DescribeDBInstanceAttributeRequest request = new  DescribeDBInstanceAttributeRequest();
        request.setDBInstanceId("rm-bp1xxxxxxx");
```

4. Initialize the AcsClient.

```
IAcsClient client = new DefaultAcsClient(profile);
```

5. View the response.

```
DescribeDBInstanceAttributeResponse response =client.getAcsResponse(request);
```

Examples

Sample request:

```
IClientProfile profile
            = DefaultProfile.getProfile("cn-hangzhou","Akxxxxx",
            "Skxxxxx");
    DefaultProfile.addEndpoint("ap-southeast-5",
            "ap-southeast-5", "Rds", "rds.ap-southeast-5.aliyuncs.com");
    DescribeDBInstanceAttributeRequest request = new DescribeDBInstanceAttributeRequest
();
    request.setDBInstanceId("rm-bp1oxxxxxxx");
    IAcsClient client = new DefaultAcsClient(profile);
    try {
        DescribeDBInstanceAttributeResponse response = client.getAcsResponse(request);
            System.out.println(JSON.toJSONString(response));
    }catch (ServerException e) {
        e.printStackTrace();
    } catch (ClientException e) {
        e.printStackTrace();
    }
```

Sample response:

```
{"items":
    [{"accountMaxQuantity":1,
      "accountType":"Normal",
      "availabilityValue":"100.0%",
      "category":"Basic",
      "connectionMode":"Standard",
      "connectionString":"rm-bp1oxxxxxxx.mysql.rds.aliyuncs.com",
      "creationTime":"2018-05-15T02:48:10Z",
      "dBInstanceCPU":"2",
      "dBInstanceClass":"mysql.n2.medium.1",
      "dBInstanceClassType":"x",
      "dBInstanceId":"rm-bp1oxxxxxxx",
      "dBInstanceMemory":4096,
      "dBInstanceNetType":"Intranet",
      "dBInstanceStatus":"Running",
      "dBInstanceStorage":20,
      "dBInstanceType":"Primary",
      "dBMaxQuantity":0,
      "engine":"MySQL",
      "engineVersion":"5.7",
      "expireTime":"",
      "insId":1,
      "instanceNetworkType":"VPC",
      "lockMode":"Unlock",
      "maintainTime":"18:00Z-22:00Z",
      "maxConnections":4000,
      "maxIOPS":600,
      "payType":"Postpaid",
      "port":"3306",
      "readOnlyDBInstanceIds":[],
      "regionId":"cn-hangzhou",
      "resourceGroupId":"rg-acfxxxxxxx",
      "securityIPList":"",
      "supportUpgradeAccountType":"Yes",
      "vSwitchId":"vsw-bp1xxxxxxx",
      "vpcId":"vpc-bp1xxxxxxx",
      "zoneId":"cn-hangzhou-f"}],
    "requestId":"2E656746-432A-4EA9-82BC-B89F1A26AE8B"}
```

3.Install and use ApsaraDB RDS SDK for Python

This topic describes how to install and use ApsaraDB RDS SDK for Python.

Debugging

Alibaba Cloud provides OpenAPI Explorer to simplify API usage. You can use OpenAPI Explorer to search for API operations, call API operations, and dynamically generate SDK sample code.

Prerequisites

- An AccessKey pair is created. For more information, see Create an AccessKey.

  > **Note** We recommend that you create a RAM user and grant the RAM user the permissions to access ApsaraDB RDS instances. Then, you can use the AccessKey pair of the RAM user to call ApsaraDB RDS SDK for Python. This allows you to protect the AccessKey pair of your Alibaba Cloud account. For more information, see Implement access control by using RAM.

- Python is installed.

Precautions

Make sure that the logged-on account has the required permissions. For more information, see Use RAM for resource authorization.

Install ApsaraDB RDS SDK for Python

1. Visit the Python SDK page at the official GitHub.

2. Download the ApsaraDB RDS SDK for Python software package. Then, install ApsaraDB RDS SDK for Python by following the instructions that are provided in the README file.

Use ApsaraDB RDS SDK for Python

1. Import the ApsaraDB RDS SDK for Python software package.

   ```
   from aliyunsdkcore.client import AcsClient
   from aliyunsdkcore.acs_exception.exceptions import ClientException
   from aliyunsdkcore.acs_exception.exceptions import ServerException
   from aliyunsdkrds.request.v20140815.DescribeSQLLogRecordsRequest import DescribeSQLLogR
   ecordsRequest
   ```

2. Create an AcsClient.

   ```
   client = AcsClient(
   "<access-key-id>",
   "<access-key-secret>",
   "<region-id>")
   ```

   > **Note** You can call the DescribeRegions operation to query the most recent region list.

3. Configure the endpoint that is used to connect to your RDS instance.

```
client.addEndpoint(
"<region-id>",
"<product>",
"<endpoint>");
```

> **Note** For more information about endpoints, see the "ApsaraDB RDS API endpoints" table.

ApsaraDB RDS API endpoints

Endpoint	Region	Public IP address	ApsaraDB RDS console
rds.aliyuncs.com	China (Qingdao): cn-qingdao China (Beijing): cn-beijing China (Hangzhou): cn-hangzhou China (Shanghai): cn-shanghai China (Shenzhen): cn-shenzhen China (Hong Kong): cn-hongkong Singapore (Singapore): ap-southeast-1 US (Virginia): us-east-1 US (Silicon Valley): us-west-1	106.11.55.113	cn-qingdao cn-beijing cn-hangzhou cn-shanghai cn-shenzhen cn-hongkong ap-southeast-1 us-east-1 us-west-1
rds.cn-zhangjiakou.aliyuncs.com	China (Zhangjiakou): cn-zhangjiakou	47.92.21.4	cn-zhangjiakou
rds.ap-northeast-1.aliyuncs.com	Japan (Tokyo): ap-northeast-1	47.91.8.8	ap-northeast-1
rds.ap-southeast-3.aliyuncs.com	Malaysia (Kuala Lumpur): ap-southeast-3	47.254.226.21	ap-southeast-3
rds.ap-southeast-2.aliyuncs.com	Australia (Sydney): ap-southeast-2	47.254.226.21	ap-southeast-3
rds.me-east-1.aliyuncs.com	UAE (Dubai): me-east-1	47.91.39.7	me-east-1

Endpoint	Region	Public IP address	ApsaraDB RDS console
rds.cn-huhehaote.aliyuncs.com	China (Hohhot): cn-huhehaote	39.104.36.3	cn-huhehaote
rds.ap-south-1.aliyuncs.com	India (Mumbai): ap-south-1	149.129.159.7	ap-south-1-1
rds.ap-southeast-5.aliyuncs.com	Indonesia (Jakarta): ap-southeast-5	149.129.204.7	ap-southeast-5

4. Create a request to query details about your RDS instance. Then, configure the request parameters.

```
request = DescribeDBInstanceAttributeRequest();
request.set_DBInstanceId("The name of your RDS instance");
```

5. Initialize the AcsClient.

```
response = client.do_action_with_exception(request)
```

6. View the response.

```
print response
```

Examples

1. Create a primary RDS instance.

   Sample request:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkrds.request.v20140815.DescribeDBInstancePerformanceRequest import Describ
eDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.CreateDBInstanceRequest import CreateDBInstanceRequ
est
client = AcsClient(
        "<access-key-id>",
        "<access-key-secret>",
        "cn-hangzhou"
        );
request = CreateDBInstanceRequest();
request.set_Engine("PostgreSQL");
request.set_EngineVersion("10.0");
request.set_DBInstanceClass("pg.n1.micro.1");
request.set_DBInstanceStorage("20");
request.set_DBInstanceNetType("Intranet");
request.set_DBInstanceDescription("aaa");
request.set_SecurityIPList("127.0.0.1");
request.set_PayType("Postpaid");
request.set_ZoneId("cn-hangzhou-b");
request.set_InstanceNetworkType("Classic");
request.set_Period("Month");
request.set_UsedTime("2");
try:
        response = client.do_action_with_exception(request)
        print response
except ServerException as e:
        print e
except ClientException as e:
        print e
```

Sample response:

```
{
  "OrderId":"20279634xxxxxxx",
  "DBInstanceId":"pgm-xxxxxxx",
  "RequestId":"BAF2A62B-804B-4C6C-BEE4-BAD2CA4C79E1"
}
```

2. Change the specifications of an RDS instance.

Sample request:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkrds.request.v20140815.DescribeDBInstancePerformanceRequest import Describ
eDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.ModifyDBInstanceSpecRequest import ModifyDBInstance
SpecRequest
client = AcsClient(
        "<access-key-id>",
        "<access-key-secret>",
        "cn-hangzhou"
        );
request = ModifyDBInstanceSpecRequest();
request.set_DBInstanceId("pgm-xxxxxxx");
request.set_PayType("Postpaid");
request.set_DBInstanceClass("pg.n2.small.1");
try:
        response = client.do_action_with_exception(request)
        print response
except ServerException as e:
        print e
except ClientException as e:
        print e
```

Sample response:

```
{"RequestId":"B77F7694-B632-4C2A-BEA5-F8E44AD3A97E"}
```

3. Create a read-only RDS instance.

   Sample request:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkrds.request.v20140815.DescribeDBInstancePerformanceRequest import Describ
eDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.CreateReadOnlyDBInstanceRequest import CreateReadOn
lyDBInstanceRequest
client = AcsClient(
        "<access-key-id>",
        "<access-key-secret>",
        "cn-hangzhou"
        );
request = CreateReadOnlyDBInstanceRequest();
request.set_DBInstanceId("rm-xxxxxxx");
request.set_EngineVersion("5.6");
request.set_DBInstanceClass("rds.mysql.s1.small");
request.set_DBInstanceStorage("20");
request.set_DBInstanceDescription("testDesc");
request.set_PayType("Postpaid");
request.set_ZoneId("cn-hangzhou-b");
request.set_InstanceNetworkType("Classic");
try:
        response = client.do_action_with_exception(request)
        print response
except ServerException as e:
        print e
except ClientException as e:
        print e
```

Sample response:

```
{
        "OrderId": "1214369xxxxxxx",
        "ConnectionString": "rr-bpxxxxxxx.mysql.rds.aliyuncs.com",
        "DBInstanceId": "rr-bpxxxxxxx",
        "Port": "3306",
        "RequestId": "1E43AAE0-BEE8-43DA-860D-EAF2AA0724DC"
}
```

4. Restart an RDS instance.

Sample request:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkrds.request.v20140815.DescribeDBInstancePerformanceRequest import Describ
eDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.RestartDBInstanceRequest import RestartDBInstanceRe
quest
client = AcsClient(
        "<access-key-id>",
        "<access-key-secret>",
        "cn-hangzhou"
        );
request = RestartDBInstanceRequest();
request.set_DBInstanceId("rm-bpxxxxxxx");
try:
        response = client.do_action_with_exception(request)
        print response
except ServerException as e:
        print e
except ClientException as e:
        print e
```

Sample response:

```
{"RequestId":"EED6E546-099A-4434-AB09-C85DD396E17B"}
```

5. Query RDS instances.

Sample request:

```
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkrds.request.v20140815.DescribeDBInstancePerformanceRequest import Describ
eDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.DescribeDBInstancesRequest import DescribeDBInstanc
esRequest
client = AcsClient(
        "<access-key-id>",
        "<access-key-secret>",
        "cn-hangzhou"
        );
request = DescribeDBInstancesRequest();
print response
try:
        response = client.do_action_with_exception(request)
        print response
except ServerException as e:
        print e
except ClientException as e:
        print e
```

Sample response:

```
{
```

```json
        "Items": {
            "DBInstance": [
                {
                    "LockMode": "Unlock",
                    "DBInstanceNetType": "Intranet",
                    "DBInstanceClass": "rds.mysql.s2.large",
                    "ResourceGroupId": "rg-acfxxxxxxx",
                    "DBInstanceId": "rm-bpxxxxxxx",
                    "VpcCloudInstanceId": "",
                    "ZoneId": "cn-hangzhou-f",
                    "ReadOnlyDBInstanceIds": {
                        "ReadOnlyDBInstanceId": []
                    },
                    "InstanceNetworkType": "Classic",
                    "ConnectionMode": "Standard",
                    "Engine": "MySQL",
                    "MutriORsignle": false,
                    "InsId": 1,
                    "ExpireTime": "",
                    "CreateTime": "2018-11-07T15:52Z",
                    "DBInstanceType": "Primary",
                    "RegionId": "cn-hangzhou",
                    "EngineVersion": "5.7",
                    "LockReason": "",
                    "DBInstanceStatus": "Running",
                    "PayType": "Postpaid"
                },
                {
                    "LockMode": "Unlock",
                    "DBInstanceNetType": "Intranet",
                    "DBInstanceClass": "rds.mysql.s2.large",
                    "ResourceGroupId": "rg-acfxxxxxxx",
                    "DBInstanceId": "rm-bpxxxxxxx",
                    "VpcCloudInstanceId": "",
                    "ZoneId": "cn-hangzhou-g",
                    "ReadOnlyDBInstanceIds": {
                        "ReadOnlyDBInstanceId": []
                    },
                    "InstanceNetworkType": "Classic",
                    "ConnectionMode": "Standard",
                    "Engine": "MySQL",
                    "MutriORsignle": false,
                    "InsId": 1,
                    "ExpireTime": "2019-11-07T16:00:00Z",
                    "CreateTime": "2018-11-07T15:42Z",
                    "DBInstanceType": "Primary",
                    "RegionId": "cn-hangzhou",
                    "EngineVersion": "5.7",
                    "LockReason": "",
                    "DBInstanceStatus": "Running",
                    "PayType": "Prepaid"
                }
            ]
        },
```

```
    "TotalRecordCount": 209,
    "PageNumber": 1,
    "RequestId": "0C5793A6-80C3-4AC0-A5E1-CCA25F387AE6",
    "PageRecordCount": 30
}
```