

# Alibaba Cloud Alibaba Cloud SDK

Python SDK

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# Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Note:</b> Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 <b>Note:</b> You can use <b>Ctrl + A</b> to select all files.
>	Multi-level menu cascade.	<b>Settings &gt; Network &gt; Set network type</b>
<b>Bold</b>	It is used for buttons, menus, page names, and other UI elements.	Click <b>OK</b> .
Courier font	It is used for commands.	Run the <code>cd /d C:/windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[] or [a b]	It indicates that it is a optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	It indicates that it is a required value, and only one item can be selected.	<code>swich {stand / slave}</code>

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# 1 Get started

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Welcome to the Alibaba Cloud Software Development Kit (SDK). The Alibaba Cloud Python Software Development Kit (SDK) allows you to access Alibaba Cloud services such as Elastic Compute Service (ECS), Server Load Balancer (SLB), and CloudMonitor. This document introduces how to obtain and call Alibaba Cloud Python SDK. If you have any problem while using the SDK, please join the DingTalk group: 11771185 (the official SDK customer service group of Alibaba Cloud) for consultation.

## Prepare the environment

- To use Alibaba Cloud Python SDK, you must have an Alibaba Cloud account as well as an AccessKey. To use Alibaba Cloud Python SDK, you must have an Alibaba Cloud account as well as an AccessKey ID and an AccessKey Secret. Create and view your AccessKey on the RAM console or contact your system administrator.
- To use Alibaba Cloud Python SDK to access the APIs of a product, you must first activate the product on the Alibaba Cloud console if required.

## Install Python SDK

Complete these steps to install Python SDK:

### 1. Install SDK core library.

- If you use Python 2.x, run the following command to install Alibaba Cloud SDK core library:

```
pip install aliyun-python-sdk-core
```

- If you use Python 2.x, run the following command to install Alibaba Cloud SDK core library:

```
pip install aliyun-python-sdk-ecs
```

### 2. Install the SDK for the cloud product.

The following is an SDK example for installing ECS:

## Use Python SDK

The following code example shows the three main steps for calling the Alibaba Cloud Python SDK :

1. Creates a client instance. When creating the client instance, you must obtain the Region ID, the AccessKey ID, and the AccessKey Secret.
2. Create an API request and set parameters.

### 3. Initiate a request and handle the response or exceptions.

```
# -*- coding: utf8 -*-
from aliyunsdkcore.client import AcsClient
from aliyunsdkcore.acs_exception.exceptions import ClientException
from aliyunsdkcore.acs_exception.exceptions import ServerException
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest
from aliyunsdkecs.request.v20140526 import StopInstanceRequest
# Create an AcsClient instance
client = AcsClient(
    "<your-access-key-id>",
    "<your-access-key-secret>",
    "<your-region-id>"

# Create a request and set parameters
request = DescribeInstancesRequest.DescribeInstancesRequest()
request.set_PageSize(10)
# Initiate an API request and display the response value
response = client.do_action_with_exception(request)
print response
```



## 2 Use SDK

### 2.1 Use Python SDK

This document introduces how to install and call Alibaba Python SDK.

#### Installation

Alibaba Cloud Python SDK supports Python 2.6.x, 2.7.x, 3.x and later. You can install Python SDK using the following two methods:

- Use pip (recommended)

Run the following commands to install Python SDK using pip.

```
pip install aliyun-python-sdk-core # Install Alibaba Cloud SDK core library
pip install aliyun-python-sdk-ecs # Install ECS SDK
pip install aliyun-python-sdk-rds # Install RDS SDK
```

**Note:**

If you use python3.x, modify `pip install aliyun-python-sdk-core` to `pip install aliyun-python-sdk-core-v3`.

- Use GitHub

Run the following commands to clone the Python SDK from GitHub and install the SDK:

```
git clone https://github.com/aliyun/aliyun-openapi-python-sdk.git
# Install Alibaba Cloud SDK core library
cd aliyun-python-sdk-core
python setup.py install
# Install Alibaba Cloud ECS SDK
cd aliyun-python-sdk-ecs
python setup.py install
```

#### Set up credentials

When using the Alibaba Cloud Python SDK to access Alibaba Cloud services, you need an Alibaba Cloud account for authentication.

Python SDK supports the following authentication methods.

Authentication	Description
AccessKey	Use the AccessKeyID/Secret to do the authentication

Authentication	Description
StsToken	Use the STS Token to do the authentication
RamRoleArn	Use the AssumeRole of the RAM account to do the authentication
EcsRamRole	Use the RAM role of an ECS instance to do the authentication
RsaKeyPair	Use the RSA key pair to do the authentication ( supported only on Japan site)

This document uses AccessKey as an example to illustrate how to set up credentials. To ensure the security of your account, we recommend using your RAM account instead of the primary account. The primary account has full access to all of your cloud services, while the RAM account has limited access granted by the primary account to the cloud services. Firstly, create an AccessKey as described in ,

and then set up your credentials when initializing the client as follows:

**Note:**

Do not disclose any code containing your AccessKey (do not commit the code to public GitHub projects). Otherwise, your Alibaba Cloud account may be compromised.

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

## Call a service

This document uses ECS as an example to show you how to use Alibaba Cloud Python SDK to send a request.

### 1. Import the SDKs of the product.

```
from aliyunsdkcore.client import AcsClient  
from aliyunsdkcore.acs_exception.exceptions import ClientException  
from aliyunsdkcore.acs_exception.exceptions import ServerException  
from aliyunsdkecs.request.v20140526 import DescribeInstancesRequest  
from aliyunsdkecs.request.v20140526 import StopInstanceRequest
```

### 2. Create an AcsClient.

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

```
"<your-region-id>"
```

### 3. Create a request object.

```
request = DescribeInstancesRequest.DescribeInstancesRequest()
request.set_PageSize(10)
```

### 4. Initiate a call and print the response.

```
DescribeInstancesResponse response;
try:
    response = client.do_action_with_exception(request)
    print response
except ServerException as e:
    print e
except ClientException as e:
```

## 2.2 Endpoint management

An endpoint is the service entry of an Alibaba Cloud service. The endpoints of a service vary by regions. For example, the endpoint of an ECS instance in the China (Hangzhou) region is `ecs-cn-hangzhou.aliyuncs.com`, but the endpoint is `ecs.ap-northeast-1.aliyuncs.com` if the ECS instance is located in the Japan (Tokyo) region. Alibaba Cloud SDK has a built-in endpoint addressing module. After a request is sent, Alibaba Cloud SDK will find the endpoint to use according to the region ID and product ID that are specified when creating a client.

### Exception handling

If an error occurs, such as `SDK.InvalidRegionID` or `SDK.EndpointResolvingError`, refer to the following solutions to troubleshoot.

Error codes	Error message	Resolution
SDK.InvalidRegionId	can not find endpoint to access	The current SDK version is too low. Please upgrade the SDK core library <code>aliyun-python-sdk-core</code> to version 2.9.0 or higher.
SDK.EndpointResolvingError	No such region <region-id>. Please check your region ID.	Make sure the region ID that you entered is correct. You can call the <b>DescribeRegions</b> API to find the region ID.
SDK.EndpointResolvingError	No endpoint for product <product-id>.	Solution: <ul style="list-style-type: none"> <li>The current SDK version is too low. Please upgrade the SDK core library <code>aliyun-python-sdk-core</code> to version 2.9.0 or higher, and upgrade the product SDK such as <code>aliyun-java-sdk-ecs</code> to the latest version.</li> </ul>

Error codes	Error message	Resolution
		<ul style="list-style-type: none"><li>Configure the endpoint to use directly. For more information, see <a href="#">Set up an endpoint</a>.</li></ul>
SDK.EndpointResolvingError	No endpoint in the region <region-id> for product <product-id>.	<p>Cannot find the endpoint of the product in the specified region. Solution:</p> <ul style="list-style-type: none"><li>The product may be not available in the specified region. Please change the region ID accordingly.</li><li>Upgrade the SDK core library <code>aliyun-python-sdk-core</code> to the latest version to use the latest endpoint addressing configurations. A new version of the SDK core library will be released when the service endpoint is changed.</li><li>Configure the endpoint to use directly. For more information, see <a href="#">Set up an endpoint</a>.</li></ul>

### Set up an endpoint directly

Refer to the following code to set up an endpoint for a request to use. See the API documentation of each product to find available endpoints.

```
request = DescribeInstancesRequest()
# set up an endpoint for this request
configuration.setEndpoint("ecs-cn-hangzhou.aliyuncs.com");
# use the configured endpoint to sent a request
response = self.client.do_action_with_exception(request)
```

## 3 Errors and troubleshooting

The following are some common errors you may experience when using Alibaba Cloud SDK.

Potential causes and resolutions are shown for these commonly experienced errors. Submit your problem to Alibaba Cloud through DingTalk group: 11771185, or [GitHub Issue](#).

Error code	Error message	Cause	Resolution
SDK. InvalidRegionId	Can not find endpoint to access.	The SDK cannot automatically obtain the endpoint of the called product in the specified region.	Checks whether the provided region ID and endpoint are correct. Run the following codes to set the endpoint: <pre>from aliyunsdkcore. profile import region_pro vider region_provider. modify_point('Ecs', ' cn-zhangjiakou', 'ecs. aliyuncs.com')</pre>
SDK. TimeoutError	—	The request times out and all retry attempts fail.	<ul style="list-style-type: none"><li>In scenarios such as cross-region calls or low network quality, we recommend that you increase the timeout or the maximum number of retries.</li><li>If the problem persists and the network quality is confirmed to be good, we recommend that you open a ticket.</li></ul>
SDK. ServerError : InvalidProtocol.NeedSsl	Your request is denied as lack of ssl protect. Recommend :https://error-center.aliyun.com/status/search?Keyword=InvalidProtocol.NeedSsl&source=PopGw	The API only accepts HTTPS requests and does not accept HTTP requests.	Before sending a request, add the following code: <pre>Request.set_protoc ol_type('https')</pre>