

Alibaba Cloud Alibaba Cloud SDK

.NET 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.	 Danger: 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.	 Warning: 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.	 Note: 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.	 Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	It is used for buttons, menus, page names, and other UI elements.	Click OK .
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>

Contents

Legal disclaimer.....	I
Generic conventions.....	I
1 Get started.....	1
2 Use SDK.....	3
2.1 Use .NET SDK.....	3
2.2 Handle errors.....	5
2.3 Configure STS token.....	6
2.4 Use CommonRequest.....	9
3 Examples.....	12
3.1 Elastic Compute Service (ECS).....	12
3.2 ApsaraDB for RDS.....	13
3.3 Server Load Balancer (SLB).....	14
3.4 Virtual Private Cloud (VPC).....	15
3.5 Auto scaling.....	16
3.6 Content Delivery Network (CDN).....	18
4 Errors and troubleshooting.....	20

1 Get started

Welcome to use the Alibaba Cloud Software Development Kit (SDK). The Alibaba Cloud .NET SDK allows you to access Alibaba Cloud services such as Elastic Compute Service (ECS), Relational Database Service (RDS), and CloudMonitor. You can access Alibaba Cloud services without the need to handle API related tasks, such as signing and constructing your requests. This document introduces how to install and use .NET SDK.

Prerequisites

- To use Alibaba Cloud .NET SDK, you must have an Alibaba Cloud account and an AccessKey. You can create and view your AccessKey on the [AccessKey console](#), or contact your system administrator.
- To use Alibaba Cloud .NET SDK to call APIs of a product, you must first activate the product on the Alibaba Cloud console if required.
- Alibaba Cloud .Net SDK applies to .NET Framework 4.0 and later.

Install Alibaba Cloud .NET SDK

To call the SDK of a product, you must install the SDK core library and the SDK of the product. For example, to call ECS SDK, you must obtain and install both the SDK core library and ECS SDK. Install the Alibaba Cloud .NET SDK using one of the following methods:

- Add DLL reference
 1. Download the DLL package from [.NET SDK](#).
 2. Right click your project in the Solution Explorer of Visual Studio and click **Reference**.
 3. In the displayed menu, click **Add Reference**.
 4. In the displayed dialog box, click **Browse**. Then select the downloaded DLL file and click **Confirm**.
- Add project reference
 1. Run the following command to clone the SDK source codes from GitHub.

```
git clone https://github.com/aliyun/aliyun-openapi-net-sdk.git
```

There are many folders prefixed with *aliyun-net-openapi-XXX* the cloned directory. Each folder contains `\\*.csproj` file, which is the .NET project file. For example, there is an `aliyun-net-sdk-ecs.csproj` file under the `aliyun-net-openapi-ecs` subfolder.

2. In Visual Studio, right click your solution.

3. Click **Add > Existing Project**.
4. In the displayed dialog box, select the project file, for example, `aliyun-net-sdk-ecs.csproj`, and then click **Open**.
5. Right click your project and click **Reference > Add Reference**.

Use .NET SDK

The following code example shows the three main steps to use the Alibaba Cloud .NET SDK:

1. Create a `DefaultAcsClient` instance and initialize it.
2. Create an API request and set parameters.
3. Initiate the request and handle the response.

```
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Ecs.Model.V20140526;

class TestProgram
{
    static void Main(string[] args)
    {
        // Construct a client for initiating requests
        IClientProfile profile = DefaultProfile.GetProfile(
            "<your-region-id>",
            "<your-access-key-id>",
            "<your-access-key-secret>")
        DefaultAcsClient client = new DefaultAcsClient(profile);
        try
        {
            // Construct a request
            DescribeInstancesRequest request = new DescribeInstancesRequest();
            request.PageSize = 10;
            // Initiate the request and obtain the response
            DescribeInstancesResponse response = client.GetAcsResponse(request);
            System.Console.WriteLine(response.TotalCount);
        }
        catch (ServerException ex)
        {
            System.Console.WriteLine(ex.ToString());
        }
        catch (ClientException ex)
        {
            System.Console.WriteLine(ex.ToString());
        }
    }
}
```

2 Use SDK

2.1 Use .NET SDK

This document introduces how to install and call Alibaba Cloud .NET SDK.

Install .NET SDK

Install the Alibaba Cloud .NET SDK using one of the following methods:

- Add DLL reference
 1. Download the DLL package from [.NET SDK](#).
 2. Right click your project in the Solution Explorer of Visual Studio and click **Reference**.
 3. In the displayed menu, click **Add Reference**.
 4. In the displayed dialog box, click **Browse**. Then select the downloaded DLL file and click **Confirm**.
- Add project reference
 1. Run the following command to clone the SDK source codes from GitHub.

```
git clone https://github.com/aliyun/aliyun-openapi-net-sdk.git
```

There are many folders prefixed with *aliyun-net-openapi-XXX* in the cloned directory. Each folder contains the `\\*.csproj` file, which is the .NET project file. For example, there is an `aliyun-net-sdk-ecs.csproj` file under the `aliyun-net-openapi-ecs` subfolder.

2. In Visual Studio, right click your solution.
3. Click **Add > Existing Project**.
4. In the displayed dialog box, select the project file, for example, `aliyun-net-sdk-ecs.csproj`, and click then **Open**.
5. Right click your project and click **Reference > Add Reference**.

Configure credentials

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

Currently, .NET SDK supports the following authentication methods:

Authentication	Description
AccessKey	Use the AccessKey to complete the authentication.
STS Token	Use the STS Token to complete the authentication.
RamRoleArn	Use the AssumeRole of the RAM account to complete the authentication.
EcsRamRole	Use the RAM role of an ECS instance to complete the authentication.

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 [Create an AccessKey](#),

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.

```
IClientProfile clientProfile = DefaultProfile.GetProfile(  
    "<your-region-id>", // region ID  
    "<your-access-key-id>", // AccessKey ID of RAM account  
    "<your-access-key-secret>"); // AccessKey Secret of RAM account
```

Initiate a call

This document takes ECS as an example to introduce how to use Alibaba Cloud .NET SDK to initiate a request.

1. Creates a default client instance.

```
DefaultAcsClient client = new DefaultAcsClient(clientProfile);
```

2. Create a request.

The naming convention for requests is `${apiName}Request`. Where `${apiName}` is the API name, such as `DescribeInstances`.

When multiple product SDKs are used, different requests may have the same name. Differentiate the requests according to the package.

```
DescribeInstancesRequest request = new DescribeInstancesRequest();
request.PageSize = 10;
```

3. Initiate a call and process the response.

```
DescribeInstancesResponse response = client.GetAcsResponse(request);
```

Normally, all fields in the response will be deserialized to the response. You can obtain the fields in the response by calling `response.getXXX()`.

```
System.Console.WriteLine(response.TotalCount);
```

2.2 Handle errors

Alibaba Cloud .NET SDK returns corresponding exceptions when an error occurs on the service side or the SDK side. These exceptions contain detailed error information, including the error code (Error Code) and error message (Error Message).

You do not need to handle the exceptions returned by the Alibaba Cloud .NET SDK. You only need to resolve the errors returned by the service.

- `ServerException` is the exception returned by the corresponding Alibaba Cloud service.
- `ClientException` is the exception returned by the Alibaba Cloud .NET SDK.

For example, when the following error occurs, you have to modify the ID of the AccessKey according to the error message.

```
InvalidAccessKeyId.NotFound : Specified access key is not found.
```

If you want to handle the client errors returned by the Alibaba Cloud .NET SDK, refer to the following example to write your codes:

```
try
{
    CreateInstanceResponse response = client.GetAcsResponse(request);
    // Handle the response
    // ...
}
catch (ServerException e)
{
    // You can add your own error handling logic here
    // For example, print the error message
    Console.WriteLine("ErrorCode=" + e.ErrorCode);
    Console.WriteLine("ErrorMessage=" + e.ErrorMessage);
    // If the problem is tricky, you can open a ticket and provide the
    RequestId to us
}
```

```
        Console.WriteLine("ErrorCode=" + e.RequestId);
    }
    catch (ClientException e)
    {
        // You can add your own error handling logic here
        // For example, print the error message
        Console.WriteLine("error code :" + e.ErrorCode);
        Console.WriteLine("error message :" + e.Message);
    }
}
```

2.3 Configure STS token

Using your Alibaba Cloud AccessKey directly to develop applications will have potential security risk. To enhance your account security, you can use the Security Token Service (STS) token issued for a subaccount to access Alibaba Cloud services.

Introduction to STS token

Security Token Service is a cloud service that provides short-term access control for Alibaba Cloud accounts (or RAM users). Through STS, you can issue an access credentials with custom time limit and access right to federated users (users managed by your local account system). Federation users can use STS short-term access credentials to call the Alibaba Cloud APIs directly, or log on to the Alibaba Cloud console to manage the authorized resources.

Using the STS token as an access credential has the following advantages:

- Using STS token will reduce the risks of a compromised AccessKey ID and AccessKey Secret, particularly reducing risks for your mobile devices.
- STS token has flexible permission control. You can control the access permission in a finer granularity for products including SLB and ECS, according to the RAM role.



Note:

Make sure that the product you are calling supports STS.

Configure the STS token

To configure the STS Token, the following two methods are available:

- Method 1: Use STS token directly

You can directly specify the STS token. However, you must update the token periodically if you directly specify the token.

```
using System;
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Auth;
using Aliyun.Acs.Core.Profile;
```

```

using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Ecs.Model.V20140526;

class SimpleSTSTokenSample
{
    static void Main(string[] args)
    {
        BasicSessionCredentials credentials = new BasicSessionCredentials(
            "<your-access-key-id>",
            "<your-access-key-secret>",
            "<your-session-token>"

            // Create a client instance
            IClientProfile profile = DefaultProfile.GetProfile("<your-region-id>");
            DefaultAcsClient client = new DefaultAcsClient(profile,
                credentials);
            try
            {
                // Create an API request and set parameters
                DescribeInstancesRequest request = new DescribeInstancesRequest();
                request.PageSize = 10;

                // Initiate the request and print the handling result
                DescribeInstancesResponse response = client.GetAcsResponse(request);
                Console.WriteLine("TotalCount: {0}", response.TotalCount);
            }
            catch (ServerException e)
            {
                Console.WriteLine(e.ErrorCode);
                Console.WriteLine(e.ErrorMessage);
            }
            catch (ClientException e)
            {
                Console.WriteLine(e.ErrorCode);
                Console.WriteLine(e.ErrorMessage);
            }
        }
    }
}

```

Where:

- **region-id** is the ID of the region that you are using. You can obtain the region ID by calling the **DescribeRegions** API.
- **sts-access-key-id**, **sts-access-key-secret**, and **sts-session-token** are credentials returned by calling the **AssumeRole** API.
- Method 2: Use SDK to manage STS tokens

You can specify the RAM role to allow Alibaba Cloud .NET SDK to create and maintain STS tokens.

```
using System;
```

```

using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Auth;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Ecs.Model.V20140526;

class UseRoleArnSample
{
    static void Main(string[] args)
    {
        IClientProfile profile = DefaultProfile.GetProfile("<your-region-id>");
        BasicCredentials basicCredentials = new BasicCredentials(
            "<your-access-key-id>",
            "<your-access-key-secret>")
        STSAssumeRoleSessionCredentialsProvider provider = new
        STSAssumeRoleSessionCredentialsProvider(
            basicCredentials,
            "<your-role-arn>",
            profile);

        // Create a client instance
        DefaultAcsClient client = new DefaultAcsClient(profile,
        provider);

        try
        {
            // Create an API request and set parameters
            DescribeInstancesRequest request = new DescribeIn
            stancesRequest();
            request.PageSize = 10;

            // Initiate the request and print the handling result
            DescribeInstancesResponse response = client.GetAcsResp
            onse(request);
            Console.WriteLine("TotalCount: {0}", response.TotalCount
            );
        }
        catch (ServerException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
        catch (ClientException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
    }
}

```

Where:

- **role-arn** is the role resource descriptor. You can obtain it on the role details page from the [RAM console](#).
- **role-session-name** is a temporary role name. You can call the **AssumeRole** API to create a temporary identity. After the temporary identity is created, you can use the value

set for the **RoleSessionName** parameter as the **role-session-name** parameter in this method.

2.4 Use CommonRequest

If an Alibaba Cloud product does not provide an SDK for its APIs, you can use the generic calling method (CommonRequest) to call the product APIs. By using the CommonRequest calling method, you can call any API.

Characteristics of CommonRequest calling

The CommonRequest calling method has the following characteristics:

1. Light weight: You only need to download the core package, and do not need to download and install all product SDKs.
2. Easy and convenient: You can use the latest API without updating the SDK.
3. Fast iteration: Updates are made often and are made available quickly.

Call an API using CommonRequest

The APIs of Alibaba Cloud products can be classified into two types, RPC and RESTful styles. The method of making a CommonRequest request varies based on the specific API type.

In general, the API required by the **Action** parameter belongs to the RPC type and the API required by the **PathPattern** parameter belongs to the RESTful type. In general, all APIs in a product are of the same type. Each API only supports calling of a specific type. Entering wrong codes may call other APIs or receive the error message of `ApiNotFound`.

To make a CommonRequest request, you must obtain the values for the following parameters. You can obtain the values of these parameters from the API documents at the [Document Center](#). Besides, you can obtain the parameters of an API through [OpenAPI Explorer](#).

- Domain: The universal domain name of a product.
- Version: The version of the API, in the format of YYYY-MM-DD.

You can get the API version from the common parameters in the API document of a product.

- API information: The name of the API to call.
 - If an API is an RPC API, such as ECS and RDS, you must obtain the value of the **Action** parameter and specify the API to call in the form of `request.ApiName = "<Action>"`

For example, if the Action value of the ECS-RunInstances API is **RunInstances**, you can use `request.ApiName = "RunInstances"` to specify the API to call when making a `CommonRequest` request.

- If an API is a RESTful API, such as Container Service, you must obtain the value of the **PathPattern** parameter and specify the RESTful path to call in the form of `request.PathPattern = "<PathPattern>"`.

For example, the **PathPattern** value of the CS-GetClusterList API is `/clusters`, you can use `request.PathPattern = "/clusters"` to specify the RESTful path when making a `CommonRequest` request.

Example: Call an RPC API

The following code shows how to use the `CommonRequest` calling method to call the **DescribeInstanceStatus** API:

```
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Core.Profile;

class Sample
{
    static void Main(string[] args)
    {
        // Construct a client instance for initializing requests
        IClientProfile profile = DefaultProfile.GetProfile(
            "<your-region-id>",
            "<your-access-key-id>",
            "<your-access-key-secret>")
        DefaultAcsClient client = new DefaultAcsClient(profile);

        try
        {
            // Construct a request
            CommonRequest request = new CommonRequest();
            request.Domain = "ecs.aliyuncs.com";
            request.Version = "2014-05-26";

            // Because the API is an RPC API, you must specify the
            value of the ApiName (Action) field.
            request.Action = "DescribeInstanceStatus";
            request.AddQueryParameters("PageNumber", "1");
            request.AddQueryParameters("PageSize", "30");

            // Initiate the request and obtain the response
            CommonResponse response = client.GetCommonResponse(request);

            System.Console.WriteLine(response.Data);
        }
        catch (ServerException ex)
        {
            System.Console.WriteLine(ex.ToString());
        }
    }
}
```

```
        catch (ClientException ex)
        {
            System.Console.WriteLine(ex.ToString());
        }
    }
}
```

Example: Call a RESTful API

The following code shows how to use the `CommonRequest` calling method to call the `GetClusterList` API:

```
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Core.Profile;

class Sample
{
    static void Main(string[] args)
    {
        // Construct a client instance for initializing requests
        IClientProfile profile = DefaultProfile.GetProfile(
            "<your-region-id>",
            "<your-access-key-id>",
            "<your-access-key-secret>");
        DefaultAcsClient client = new DefaultAcsClient(profile);

        try
        {
            // Construct a request
            CommonRequest request = new CommonRequest();
            request.Domain = "cs.aliyuncs.com";
            request.Version = "2015-12-15";

            // Because the API is a RESTful API, you must specify the
            value of the UriPattern field.
            request.UriPattern = "/clusters";

            // Initiate the request and obtain the response
            CommonResponse response = client.GetCommonResponse(request);

            System.Console.WriteLine(response.Data);
        }
        catch (ServerException ex)
        {
            System.Console.WriteLine(ex.ToString());
        }
        catch (ClientException ex)
        {
            System.Console.WriteLine(ex.ToString());
        }
    }
}
```

3 Examples

3.1 Elastic Compute Service (ECS)

The example introduces how to use Alibaba Cloud .NET SDK to call the **CreateInstance** API to create an ECS instance.

Elastic Compute Service (ECS) is a type of computing service that features elastic processing capabilities. ECS has a simpler and more efficient management mode than physical servers.

You can create instances, change the operating system, and add or release any quantity of ECS instances at any time to fit your business needs.

To create an ECS instance, obtain the following information first:

- Image ID

Obtain the ID of the image to use by calling the **DescribeImages** API.

- Instance Type

Select the instance type to use. For more information, see [Instance type families](#).

Code example



Note:

Running the code in this example will create an ECS instance and generate fees.

```
using System;
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Ecs.Model.V20140526;

class Sample
{
    static void Main(string[] args)
    {
        // Create a client instance
        IClientProfile clientProfile = DefaultProfile.GetProfile("<
your-region-id>", "<your-access-key-id>", "<your-access-key-secret>");
        DefaultAcsClient client = new DefaultAcsClient(clientProfile);
        try
        {
            // Create an API request and set parameters
            CreateInstanceRequest request = new CreateInstanceRequest
            (
                request.ImageId = "_32_23c472_20120822172155_aliguest.vhd
                request.InstanceType = "ecs.t1.small";

            // Initiate the request and print the handling result
```

```

        CreateInstanceResponse response = client.GetAcsResponse(
request);
        Console.WriteLine("InstanceId: {0}", response.InstanceId);
    }
    catch (ServerException e)
    {
        Console.WriteLine(e.ErrorCode);
        Console.WriteLine(e.ErrorMessage);
    }
    catch (ClientException e)
    {
        Console.WriteLine(e.ErrorCode);
        Console.WriteLine(e.ErrorMessage);
    }
}
}
}

```

3.2 ApsaraDB for RDS

The example shows how to use Alibaba .NET SDK to call the **CreateDBInstance** API to create an RDS instance.

ApsaraDB for RDS is a stable and reliable online database service that supports the elastic scaling function. ApsaraDB for RDS is based on the Apsara distributed system and high-performance storage of ephemeral SSD and supports MySQL, SQL Server, and PostgreSQL engines. ApsaraDB for RDS offers a complete set of solutions including disaster tolerance, backup, recovery, monitoring and migration, fundamentally freeing you from the trouble in database operation and maintenance.

Code example



Note:

Running the code in this example will create an ApsaraDB for RDS instance and generate fees.

```

import C#.util.UUID;
import com.aliyuncs.DefaultAcsClient;
import com.aliyuncs.IAcsClient;
import com.aliyuncs.exceptions.ClientException;
import com.aliyuncs.exceptions.ServerException;
import com.aliyuncs.profile.DefaultProfile;
import com.aliyuncs.rds.model.v20140815.CreateDBInstanceRequest;
import com.aliyuncs.rds.model.v20140815.CreateDBInstanceResponse;
public class Demo {
    public static void main(String[] args) {

        // Create an DefaultAcsClient instance and initialize it
        DefaultProfile profile = DefaultProfile.getProfile(
            "<your-region-id>", // your region ID
            "<your-access-key-id>", // your AccessKey ID
            "<your-access-key-secret>"); // your AccessKey Secret
        IAcsClient client = new DefaultAcsClient(profile);
        // Create an API request and set parameters
    }
}

```

```

        CreateDBInstanceRequest request = new CreateDBInstanceRequest
        (
            request.setEngine("MySQL");
            request.setEngineVersion("5.7");
            request.setDBInstanceClass("mysql.n1.micro. 1");
            request.setDBInstanceStorage(20);
            request.setDBInstanceNetType("Intranet");
            request.setSecurityIPList("0.0.0.0/0");
            request.setPayType("Postpaid");
            request.setDBInstanceDescription("MyRds");
            request.setClientToken(UUID.randomUUID().toString());

            // Initiate the request and handle the response or exceptions
            CreateDBInstanceResponse response;
            try {
                response = client.getAcsResponse(request);
                String dbInstanceId = response.getDBInstanceId();
                System.out.println("Create dbInstance success, instanceId
= " + dbInstanceId);
            } catch (ServerException e) {
                e.printStackTrace();
            } catch (ClientException e) {
                e.printStackTrace();
            }
        }
    }
}

```

3.3 Server Load Balancer (SLB)

The example shows how to use Alibaba Cloud .NET SDK to call the **CreateLoadBalancer** API to create an SLB instance.

Server Load Balancer (SLB) is a traffic distribution control service that distributes the incoming traffic among multiple Elastic Compute Service (ECS) instances according to the configured forwarding rules. It expands the service capabilities of the application and increases the availability of the application.

Code example



Note:

Running the code in this example will create an SLB instance and generate fees.

```

using System;
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Slb.Model.V20140515;

class Sample
{
    static void Main(string[] args)
    {
        // Create a client instance
        IClientProfile clientProfile = DefaultProfile.GetProfile("<
your-region-id>", "<your-access-key-id>", "<your-access-key-secret>");
    }
}

```

```

        DefaultAcsClient client = new DefaultAcsClient(clientProfile);
        try
        {
            // Create an API request and set parameters
            CreateLoadBalancerRequest request = new CreateLoadBalancerRequest();
            request.LoadBalancerName = "my-sample-slb";
            request.AddressType = "internet";
            request.InternetChargeType = "paybytraffic";

            // Initiate the request and print the handling result
            CreateLoadBalancerResponse response = client.GetAcsResponse(request);
            Console.WriteLine("LoadBalancerId: {0}", response.LoadBalancerId);
        }
        catch (ServerException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
        catch (ClientException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
    }
}

```

3.4 Virtual Private Cloud (VPC)

The example shows how to use Alibaba Cloud .NET SDK to call the **CreateVpc** API to create a VPC.

Virtual Private Cloud (VPC) is a private network established in Alibaba Cloud. VPCs are logically isolated from other virtual networks in Alibaba Cloud. You have full control over your VPC, such as specifying the IP address range of your VPC, and configuring route tables and network gateways. You can also use Alibaba Cloud resources such as ECS, RDS, and SLB in your own VPC.

Code example

```

using System;
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Vpc.Model.V20160428;

class Sample
{
    static void Main(string[] args)
    {
        // Create a client instance
        IClientProfile clientProfile = DefaultProfile.GetProfile("<your-region-id>", "<your-access-key-id>", "<your-access-key-secret>");
        DefaultAcsClient client = new DefaultAcsClient(clientProfile);
        try

```

```

    {
        // Create and initiate a request
        CreateVpcRequest request = new CreateVpcRequest();
        CreateUserResponse response = client.GetAcsResponse(
request);

        // Create and initiate DescribeVpcAttributeRequest
        DescribeVpcAttributeRequest describeRequest = new
DescribeVpcAttributeRequest();
        describeRequest.VpcId = createResponse.VpcId;
        DescribeVpcAttributeResponse describeResponse = client.
GetAcsResponse(describeRequest);
        Console.WriteLine("vpcId: {0}", describeResponse.VpcId);
    }
    catch (ServerException e)
    {
        Console.WriteLine(e.ErrorCode);
        Console.WriteLine(e.ErrorMessage);
    }
    catch (ClientException e)
    {
        Console.WriteLine(e.ErrorCode);
        Console.WriteLine(e.ErrorMessage);
    }
}
}

```

3.5 Auto scaling

The example shows how to use Alibaba Cloud .NET SDK to call the **CreateScalingGroup** API to create an auto scaling group and how to specify the I/O optimized instance through the **IoOptimized** parameter.

Auto scaling is a management service that allows you to automatically adjust elastic computing resources according to your individual needs and policies.

Code example: Create an auto scaling group



Note:

Make sure that you have activated the auto scaling service.

```

using System;
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Ess.Model.V20140828;

class Sample
{
    static void Main(string[] args)
    {
        // Create a client instance
        IClientProfile clientProfile = DefaultProfile.GetProfile("<
your-region-id>", "<your-access-key-id>", "<your-access-key-secret>");
        DefaultAcsClient client = new DefaultAcsClient(clientProfile);
    }
}

```

```

        try
        {
            // Create a scaling group
            CreateScalingGroupRequest csgRequest = new CreateScalingGroupRequest();
            csgRequest.MaxSize = 10;
            csgRequest.MinSize = 2;
            CreateScalingGroupResponse csgResponse = client.GetAcResponse(csgRequest);
            String scalingGroupId = csgResponse.ScalingGroupId;
            Console.WriteLine("ScalingGroupId: {0}", scalingGroupId);

            // Create scaling configuration
            CreateScalingConfigurationRequest cscRequest = new CreateScalingConfigurationRequest();
            cscRequest.ScalingGroupId = scalingGroupId;
            cscRequest.ImageId = "centos_7_04_64_20G_alibase_201701015.vhd";
            cscRequest.InstanceType = "ecs.t1.xsmall";
            cscRequest.SecurityGroupId = "G00000000123456789"; // You can obtain the SecurityGroupId through the DescribeSecurityGroups API of ECS
            CreateScalingConfigurationResponse cscResponse = client.GetAcResponse(cscRequest);
            Console.WriteLine("ScalingConfigurationId: {0}", cscResponse.ScalingConfigurationId);
        }
        catch (ServerException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
        catch (ClientException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
    }
}

```

Code example: Specify the I/O optimized instance

```

CreateScalingConfigurationRequest cscRequest = new CreateScalingConfigurationRequest();
cscRequest.ScalingGroupId = scalingGroupId;
cscRequest.ImageId = "centos_7_04_64_20G_alibase_201701015.vhd";
cscRequest.InstanceType = "ecs.t1.xsmall";
cscRequest.IoOptimized = "optimized";

```

```
cscRequest.SecurityGroupId = "G00000000123456789";
```

3.6 Content Delivery Network (CDN)

This example introduces how to use Alibaba Cloud .NET SDK to call the **AddCdnDomainRequest** API to add a CDN domain name.

Alibaba Cloud Content Delivery Network (CDN), is a distributed network that is built on and overlays the bearer network, and is composed of edge node server clusters distributed across different regions.

Note the following before calling the API:

- Before creating a CDN domain name, you must have activated the CDN service.
- The CDN domain name must have been filed.
- If the origin site content is not on the Alibaba Cloud platform, it must be reviewed. The review will be completed before the next workday.

```
using System;
using Aliyun.Acs.Core;
using Aliyun.Acs.Core.Profile;
using Aliyun.Acs.Core.Exceptions;
using Aliyun.Acs.Cdn.Model.V20141111;

class Sample
{
    static void Main(string[] args)
    {
        // Create a client instance
        IClientProfile clientProfile = DefaultProfile.GetProfile("<
your-region-id>", "<your-access-key-id>", "<your-access-key-secret>");
        DefaultAcsClient client = new DefaultAcsClient(clientProfile);
        try
        {
            // Create an API request and set parameters
            AddCdnDomainRequest request = new AddCdnDomainRequest();
            request.CdnType = "web";
            request.DomainName = "test.com";
            request.Sources = "test.com";
            request.SourceType = "domain";

            //Initiate the request
            AddCdnDomainResponse response = client.GetAcsResponse(
request);
            Console.WriteLine("Success");
        }
        catch (ServerException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
        catch (ClientException e)
        {
            Console.WriteLine(e.ErrorCode);
            Console.WriteLine(e.ErrorMessage);
        }
    }
}
```

```
}  
  }  
}
```

4 Errors and troubleshooting

The following are some common errors you may experience when using Alibaba Cloud .NET SDK. Potential causes and resolutions are shown for these commonly experienced errors.

Error code	Cause	Resolution
SDK.InvalidRegionId	The SDK cannot automatically obtain the endpoint of the called product in the specified region.	Provide the correct endpoint of the service to call. You can find the endpoint from the API documentation of the product.
InvalidAccessKeyId.NotFound	The AccessKey ID is invalid.	Provide a correct AccessKey ID.
SDK.ConnectionReset	The endpoint cannot be connected when you initiate a request.	Make sure your network is available.
SDK.InvalidProfile	The DefaultAcsClient parameter that you provided when initializing DefaultAcsClient is invalid.	Make sure that the DefaultProfile parameter object that you provided is properly initialized and configured with corresponding parameters.
SDK.SessionTokenExpired	The DefaultAcsClient parameter that you provided when initializing DefaultAcsClient is invalid.	Make sure that the SessionToken parameter is in the validity period, which generally is one hour.
SignatureDoesNotMatch	The SessionToken you provided is invalid or has expired.	Make sure that the DefaultProfile parameter object that you provided is properly initialized and configured with corresponding parameters.
SDK.InvalidProfile	The AccessKey Secret does not match the AccessKey ID.	Make sure that the AccessKey Secret is valid.