

# **Alibaba Cloud ApsaraDB for RDS**

SDK Reference

Issue: 20200529

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## Document conventions

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

| Style        | Description  | Example               |
|--------------|--|-----------------------|
| { } or {a b} | This format is used for a required value, where only one item can be selected. | switch {active stand} |



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# 1 SDK reference

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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

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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 for complex programming.

### Background information

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:

To protect the AccessKey pair of your Alibaba Cloud account, we recommend that you create a RAM user, grant the RAM user the permissions to access ApsaraDB for RDS instances, and then use the AccessKey pair of the RAM user to call RDS SDK for Java. For more information, see [Implement access control by using RAM](#).

- Version 1.6 or later of Java is installed.

### Install RDS SDK for Java

- Visit the [Alibaba Cloud SDK for Java](#) page at GitHub.
- Download the RDS SDK for Java package and install the SDK by following the instructions provided in the README file.

### Procedure

- 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.
    );
```

- 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 of ApsaraDB for RDS. Enter Rds.
    "domain(endpoint)" // The endpoint.
```

```
);
```

**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 DescribeDBInstanceAttributeReq
uest();
request.setDBInstanceId("rm-bp1xxxxxxx");
```

**4.** Initiate 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 DescribeDBInstanceAttributeReq
uest();
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",
    "dInstanceCPU":"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 RDS SDK for Python

---

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

### Prerequisites

The RDS SDK for Python package is downloaded.

To download the package, follow these steps:

1. Visit the [Python SDK](#) page at GitHub.
2. Download the RDS SDK for Python package and install the SDK by following the instructions provided in the README file.

### Precautions

Make sure that your account has the required permissions. For more information, see [#unique\\_7](#).

### Procedure

1. Import the RDS SDK for Python 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
DescribeSQLLogRecordsRequest
```

2. Create an AcsClient.

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

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

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



**Note:**

For more information, see [Table 3-1: RDS OpenAPI endpoints](#).

**Table 3-1: RDS OpenAPI endpoints**

| Endpoint                        | Region   | Public IP address | ApsaraDB for RDS console   |
|---------------------------------|--|-------------------|--|
| rds.aliyuncs.com                | China (Qingdao): cn-qingdao<br>China (Beijing): cn-beijing<br>China (Hangzhou): cn-hangzhou<br>China (Shanghai): cn-shanghai<br>China (Shenzhen): cn-shenzhen<br>China (Hong Kong): cn-hongkong<br>Singapore: ap-southeast-1<br>US (Virginia): us-east-1<br>US (Silicon Valley): us-west-1 | 106.11.55.113     | <a href="#">cn-qingdao</a><br><a href="#">cn-beijing</a><br><a href="#">cn-hangzhou</a><br><a href="#">cn-shanghai</a><br><a href="#">cn-shenzhen</a><br><a href="#">cn-hongkong</a><br><a href="#">ap-southeast-1</a><br><a href="#">us-east-1</a><br><a href="#">us-west-1</a> |
| rds.cn-zhangjiakou.aliyuncs.com | China (Zhangjiakou-Beijing Winter Olympics)  | 47.92.21.4        | <a href="#">cn-zhangjiakou</a>   |
| rds.ap-northeast-1.aliyuncs.com | Japan (Tokyo): ap-northeast-1  | 47.91.8.8         | <a href="#">ap-northeast-1</a>   |
| rds.ap-southeast-3.aliyuncs.com | Malaysia (Kuala Lumpur): ap-southeast-3  | 47.254.226.21     | <a href="#">ap-southeast-3</a>   |

| Endpoint                        | Region                              | Public IP address | ApsaraDB for RDS console       |
|---------------------------------|-------------------------------------|-------------------|--------------------------------|
| rds.ap-southeast-2.aliyuncs.com | Australia (Sydney): ap-southeast-2  | 47.254.226.21     | <a href="#">ap-southeast-3</a> |
| rds.me-east-1.aliyuncs.com      | UAE (Dubai): me-east-1              | 47.91.39.7        | <a href="#">me-east-1</a>      |
| rds.cn-huhehaote.aliyuncs.com   | China (Hohhot): cn-huhehaote        | 39.104.36.3       | <a href="#">cn-huhehaote</a>   |
| rds.ap-south-1.aliyuncs.com     | India (Mumbai): ap-south-1          | 149.129.159.7     | <a href="#">ap-south-1-1</a>   |
| rds.ap-southeast-5.aliyuncs.com | Indonesia (Jakarta): ap-southeast-5 | 149.129.204.7     | <a href="#">ap-southeast-5</a> |

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

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

5. Initiate the AcsClient.

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

6. View the response.

```
print response
```

## Examples

1. Create 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
    DescribeDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.CreateDBInstanceRequest import CreateDBIn
    stanceRequest

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
    DescribeDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.ModifyDBInstanceSpecRequest import
    ModifyDBInstanceSpecRequest

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 aliyunskrds.request.v20140815.DescribeDBInstancePerformanceRequest import
    DescribeDBInstancePerformanceRequest
from aliyunskrds.request.v20140815.CreateReadOnlyDBInstanceRequest import
    CreateReadOnlyDBInstanceRequest

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 aliyunskrds.request.v20140815.DescribeDBInstancePerformanceRequest import
    DescribeDBInstancePerformanceRequest
```

```

from aliyunsdkrds.request.v20140815.RestartDBInstanceRequest import RestartDBInstanceRequest

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 all of the RDS instances that you created.

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 DescribeDBInstancePerformanceRequest
from aliyunsdkrds.request.v20140815.DescribeDBInstancesRequest import DescribeDBInstancesRequest

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:

```

{
  "Items": {
    "DBInstance": [
      {
        "LockMode": "Unlock",
        "DBInstanceNetType": "Intranet",
        "DBInstanceClass": "rds.mysql.s2.large",
        "ResourceGroupId": "rg-acfxxxxxxx",
        "DBInstanceId": "rm-bpxxxxxxx",
        "VpcCloudInstanceId": ""
      }
    ]
  }
}

```

```

    "ZoneId": "cn-hangzhou-f",
    "ReadOnlyDBInstanceIds": {
      "ReadOnlyDBInstance": []
    },
    "InstanceNetworkType": "Classic",
    "ConnectionMode": "Standard",
    "Engine": "MySQL",
    "MultiAZ": 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",
    "DBInstance": "rm-bpxxxxxxx",
    "VpcCloudInstance": "",
    "ZoneId": "cn-hangzhou-g",
    "ReadOnlyDBInstanceIds": {
      "ReadOnlyDBInstance": []
    },
    "InstanceNetworkType": "Classic",
    "ConnectionMode": "Standard",
    "Engine": "MySQL",
    "MultiAZ": 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
}

```