Virtual Private Cloud

Developer Guide

Developer Guide

API Reference

Welcome to Alibaba Cloud Virtual Private Cloud. You can use the APIs described in this document to perform relevant operations on VPC.

Before using these APIs, make sure that you have fully understood the VPC product instructions and user agreements.

Term

Term	Description
Virtual Private Cloud (VPC)	A private network established in Alibaba Cloud. It is logically isolated from other virtual networks in Alibaba Cloud. Alibaba Cloud VPC enables you to launch and use the Alibaba Cloud resources in your own VPC.
Region	It represents the region where resources are located. Each region contains a group of zones.
Zone	Zones are physical areas in the same region with independent power grids and networks. The network latency for ECS instances within the same zone is shorter. Intranet communication can take place between zones in the same region, and fault isolation can be performed between zones.
VRouter	A VRouter is a hub in the VPC that connects all VSwitches in the VPC and serves as a gateway device that connects the VPC to other networks. Each VRouter maintains a route table that forwards network traffic based on the specific route entry settings.
VSwitch	A VSwitch is a basic network device in a VPC network. You can further segment your virtual networks into subnets by adding VSwitches.
Elastic IP Address (EIP)	Elastic IP addresses are public IP address resources that you can buy separately.

Classless Inter-Domain Routing (CIDR)	A method for allocating IP addresses and IP routing. Comparing with the traditional classes A, B, or C addresses, CIDR is more efficient in aspect of IP allocation. For example, the IP address 125.203.96.0 - 125.203.127.255 in the CIDR format is as follows: 125.203.0110 0000.0000 0000 to 125.203.0111 1111.1111 1111 or 125.203.96.0/19
Route Table	A route table is a list of route entries in a VRouter.
Route Entry	Each entry in a route table is designated as a route entry. A route entry defines the next hop address for the network traffic to be routed to the specified CIDR block destination.

Usage limitations

The number of VPCs, EIPs and other resources that an account can possess has limitation.

In a VPC, there are also limitations on the number of VSwitches and the number of ECS instances can run in a VPC, and so on. Before using the VPC APIs, ensure that you have known the limitations.

In the API documentation, if the parameter values and specification limitations are conflict of that in the official website, the information in the official website prevails.

Call method

Call methods

ECS APIs are called by sending an HTTP GET request to the ECS API server address, with corresponding request parameters included in the request according to the API instructions. The system returns the processing results according to the request processing status.

1. Request structure
2. Public parameters
3. Returned results
4. Signature mechanism

Request Structure

Service Address

The service access URL of API is:vpc.aliyuncs.com

Communication Protocol

Supports request communication via HTTP or HTTPS channels. HTTPS is recommended because it provides better security.

Request Methods

Supports sending request via HTTP GET. In this mode, the request parameter has to be included in the request URL.

Request Parameters

You must specify an action for each request, that is, the 'Action' parameter (such as StartInstance). Every action must include the required public request parameters and the request parameters specified for this action.

Character Encoding

Requests and returned results are both encoded using the UTF-8 character set.

Public Parameters

Public Request Parameters

Public request parameters refer to the request parameters that need to be used by every interface.

Name	Type	Required	Description
Format	String	No	Type of value returned, JSON and XML supported. XML is the default.
Version	String	Yes	The API version, with the

			date format: YYYY-MM-DD. The current version is 2016-04-28.
AccessKeyId	String	Yes	The key ID Alibaba Cloud issued to a user to access services.
Signature	String	Yes	The signature result string. For details on the signature calculation method, please refer to Signature mechanism.
SignatureMethod	String	Yes	The signature method. HMAC-SHA1 currently supported.
Timestamp	String	Yes	Request time stamp. The date is represented according to ISO8601, and UTC is required. Format: YYYY-MM-DDThh:mm:ssZ For example, 2014-05-26T12:00:00Z (equivalent to 20:00:00, May 26, 2014 Beijing time).
SignatureVersion	String	Yes	Signature algorithm version. The current version is 1.0.
SignatureNonce	String	Yes	A unique random number, used to prevent replay attacks. The user must use different random numbers for different requests

Examples:

```
https://vpc.aliyuncs.com/
?Format=xml
&Version=2014-05-26
&Signature=Pc5WB8gokVn0xfeu%2FZV%2BiNM1dgI%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=key-test
&Timestamp=2012-06-01T12:00:00Z
...
```

Public Return Parameters

Each time the user sends a call request to an interface, no matter if it is successful or not, the system will return a unique identification code (RequestId) to the user.

Examples:

XML Examples:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Result Root Node-->
<Interface Name+Response>
<--Return Request Tag-->
<RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
<!--Return Result Data-->
</Interface Name+Response>
```

JSON Examples:

```
{
"RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
/* Return Result Data*/
}
```

Returned Results

After the API service is called, the returned data adopts a uniform format. A returned HTTP status code of 2xx indicates that the call was successful. A returned HTTP status code of 4xx or 5xx indicates that the call was unsuccessful. For successful calls, the supported formats of returned data are XML and JSON. When a request is sent, an external system can pass in parameters to specify the format of returned data. XML is the default format. In this document, examples of results returned are formatted in a way that is easier for users to view. The actual results returned are not formatted with line breaks, indentation, etc.

Successful Results

XML Examples:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Result Root Node-->
<Interface Name+Response>
<!--Return Request Tag-->
<RequestId>4C467B38-3910-447D-87BC-AC049166F216</RequestId>
<!--Return Result Data-->
</Interface Name+Response>
```

JSON Examples:

```
{
"RequestId": "4C467B38-3910-447D-87BC-AC049166F216",
/* Return Result Data*/
}
```

Error Results

After an error is encountered in an interface call, no result data will be returned. The caller can pinpoint the causes of error based on the error codes corresponding to each interface and the public error codes that are listed in 2.3.3 below.

When an error occurs in a call, the HTTP request will return an HTTP status code of 4xx or 5xx. The returned message body includes the specific error code and error message. It also contains a globally unique request ID: RequestId and the ID of the site you accessed with this request: HostId. If the caller cannot find the cause of the error, he can contact Alibaba Cloud customer service and provide the HostId and RequestId to help us solve the problem as quickly as possible.

XML Examples:

```
<?xml version="1.0" encoding="UTF-8"?>
<Error>
<RequestId>8906582E-6722-409A-A6C4-0E7863B733A5</RequestId>
<HostId>vpc.aliyuncs.com</HostId>
<Code>UnsupportedOperation</Code>
<Message>The specified action is not supported.</Message>
</Error>
```

JSON Examples:

```
{
"RequestId": "8906582E-6722-409A-A6C4-0E7863B733A5",
"HostId": "vpc.aliyuncs.com",
"Code": "UnsupportedOperation",
"Message": "The specified action is not supported."
}
```

Public Error Codes

Error code	Description	Http status code	Meaning
MissingParameter	The input parameter “Action” that is mandatory for processing this request is not supplied	400	The Action field missing
MissingParameter	The input parameter “AccessKeyId” that is mandatory for processing this request is not supplied	400	The AccessKeyId field missing
MissingParameter	An input parameter “Signature” that is mandatory for processing the request is not supplied.	400	The Signature field missing
MissingParameter	The input parameter “TimeStamp” that is mandatory for processing this request is not supplied	400	The Timestamp field missing
MissingParameter	The input parameter “Version” that is mandatory for processing this request is not supplied	400	The Version field missing
InvalidParameter	The specified parameter “Action or Version” is not valid.	400	Invalid Action value (This API does not exist)
InvalidAccessKeyId.NotFound	The Access Key ID provided does not exist in our records.	400	Invalid AccessKeyId value (This key does not exist)
Forbidden.AccessKeyDisabled	The Access Key is disabled.	403	The AccessKey is disabled
IncompleteSignature	The request signature does not conform to Alibaba Cloud standards.	400	Invalid Signature value (incorrect signature result)
InvalidParamater	The specified parameter “SignatureMethod	400	Invalid SignatureMethod value

	" is not valid.		
InvalidParamater	The specified parameter "SignatureVersion " is not valid.	400	Invalid SignatureVersion value
IllegalTimestamp	The input parameter "Timestamp" that is mandatory for processing this request is not supplied.	400	Invalid Timestamp value (The gap between Timestamp and server time exceeds one hour)
SignatureNonceUsed	The request signature nonce has been used.	400	Invalid SignatureNonce (This SignatureNonce value has been used)
InvalidParameter	The specified parameter "Action or Version" is not valid.	400	Invalid Version value
InvalidOwnerId	The specified OwnerId is not valid.	400	Invalid OwnerId value
InvalidOwnerAccount	The specified OwnerAccount is not valid.	400	Invalid OwnerAccount value
InvalidOwner	OwnerId and OwnerAccount can't be used at one API access.	400	The OwnerId and OwnerAccount are used at the same time
Throttling	Request was denied due to request throttling.	400	Access is denied due to the system traffic control
Throttling	Request was denied due to request throttling.	400	The call quota for this key is used up
InvalidAction	Specified action is not valid.	403	This key is not authorized to call this API
UnsupportedHTTPMethod	This http method is not supported.	403	The user adopts unsupported Http method (currently **TOP** only supports post and get)
ServiceUnavailable	The request has failed due to a temporary failure of the server.	500	The service is unavailable

UnsupportedParameter	The parameter “<parameter name>” is not supported.	400	Invalid parameter is used
InternalError	The request processing has failed due to some unknown error, exception or failure.	500	Other causes
MissingParameter	The input parameter OwnerId,OwnerAccount that is mandatory for processing this request is not supplied.	403	No assigned OwnerId when calling this interface
Forbidden.SubUser	The specified action is not available for you	403	Not authorized to call the Order class interface
UnsupportedParameter	The parameter “<parameter name>” is not supported.	400	Not authorized to use this parameter
Forbidden.InstanceNotFound	The specified Instance does not exist, so we cannot get enough information to check permission in RAM.	404	RAM is used to provide cross-account access to resources, but the Instance involved in the access does not exist
Forbidden.DiskNotFound	The specified Disk does not exist, so we cannot get enough information to check permission in RAM.	404	RAM is used to provide cross-account access to resources, but the Disk involved in the access does not exist
Forbidden.SecurityGroupNotFound	The specified SecurityGroup does not exist, so we cannot get enough information to check permission in RAM.	404	RAM is used to provide cross-account access to resources, but the SecurityGroup involved in the access does not exist
Forbidden.SnapshotNotFound	The specified Snapshot does not exist, so we cannot get enough information to check permission in RAM.	404	RAM is used to provide cross-account access to resources, but the Snapshot involved in the access does not exist

Forbidden.ImageNotFound	The specified Image does not exist, so we cannot get enough information to check permission in RAM.	404	RAM is used to provide cross-account access to resources, but the Image involved in the access does not exist
Forbidden.RAM	User not authorized to operate on the specified resource, or this API does not support RAM.	403	RAM is used to provide cross-account access to resources, but users are not authorized to perform the operation this time
Forbidden.NotSupportRAM	This action does not support accessed by RAM mode.	403	RAM is not allowed to be used to access this interface (use of ResourceOwnerAccount not allowed)
Forbidden.RiskControl	This operation is forbidden by Alibaba Cloud Risk Control system.	403	Access denied by Alibaba Cloud Risk Control system
InsufficientBalance	Your account does not have enough balance.	400	Insufficient balance
IdempotentParameterMismatch	Request uses a client token in a previous request but is not identical to that request.	400	A used ClientToken is used for the request, which is different from the previous request with the used token.
RealNameAuthenticationError	Your account has not passed the real-name authentication yet.	403	Real-name authentication is not performed by the user
InvalidIdempotenceParameter.Mismatch	The specified parameters are different from before	403	Idempotence parameters do not match
LastTokenProcessing	The last token request is processing	403	The previous request is still being processed
InvalidParameter	The specified parameter is not valid	400	Parameter verification failed

Signature Mechanism

Each time it is accessed by a request, the service will perform sender authentication. Therefore, whether HTTP or HTTPS protocol is used to submit the request, the request must contain signature information. By using the Access Key ID and Access Key Secret, the service performs symmetric encryption to authenticate the sender request. The ‘Access Key ID’ and ‘Access Key Secret’ are officially issued to visitors by Alibaba Cloud (visitors can apply for and manage them on the official Alibaba Cloud website). The Access Key ID indicates the identity of the visitor. The Access Key Secret is the secret key used to encrypt the signature string and to verify the signature string on the server. It must be kept strictly confidential and should only be known to Alibaba Cloud and the end user.

When a user makes a call to the server, the following method is used to sign the request:

The Canonicalized Query String is constructed using the request parameters
(a) The request parameters are ordered alphabetically by the parameter names (this includes the “public request parameters” and custom parameters for the given request interfaces described in this document, but not the Signature parameter mentioned in “Public Request Parameters”).
Note: When a request is submitted using the GET method, these parameters are the parameter section of the request URI (i.e. the section in the URI following “?” and connected by “&”).

(b) The name and value of each request parameter are encoded. The names and values must undergo URL encoding using the UTF-8 character set. The URL encoding rules are as follows:

i. The characters A-Z, a-z, 0-9, "-", "_", ".", and "~" are not encoded;
ii. Other characters are encoded in "%XY" format, with XY representing the characters' ASCII code in hexadecimal notation. For example, the English double quotes (") are encoded as %22
iii. Extended UTF-8 characters are encoded in "%XY%ZA..." format;
iv. It must be noted that the English space ( ) is encoded as %20, rather than the plus sign (+).

Note: Generally, libraries that support URL encoding (e.g. Java’s java.net.URLEncoder) are all encoded according to the rules for the “application/x-www-form-urlencoded” MIME-type. If this encoding method is used, replace the plus signs (+) in the encoded strings with %20, the asterisks (*) with %2A, and change %7E back to the tilde (~) to conform to the encoding rules described above.

(c) Connect the encoded parameter names and values with the English equals sign (\=).

(d) Then, order the parameter name and value pairs connected by equals signs in alphabetical order and connect them with the & symbol to produce the Canonicalized Query String.

Follow the rules below to construct the string used for signature calculation by using the Canonicalized Query String constructed in the previous step:

```
 StringToSign=
HTTPMethod + “&” +
percentEncode( “/” ) + ” &” +
percentEncode(CanonicalizedQueryString)
```

Here, HTTPMethod is the HTTP method used for request submission, e.g. GET.
percentEncode (“/ “) is the encoded value for the character “/ “ according to the URL encoding rules described in 1.b, namely “%2F” .
percentEncode(CanonicalizedQueryString) is the encoded string of the Canonicalized Query String constructed in Step 1, produced by following the URL encoding rules described in 1.b.

Use the above to calculate the HMAC value of the signature string, as defined in RFC2104.
Note: When calculating the signature, the Key is the Access Key Secret held by the user with the “&” character (ASCII:38) added on the end. The SHA1 hashing algorithm is used.

According to Base64 encoding rules, encode the above HMAC value into a string. This gives you the signature value.

Add the obtained signature value to the request parameters as the ‘Signature’ parameter. This completes the request signing process.
Note: When the obtained signature value is submitted to the server as the final request parameter value, it will undergo URL encoding like other parameters according to RFC3986 rules.

Taking DescribeRegions for example, the request URL before signature is:

```
http://vpc.aliyuncs.com/?TimeStamp=2012-12-
26T10:33:56Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod=HMAC-
SHA1&RegionId=region1&SignatureNonce=NwDAxvLU6tFE0DVb&Version=2014-05-
26&SignatureVersion=1.0
```

Thus, the StringToSign is:

```
GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeRegions&Format%3DXML&RegionId%3Dregion
1&SignatureMethod%3DHMAC-
SHA1&SignatureNonce%3DNwDAxvLU6tFE0DVb&SignatureVersion%3D1.0&TimeStamp%3D2012-12-
26T10%253A33%253A56Z&Version%3D2014-05-26
```

If we assume the Access Key ID is “testid”, the Access Key Secret is “testsecret”, and the Key used for HMAC calculation is “testsecret&”, the calculated signature value is:

```
K9fCVP6Jrklpd3rLYKh1pfrrFNo=
```

The signed request URL is (note the added Signature parameter):

```
http://vpc.aliyuncs.com/?TimeStamp=2012-12-
26T10%3A33%3A56Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod
=HMAC-SHA1&RegionId=region1&SignatureNonce=NwDAxvLU6tFE0DVb&Version=2012-09-
13&SignatureVersion=1.0&Signature=SDFQNvyH5rtkc9T5Fwo8DOjw5hc%3d
```

VPC APIs

Description

Create a VPC in a specified region.

Note the following before creating a VPC:

- When you create a VPC, you must specify a range of IP addresses for the VPC in the form of a Classless Inter-Domain Routing (CIDR) block.
- A VPC can assign only one CIDR block and the available CIDR blocks are 192.168.0.0/16 and 172.16.0.0/12 as well as their subnets. The default IP address range is 172.16.0.0/12.
- The CIDR block cannot be modified after you create the VPC.
- If you want to add a cloud product instance to a VPC, ensure that the region is same as that of the VPC. The cloud product instances cannot in a VPC cannot be distributed across different regions but can be distributed across different zones in the region.
- The CIDR block cannot be modified once the VPC has been created.
- The number of cloud product instances in each VPC cannot exceed 10000.
- A VRouter and a route table are automatically created along with the creation of a VPC. Each VPC can have only one VRouter and one route table.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: CreateVpc.
RegionId	String	Yes	The region of the new VPC. See Regions and zones for region IDs.
CidrBlock	String	No	Valid values: 192.168.0.0/16 and 172.16.0.0/16. If not specified, the default value 172.16.0.0/16 is used.
VpcName	String	No	The name of the VPC. The default value is null. Note the following when specify the name: - Contain 2 characters at least and 128 characters at most. - Can contain digits, "_ ", and "- ". - Cannot begin with http:// or https://.
Description	String	No	The description of the VPC. The default value is null. Note the following when entering the description: - Contain 2 characters at least and 256 characters at most.

			- Must begin with an uppercase or lowercase English letter, or Chinese character. - Cannot begin with http:// or https://.
ClientToken	String	No	Used to ensure the request idempotence. This parameter value is generated by the client and must be unique. Cannot exceed 64 ASCII characters. For details, refer to the appendix.

Return Parameters

Name	Type	Description
VpcId	String	The ID of VPC allocated by the system.
VRouterId	String	The ID of the VRouter created by the system.
RouteTableId	String	The ID of the route table created by the system.

Error Code

Error message		HTTP status code	Description
InvalidRegionId.NotFound	Specified value of **RegionId** is not supported.	404	The specified region does not exist. Refer to **Regions and zones** to check the available regions and corresponding region IDs.
InvalidParameter	Specified CIDR block is not valid.	400	The specified CIDR block is invalid.

ResourceNotAvailable	Resource you requested is not available in this region or zone.	400	The VPC service is not available in the specified region or zone.
InvalidVpcName.Malformed	Specified VPC name is not valid.	400	The format of the VPC name is invalid.
InvalidVpcDiscription.Malformed	Specified VPC description is not valid.	400	The format of the VPC description is invalid.
Forbbiden	User not authorized to operate on the specified resource.	403	The user does not have operation permission for the specified resource.
QuotaExceeded.Vpc	VPC quota exceeded.	400	The VPC quota for this account has been reached.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=CreateVpc
&RegionID=cn-beijing
&<Public Request Parameters>
```

Return Example

XML format

```
<CreateVpcResponse>
<RequestId>461D0C42-D5D1-4009-9B6A-B3D5888A19A9</RequestId>,
<RouteTableId>vtb-25wm68mnh</RouteTableId>
<VRouterId>vrt-25bezkd03</VRouterId>
<VpcId>vpc-257gq642n</VpcId>
</CreateVpcResponse>
```

JSON format

```
{
"RequestId": "461D0C42-D5D1-4009-9B6A-B3D5888A19A9",
"RouteTableId": "vtb-25wm68mnh",
"VRouterId": "vrt-25bezkd03",
"VpcId": "vpc-257gq642n"
}
```

Description

Delete the specified VPC.

Note the following before deleting a VPC:

> Before deleting a VPC, you must first release or remove all resources in the VPC (including VSwitches, ECS Instances and so on).
>
> Only VPCs in the **Available** status can be deleted.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: DeleteVpc.
VpcId	String	Yes	The ID of the VPC to be deleted.

Return Parameters

All parameters are public parameters. For details, refer to Public Return Parameters.

Error Code

Error message		Http status code	Description
IncorrectVpcStatus	Current VPC status does not support this operation.	400	The current VPC status does not support this operation.
DependencyViolation.RouteEntry	Specified object has dependent resources.	400	Failed to delete the VPC because the VPC still has associated custom router entries.
DependencyViolation.Instance	Specified object has dependent resources.	400	Failed to delete the VPC because the VPC still has associated cloud product instances.
DependencyViolatio	Specified object has	400	Failed to delete the

n.VSwitch	dependent resources.		VPC because the VPC still has associated VSwitches.
DependencyViolation.SecurityGroup	Specified object has dependent resources.	400	Failed to delete the VPC because the VPC still has associated security groups.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DeleteVpc
&VpcId=vpc-25eq58pl3
&<Public Request Parameters>
```

Return Example

XML format

```
<DeleteVpcResponse>
<RequestId>606998F0-B94D-48FE-8316-ACA81BB230DA</RequestId>
</DeleteVpcResponse>
```

JSON format

```
{
"RequestId":"606998F0-B94D-48FE-8316-ACA81BB230DA"
}
```

Description

Query the list of VPCs in a specified region. This interface supports querying by page, with 10 lines per page by default.

This interface only checks the validation of the parameters and does not check the dependency between parameters. The returned results are the intersection of all criteria.

Request Parameters

Name	Type	Required	Description

Action	String	Yes	Valid value: DescribeVpcs.
VpcId	String	No	The ID of the VPC to be queried.
RegionId	String	Yes	The ID of the region where the VPC to be queried belongs to. Refer to Regions and zones to check region IDs.
PageNumber	Integer	No	Page number of the instance status list. The start value is 1. The default value is 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and default value is 10.

Return Parameters

Name	Type	Description
Vpcs	VpcType	The collection information of the VPC. For details, refer to VpcSetType.
TotalCount	String	The total number of the queried items.
PageNumber	Integer	The current page number.
PageSize	Integer	The number of items on the current page.

Error Code

Error message		Http status code	Description
Forbidden.RegionNotFound	Specified region is not found during access authentication.	404	The specified region does not exist. Refer to Regions and zones to check the available regions and corresponding region IDs.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeVpcs
&RegionId=cn-beijing
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeVpcsResponse>
<RequestId> DA1DAE87-43FA-472F-98BB-4FDBAA4A688D</RequestId>
<Vpcs>
<Vpc>
<VpcId> vpc-257gq642n </VpcId>
<RegionId>cn-beijing</RegionId>
<VpcName></VpcName>
<Description></Description>
<VRouterId>vrt-25bezkd03</VRouterId>
<Status>Available</Status>
<CidrBlock>172.16.0.0/16</CidrBlock>
<VSwitchIds>
</VSwitchIds>
<CreationTime> 2014-10-29T13:30:19Z</CreationTime>
</Vpc>
</Vpcs>
</DescribeVpcResponse>
```

JSON format

```
{
"PageNumber": 1,
"PageSize": 10,
"RequestId": "DA1DAE87-43FA-472F-98BB-4FDBAA4A688D",
"TotalCount": 1,
"Vpcs": {
"Vpc":
{
"CidrBlock": "172.16.0.0/16",
"CreationTime": "2014-10-29T13:30:19Z",
"Description": "",
"RegionId": "cn-beijing",
"Status": "Available",
"VRouterId": "vrt-25bezkd03",
"VSwitchIds": {
"VSwitchId": []
```

```
},
"VpcId": "vpc-257gq642n",
"VpcName": ""
}
]
}
}
```

Description

Modify the attributes of the specified VPC.

Request Parameters

Name	Type	Required?	Description
Action	String	Yes	Valid value: ModifyVpcAttribute.
VpcId	String	Yes	The ID of the VPC to be modified.
VpcName	String	No	The new name of the VPC. The default value is Null. Note the following when modifying the name: - Contain 2 characters at least and 128 characters at most. - Can contain digits, "_ ", and "- ". - Cannot begin with http:// or https://.
Description	String	No	The new description of the VPC. The default value is null. Note the following when modifying the description:

			- Contain 2 characters at least and 256 characters at most. - Must begin with an uppercase or lowercase English letter, or Chinese character. - Cannot begin with http:// or https://.

Return Parameters

All parameters are public parameters. For details, refer to Public Return Parameters.

Error Code

Error message		HTTP status code	Description
InvalidVpcId.NotFound	Specified VPC does not exist.	404	The specified VPC does not exist.
InvalidVpcName.Malformed	Specified VPC name is not valid.	400	The format of the VPC name is invalid.
InvalidVpcDiscription.Malformed	Specified VPC description is invalid.	400	The format of the VPC description is invalid.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=ModifyVpcAttribute
&VpcId=vpc-257gq642n
&VpcName=Vpc02
&<Public Request Parameters>
```

Return Example

XML format

```
<ModifyVpcAttributeResponse>
<RequestId>5741F353-AD13-41A2-83C7-19E49BD9AE30</RequestId>
</ModifyVpcAttributeResponse>
```

JSON format

```
{
"RequestId": "5741F353-AD13-41A2-83C7-19E49BD9AE30"
}
```

VRouter APIs

Description

Query the list of VRouters in the specified region. This interface supports querying by page, with 10 lines per page by default.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: DescribeVRouters.
VRouterId	String	No	The ID of the VRouter to be queried.
RegionId	String	Yes	The ID of the region. Refer to Regions and zones to check region IDs.
PageNumber	Integer	No	Page number of the instance status list. The start value is 1. The default value is 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50

			and default value is 10.

Return Parameters

Name	Type	Description
VRouterSetType	-	The detailed information of the VRouter. For details, refer to VRouterSetType.
TotalCount	Integer	The number of items on the list.
PageNumber	Integer	The current page.
PageSize	Integer	The number of items on the current page.

Error Code

Error code and message		HTTP status code	Description
Forbidden.RegionNotFound	Specified region is not found during access authentication.	404	The specified region does not exist.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeVRouters
&RegionId=cn-beijing
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeVRoutersResponse>
<RequestId>C2C6EF61-53B7-4071-A87D-B42F1F17FA5A</RequestId>
<VRouters>
<VRouter>
<VpcId>vpc-257gq642n</VpcId>
<VRouterName></VRouterName>
<Description></Description>
```

```
<VRouterId>vrt-25bezkd03</VRouterId>
<RouteTableIds>
<RouteTableId>vtb-25wm68mnh</RouteTableId>
</RouteTableIds>
<CreationTime>2014-10-29T13:30:19Z</CreationTime>
</VRouter>
</VRouters>
</DescribeVRoutersResponse>
```

JSON format

```
{
"PageNumber": 1,
"PageSize": 10,
"RequestId": "C2C6EF61-53B7-4071-A87D-B42F1F17FA5A",
"TotalCount": 1,
"VRouters": {
"VRouter": [
{
"CreationTime": "2014-10-29T13:30:19Z",
"Description": "",
"RegionId": "cn-beijing",
"RouteTableIds": {
"RouteTableId": [
"vtb-25wm68mnh"
]
},
"VRouterId": "vrt-25bezkd03",
"VRouterName": "",
"VpcId": "vpc-257gq642n"
}
]
}
}
```

Description

Modify the attributes of the specified VRouter.

Request Parameters

Name	Type	Required?	Description
Action	String	Yes	Valid value: ModifyVRouterAttribute.
VRouterId	String	Yes	The ID of the VRouter to be modified.
VRouterName	String	No	The new name of the

			VRouter. The default value is null. Note the following when modifying the name: - Contain 2 characters at least and 128 characters at most. - Cannot begin with http:// or https://.
Description	String	No	The new description of the VRouter. Note the following when modifying the description: - Contain 2 characters at least and 256 characters at most. - Must begin with an uppercase or lowercase English letter, or Chinese character. - Cannot begin with http:// or https://.

Return Parameters

All parameters are public parameters. For details, refer to Public Return Parameters.

Error Code

Error code and message	HTTP status code	Description

InvalidVRouterId.NotFound	Specified virtual router does not exist.	404	The specified VRouter does not exist.
InvalidVRouterName.Malformed	Specified virtual router name is not valid.	400	The name of the VRouter is invalid.
InvalidVRouterDiscription.Malformed	Specified virtual router description is not valid.	400	The description of the VRouter is invalid.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=ModifyVRouterAttribute
&VRouterId=vrt-25bezkd03
&VRouterName=VRouter
&<Public Request Parameters>
```

Return Example

XML format

```
<ModifyVRouterAttributeResponse>
<RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</ModifyVRouterAttributeResponse>
```

JSON format

```
{
"RequestId": "E0AAA98E-8E3C-4C11-95F3-5E2B8AD51703"
}
```

VSwitch APIs

Description

Creates a VSwitch in the specified VPC. Note the following when creating a VSwitch:

The cloud product instances under a VSwitch cannot be distributed across different zones.

Each VPC cannot have more than 24 VSwitches.

The block size of a VSwitch is between is /16 netmask and /24 netmask, providing 256-65535 IP addresses.

The first and last three VSwitch IP addresses are reserved by the system. For example, for 192.168.1.0/24, the IP addresses reserved by the system are 192.168.1.0 and 192.168.1.253 - 255.

VSwitches do not support broadcasting or multicasting.

The CIDR block of the VSwitch must belong to the CIDR block of the VPC.

If the CIDR block of the VSwitch is the same as that of the VPC, you can only have one VSwtich in the VPC.

The CIDR block of the VSwitch cannot be same of the destination CIDR block of the route entry in the same VPC.

The CIDR block size of the VSwitch cannot larger than the destination CIDR block size of the route entry but can be a subset of the destination CIDR block of the route entry.

The CIDR block of the VSwitch cannot be modified after you create the VSwitch.

The number of cloud product instances under the VSwitch cannot exceed the number of instances for the VPC (10000 - the current number of cloud product instances).

A single cloud product instance can only belong to one VSwitch.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: CreateVSwitch.
ZoneId	String	Yes	ID of the zone.
CidrBlock	String	Yes	The CIDR block of the VSwitch.

VpcId	String	Yes	The ID of the VPC that the VSwitch belongs to.
VSwitchName	String	No	The VSwitch name. The default value is null. Note the following when specifying the name: - Contain 2 characters at least and 128 characters at most. - Can contain digits, "_ ", and "- ". - Cannot begin with http:// or https://.
Description	String	No	The VSwitch description. The default value is null. Note the following when specifying the description: - Contain 2 characters at least and 256 characters at most. - Must begin with an uppercase or lowercase English letter, or Chinese character. - Cannot begin with http:// or https://.
ClientToken	String	No	Used to ensure the idempotence of the

			request. The value is generated by a client. The token must be unique among all requests and can contain up to 64 ASCII characters. For details, refer to the appendix How to Ensure Idempotence.

Return Parameters

Name	Type	Description
VSwitchId	String	The ID of the VSwitch allocated by the system.

Error Code

Error code and message		HTTP status code	Description
InvalidZoneId.NotFound	Specified zone does not exist.	404	The specified zone does not exist.
InvalidVpcId.NotFound	Specified VPC does not exist.	404	The specified VPC does not exist.
InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	400	The specified CIDR block format is invalid.
InvalidVSwitchName.Malformed	Specified virtual switch name is not valid.	400	The format of the VSwitch name is invalid.
InvalidVSwitchDiscription.Malformed	Specified virtual switch description is not valid.	400	The format of the VSwitch description is invalid.
ResourceNotAvailable	Resource you requested is not available in this region or zone.	400	The specified region or zone does not support VPC.
InvalidParameter	Specified CIDR block is not valid in VPC.	400	The specified CIDR block is invalid.
InvalidCidrBlock.Overlapped	Specified CIDR block overlapped with other subnets.	400	The specified CIDR overlaps with other VSwitches.
InvalidCidrBlock.Overlapped	Specified CIDR block overlapped with other entry	400	The specified CIDR overlaps with a destination CIDR block of a custom

			route entry.
QuotaExceeded.VSwitch	Virtual switch quota exceeded.	400	The VSwitch quota has been reached.
IncorretRouteEntryStatus	Some route entry status blocked this operation.	400	Failed to create VSwitch because the custom routes are in the pending status.
IncorretVSwitchStatus	Some virtual switch is modifying within the same VPC.	400	Failed to create VSwitch because some VSwitches are in the pending status.
InvalidCirdrBlock.MaskLength	Specified CIDR block is not valid.	400	The specified CIDR block format is invalid.
IncorrectVpcStatus	Current VPC status does not support this operation.	400	Failed to create VSwitch because the VPC is in the pending status.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=CreateVSwitch
&CidrBlock=172.16.1.0/24
&VpcId=vpc-257gq642n
&ZoneId=cn-beijing-a
&<Public Request Parameters>
```

Return Example

XML format

```
<CreateVSwitchResponse>
<RequestId>861E6630-AEC0-4B2D-B214-6CB5E44B7F04</RequestId>
<VSwitchId>vsw-25naue4gz</VSwitchId>
</CreateVSwitchResponse>
```

JSON format

```
{
"RequestId": "861E6630-AEC0-4B2D-B214-6CB5E44B7F04",
"VSwitchId": "vsw-25naue4gz"
}
```

Description

Delete the specified VSwitch. Note the following when deleting a VSwitch.

Only VSwitches in the **Available** status can be deleted.

Before deleting a VSwitch, you must release or remove all resources under the VSwitch.

You are not allowed to delete a VSwitch when the VPC or other VSwitch in the VPC is in an intermediate status (adding, modifying, deleting).

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: DeleteVSwitch.
VSwitchId	String	Yes	The ID of the VSwitch to be deleted.

Return Parameters

All parameters are public parameters. For details, refer to Public Return Parameters.

Error Code

Error code and message		HTTP status code	Description
IncorrectVSwitchStatus	The current virtual switch status does not support this operation.	400	Failed to delete the VSwitch because the specified VSwitch is in the pending state.
DependencyViolation	Specified object has dependent resources.	400	Failed to delete the VSwitch because the specified VSwitch still has unreleased resources.
IncorretRouteEntryStatus	Some route entry status blocked this operation.	400	Failed to delete the VSwitch because some custom route entries are in the pending state.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DeleteVSwitch
&VSwitchId=vsw-25naue4gz
&<Public Request Parameters>
```

Return Example

XML format

```
<DeleteVSwitchesResponse>
<RequestId>AF083E3D-7E29-4B77-A937-1F129802D5F3</RequestId>
</DeleteVSwitchesResponse>
```

JSON format

```
{
"RequestId": "AF083E3D-7E29-4B77-A937-1F129802D5F3"
}
```

Description

Query the user’ s VSwitch list. This interface supports querying by page, with 10 lines per page by default.

This interface can only verify the legitimacy of the parameters and cannot verify the dependency between parameters. The returned results are the intersection of all criteria.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: DescribeVSwitches.
RegionId	String	Yes	Region ID.
VpcId	String	No	VPC ID.
VSwitchId	String	No	The ID of the VSwitch to be queried.

ZoneId	String	No	ID of the zone.
PageNumber	Integer	No	Page number of the instance status list. The start value is 1. The default value is 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and default value is 10.

Return Parameters

Name	Type	Description
VSwitches	VSwitchType	A collection composed of VSwitch details VSwitchSetType.
TotalCount	Integer	The number of items on the list.
PageNumber	Integer	The current page.
PageSize	Integer	The number of items on the current page.

Error Code

Error Code	Description	Http status code	Meaning
Forbidden.VpcNotFound	Specified VPC is not found during access authentication.	404	The specified VPC does not exist.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeVSwitches
&VpcId=vpc-25eq58pl3
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeVSwitchesResponse>
<RequestId>9A572171-4E27-40D1-BD36-D26C9E71E29E</RequestId>
<VSwitches>
<VSwitch>
<VSwitchId> vsw-25b7pv15t </VSwitchId>
<Status>Available</Status>
<CidrBlock>172.16.1.0/24</CidrBlock>
<ZoneId>cn-beijing-a</ZoneId>
<AvailableIpAddressCount>246</AvailableIpAddressCount>
<VpcId>vpc-257gq642n</VpcId>
<Description></Description>
<VSwitchName></VSwitchName>
<CreationTime> 2014-10-29T15:21:02Z </CreationTime>
</VSwitch>
</VSwitches>
</DescribeVSwitchesResponse>
```

JSON format

```
{
"PageNumber": 1,
"PageSize": 10,
"RequestId": "9A572171-4E27-40D1-BD36-D26C9E71E29E",
"TotalCount": 1,
"VSwitches": {
"VSwitch": [
{
"AvailableIpAddressCount": 246,
"CidrBlock": "172.16.1.0/24",
"CreationTime": "2014-10-29T15:21:02Z",
"Description": "",
"Status": "Available",
"VSwitchId": "vsw-25b7pv15t",
"VSwitchName": "",
"VpcId": "vpc-257gq642n",
"ZoneId": "cn-beijing-a"
}
]
}
}
```

Modify VSwitch attributes

Description

Modify the attributes of the specified VSwitch.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: ModifyVSwitchAttribute.
VSwitchId	String	Yes	The ID of the VSwitch to be modified.
VSwitchName	String	No	The VSwitch name. The default value is blank. [2, 128] English or Chinese characters, must begin with an uppercase/lowercase letter or Chinese character. Can contain numbers, "_" and "-". This value will appear on the console. It cannot begin with http:// or https://.
Description	String	No	The VSwitch description after modification. The default value is blank. [2, 256] English or Chinese characters. Cannot begin with http:// or https://.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Error Code

Error Code	Description	Http status code	Meaning
InvalidVSwitchId.NotFound	The specified virtual switch does not exists.	404	The specified VSwitch does not exist.
InvalidVSwitchName.Malformed	Specified virtual switch name is not valid.	400	The format of the specified VSwitch name is incorrect.
InvalidVSwitchDiscription.Malformed	Specified virtual switch description is	400	The format of the specified VSwitch

	not valid.		description is incorrect.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=ModifyVSwitchAttribute
&VSwitchId=vpc-257gq642n
&<Public Request Parameters>
```

Return Example

XML format

```
<ModifyVSwitchAttributeResponse>
<RequestId>C0FD0EED-F90D-4479-803D-DD62335357E5</RequestId>
</ModifyVSwitchAttributeResponse>
```

JSON format

```
{
"RequestId":"C0FD0EED-F90D-4479-803D-DD62335357E5"
}
```

Route table API

Description

Create a custom route entry in a router table.

Note the following when creating a custom route entry for a VRouter in a VPC:

- The total number of custom route entries in a route table cannot exceed 48.
- The **DestinationCidrBlock** of a route entry cannot be the same CIDR block of the VSwitch in the VPC, and also cannot contain the CIDR block of a VSwitch or be included in the CIDR block of a VSwitch.

The **DestinationCidrBlock** of a route entry cannot be 100.64.0.0/10 or smaller than 100.64.0.0/10.

The **DestinationCidrBlock** of the route entries in a route table cannot be the same.

If the specified **DestinationCidrBlock** is an IP address, the /32 networkmask will be used by default.

Multiple route entries can use the same ECS instance as the next hop.

The ECS instance that is selected as the next hop must belong to the same VPC as the route entry.

In a VPC, the number of HAVIP route entries cannot exceed 5.

Support adding ECMP route entries by configuring the **NextHopList** parameter.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: CreateRouteEntry.
RouteTableId	String	Yes	The ID of the route table.
DestinationCidrBlock	String	Yes	The destination CIDR block of the route entry.
NextHopType	String	No	The type of the next hop. Valid values: Instance and Tunnel. The default value is Instance.
NextHopId	String	Yes	The next hop of the router entry.
ClientToken	String	No	Used to ensure the idempotence of the request. The value is generated by a client. The token must be unique among all requests and can contain up to 64 ASCII

			characters. For details, refer to the appendix How to Ensure Idempotence.

Return Parameters

All parameters are public parameters. For details, refer to Public Return Parameters.

Error Code

Error code and message		HTTP status code	Description
InvalidCidrBlock.Malformed	Specified CIDR block is not valid.	400	The specified CIDR block is invalid.
InvalidInstanceId.NotFound	Specified instance does not exist.	404	The specified ECS instance does not exist (the instance does not belong to this VPC).
InvalidRouteTableId.NotFound	Specified route table does not exist.	404	The specified virtual route table does not exist.
InvalidCIDRBlock.Duplicate	Specified CIDR block already exists.	400	The specified CIDR block already exists in the route table.
IncorrectVpcStatus	Current VPC status does not support this operation.	400	The VPC is still being created.
QuotaExceeded	Route entry quota exceeded in this route table.	400	The quota of the maximum number of the custom router entries in a route table has been reached.
IncorretRouteEntryStatus	Some route entry status blocked this operation.	400	You are not allowed to create a custom router entry when any route entry or VSwitch in the VPC is in an intermediate status (adding, modifying, deleting).
InvalidCidrBlock	Specified CIDR block is not valid.	400	- This user is not added in the whitelist for

			the 10.0.0.0/8 CIDR block and cannot use this CIDR block. - - The destination CIDR block cannot belong to the CIDR block of all the VSwitches in the VPC. - - The destination CIDR block cannot be 100.64.0.0/10.
InvalidNextHop.NotFound	Specified next hop does not exist.	404	The specified next hop does not exist.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=CreateRouteEntry
&VpcId=vpc-257gq642n
&RouteTableId=vrt-5citwfp6a
&DestinationCidrBlock=0.0.0.0/0
&NextHopId=i-25skktcp4
&NextHopType=Instance
&<Public Request Parameters>
```

Return Example

XML format

```
<CreateRouteEntryResponse>
<RequestId>12D086F6-8F31-4658-84C1-006DED011A85</RequestId>
</CreateRouteEntryResponse>
```

JSON format

```
{
"RequestId": "12D086F6-8F31-4658-84C1-006DED011A85"
}
```

Description

Delete the specified custom router entry. Note the following when deleting a custom router entry:

You can only delete a custom router entry in the **Available** status.

You are not allowed to delete a custom router entry when the VPC or the VSwitch in the VPC is in an intermediate status (adding, modifying, deleting).

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: DeleteRouteEntry.
RouteTableId	String	Yes	The ID of the route table.
DestinationCidrBlock	String	Yes	The destination CIDR block of the custom route entry.
NextHopId	String	Yes	The next hop ID of the route entry.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Error Code

Error code and message	HTTP status code	Description

IncorretRouteEntrySt atus	Some route entry status blocked this operation.	400	- You are not allowed to delete a custom router entry when any router entry in the VPC is in an intermediat e status (adding, modifying, deleting). - - You are not allowed to delete a custom router entry when the VSwitch in the VPC is in an intermediat e status (adding, modifying, deleting).
InvalidCidrBlock.Mal formed	Specified CIDR block is not valid.	400	Invalid CIDR block format.
InvalidRouteTableId. NotFound	Specified route table does not exist.	404	The specified route table does not exist.
OperationDenied	Specified operation is denied as route entry type is system.	400	You are not allowed to delete a System route entry.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DeleteRouteEntry
&RouterTableId=vtb-25vtxl5ct
&
nCidrBlock=192.168.1.0/24
&NextHopId=i-25skktcp4
&<Public Request Parameters>
```

Return Example

XML format

```
<DeleteRouteEntryResponse>
<RequestId>4357FA74-F9F3-46E7-8890-AA30EC4F8D4F </RequestId>
</DeleteRouteEntryResponse>
```

JSON format

```
{
"RequestId": "4357FA74-F9F3-46E7-8890-AA30EC4F8D4F"
}
```

Description

Query the list of route entries in a specified route table. This interface supports querying by page, with 10 lines per page by default.

This interface only checks the validation of the parameters and does not check the dependency between parameters. The returned results are the intersection of all criteria.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Valid value: DescribeRouteTables.
VRouterId	String	Yes	The ID of the VRouter.
RouteTableId	String	No	The ID of the route table.
PageNumber	Integer	No	Page number of the instance status list. The start value is 1. The default value is 1.
PageSize	Integer	No	The number of lines per page set for paging query. The

			maximum value is 50 and default value is 10.

Return Parameters

Name	Type	Description
RouteTables	RouteTableSetType	The detailed information of the route table. For details, refer to RouteTableSetType.
TotalCount	Integer	The number of items on the list.
PageNumber	Integer	The current page.
PageSize	Integer	The number of items on the current page.

Error Code

Error code and message		HTTP status code	Description
Forbidden.VRouterNotFound	Specified virtual switch is not found during access authentication.	404	The specified VRouter is not found.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeRouteTables
&VRouterId=vrt-25u5f8u2q
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeRouteTablesResponse>
<RequestId>913F8774-681A-4857-95D8-ACBAF044D453</RequestId>
<RouteTables>
<RouteTableId>routetable01</RouteTableId>
<RouteEntrys>
<RouteEntry>
```

```
<DestinationCidrBlock>192.168.10.1/32</DestinationCidrBlock>
<Type>Custom</Type>
<InstanceId> i-25skktcp4</InstanceId>
<Status>Available</Status>
<RouteTableId> vtb-25vtxl5ct</RouteTableId>
</RouteEntry>
<RouteEntry>
<DestinationCidrBlock>192.168.1.0/24</DestinationCidrBlock>
<InstanceId></InstanceId>
<RouteTableId>vtb-25vtxl5ct</RouteTableId>
<Status>Available</Status>
<Type>System</Type>
</RouteEntry>
<RouteEntry>
<DestinationCidrBlock>100.64.0.0/10</DestinationCidrBlock>
<InstanceId></InstanceId>
<RouteTableId>vtb-25vtxl5ct</RouteTableId>
<Status>Available</Status>
<Type>System</Type>
</RouteEntry>
<RouteEntry>
<DestinationCidrBlock>10.0.0.0/8</DestinationCidrBlock>
<InstanceId></InstanceId>
<RouteTableId>vtb-25vtxl5ct</RouteTableId>
<Status>Available</Status>
<Type>System</Type>
</RouteEntry>
</RouteEntrys>
<RouteTableId> vtb-25vtxl5ct</RouteTableId>
<RouteTableType>System</RouteTableType>
<VRouterId>vrt-25u5f8u2q</VRouterId>
<CreationTime> 2014-09-11T04:52:53Z </CreationTime>
</RouteTables>
</DescribeRouteTablesResponse>
```

JSON format

```
{
"PageNumber": 1,
"PageSize": 10,
"RequestId": "913F8774-681A-4857-95D8-ACBAF044D453",
"RouteTables": {
"RouteTable": [
{
"CreationTime": "2014-09-11T04:52:53Z",
"RouteEntrys": {
"RouteEntry": [
{
"DestinationCidrBlock": "192.168.10.1/32",
"InstanceId": "i-25skktcp4",
"RouteTableId": "vtb-25vtxl5ct",
"Status": "Available",
"Type": "Custom"
},
{
```

```
"DestinationCidrBlock": "192.168.1.0/24",
"InstanceId": "",
"RouteTableId": "vtb-25vtxl5ct",
"Status": "Available",
"Type": "System"
},
{
"DestinationCidrBlock": "100.64.0.0/10",
"InstanceId": "",
"RouteTableId": "vtb-25vtxl5ct",
"Status": "Available",
"Type": "System"
},
{
"DestinationCidrBlock": "10.0.0.0/8",
"InstanceId": "",
"RouteTableId": "vtb-25vtxl5ct",
"Status": "Available",
"Type": "System"
}
]
},
"RouteTableId": "vtb-25vtxl5ct",
"RouteTableType": "System",
"VRouterId": "vrt-25u5f8u2q"
}
]
},
"TotalCount": 1
}
```


EIP APIs

Description

Request an EIP, which is in **Available** status.

- At present, an EIP can be bound only to a VPC ECS instance in the same region.

  Upon each request, an EIP is randomly allocated in the specified region.

  At present, only ICMP, TCP, and UDP EIPs are supported. Transport layer EIPs, such as IGMP EIP and SCTP EIP, are not supported.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: AllocateEipAddress.
RegionId	String	Yes	The ID of the region to which the requested EIP belongs. See Regions and zones for region IDs.
Bandwidth	String	No	The rate limit of the EIP. If not specified, it is 5Mbps by default.
InternetChargeType	String	No	PayByBandwidth and PayByTraffic. The default value is PayByBandwidth.
ClientToken	String	No	Used to ensure the idempotence of the request. The value is generated by a client. It must be unique among all requests and contains a maximum of 64 ASCII characters. For details, refer to the appendix.

Return Parameters

Name	Type	Description
EipAddress	String	The assigned EIP.
AllocationId	String	The instance ID of the EIP.

Error Code

Error Code	Description	Http status code	Meaning
Forbbiden	User not authorized to operate on the specified resource.	403	The user is not authorized to use EIPs. Please submit a work order to request the

			authorization.
QuotaExceeded.Eip	Elastic IP address quota exceeded.	400	The number of EIPs has exceeded the quota.
InvalidRegionId.NotFound	Specified value of **RegionId** is not supported.	404	The specified RegionId does not exist. See Regions and zones for region IDs.
InvalidParameter	Specified value of **InternetChargeType** is not valid.	400	The specified InternetChargeType parameter is invalid.
InvalidParameter	Specified value of **Bandwidth** is not valid.	400	The specified Bandwidth parameter is invalid.
InsufficientEipCapacity	Insufficient EIP capacity to fulfill your request.	500	The EIPs in the specified region are not enough.
InsufficientBalance	Your account does not have enough balance.	400	The EIP cannot be requested because your account balance is not enough.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=AllocateEipAddress
&RegionId=cn-beijing
&<Public Request Parameters>
```

Return Example

XML format

```
  <AllocationId>eip-25877c70x</AllocationId>
<EipAddress>123.56.0.206</EipAddress>
<RequestId>B6B9F518-60F8-4D81-9242-1207B356754D</RequestId>
```

JSON format

```
{
"AllocationId": "eip-25877c70x",
"EipAddress": "123.56.0.206",
```

```
"RequestId": "B6B9F518-60F8-4D81-9242-1207B356754D"
}
```

Description

Bind an EIP to an ECS instance in the same region:

At present, an EIP can be bound only to an ECS instance.

Only an EIP in Available status can be bound.

An EIP takes effect immediately after it is bound to an ECS instance. You do not need to restart the ECS instance.

At present, an EIP can be bound only to a VPC ECS instance in the same region.

- Each ECS instance can be bound with only one EIP at a time.

One EIP can be bound to only one ECS instance at a time.

Only an ECS instance in Running or Stopped status can be bound with an EIP.

- An EIP that is locked for security reasons cannot be bound or unbound.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: AssociateEipAddress.
AllocationId	String	Yes	The allocation ID of the EIP to be bound. The allocation ID uniquely identifies the EIP.
InstanceId	String	Yes	The ID of the ECS instance to be bound.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Error Code

Error Code	Description	Http status code	Meaning
InvalidAssociation.Duplicated	Specified instance already is associated.	400	The specified ECS instance has been bound with an EIP.
OperationDenied	Specified instance is not in VPC.	400	The binding failed because the specified ECS instance is not a VPC instance.
InvalidParameter.Mismatch	Specified elastic IP address and ECS instance are not in the same region.	400	The specified ECS instance and the EIP are not in the same region.
IncorrectEipStatus	Current elastic IP status does not support this operation.	400	The specified EIP status does not support this operation.
InvalidAllocationId.NotFound	Specified allocation ID is not found.	404	The binding failed because the specified allocation ID of the EIP does not exist.
InvalidInstanId.NotFound	Specified instance does not exist.	404	The binding failed because the specified ECS instance does not exist.
IncorrectInstanceStatus	Current instance status does not support this operation.	400	The binding failed because the specified ECS instance is not in Stopped or Running status.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=AssociateEipAddress
&AllocationId=eip-25877c70x
&InstanceId=i-25skktcp4
&<Public Request Parameters>
```

Return Example

XML format

```
<ReleasePublicIpAddressResponse>
<RequestId>CEF72CEB-54B6-4AE8-B225-F876FF7BA984</RequestId>
</ReleasePublicIpAddressResponse>
```

JSON format

```
{"RequestId":"C0FD0EED-F90D-4479-803D-DD62335357E5"}
```

Description

Unbind an EIP.

- The EIP can be unbound only when the ECS instance is in **Running** or **Stopped** status.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: UnassociateEipAddress.
AllocationId	String	Yes	The instance ID of the EIP.
InstanceId	String	Yes	The ID of an ECS instance.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Error Code

Error Code	Description	Http status code	Meaning
IncorrectEipStatus	Current elastic IP status does not support this operation.	400	The current status of the specified EIP does not support unbinding.

InvalidAllocationId.NotFound	Specified allocation ID is not found.	404	The unbinding failed because the specified allocation ID of the EIP does not exist.
InvalidInstanceId.NotFound	Specified instance does not exist.	400	The unbinding failed because the specified ECS instance does not exist.
IncorrectInstanceStatus	The current status of instance does not support this operation.	400	The unbinding failed because the current status of the specified ECS instance does not support this operation.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=UnassociateEipAddress
&AllocationId=eip-2578g5v5a
&InstanceId=i-25skktcp4
&<Public Request Parameters>
```

Return Example

XML format

```
<UnassociateEipAddressResponse>
<RequestId>220F3179-5238-47F0-A0CA-1272AA2BC41F </RequestId>
</UnassociateEipAddressResponse>
```

JSON format

```
{
"RequestId": "220F3179-5238-47F0-A0CA-1272AA2BC41F"
}
```

Description

Query the list of EIPs in a specified region. This interface supports querying by page, with 10 lines per page by default.

- This interface will not verify the dependency between parameters. The return results are the **intersection** of all criteria.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: DescribeEipAddresses.
RegionId	String	Yes	The ID of the region to be queried. See Regions and zones for region IDs.
Status	String	No	The EIP status, which can be Associating, Unassociating, InUse, or Available.
EipAddress	String	No	EIP.
AllocationId	String	No	The allocation ID.
PageNumber	Integer	No	Page number of the instance status list. The start value is 1. The default value is 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and default value is 10.

Return Parameters

Name	Type	Description
EipAddresses	EipAddressSetType	A collection of EIP details EipAddressSetType.
TotalCount	Integer	The number of items on the list.
PageNumber	Integer	The current page.
PageSize	Integer	The number of items on the current page.

Error Code

Error Code	Description	Http status code	Meaning
Forbidden.RegionNotFound	Specified region is not found during access authentication.	404	The specified region does not exist. See Regions and zones for region IDs.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeEipAddresses
&RegionId=cn-hangzhou-1
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeEipAddresses>
<RequestId>51BE7822-4121-428A-88F3-262AE4FD868D</RequestId>
<EipAddresses>
<EipAddress>
<RegionId>cn-beijing</RegionId>
<AllocationId> eip-2578g5v5a </AllocationId>
<IpAddress>123.56.0.36</IpAddress>
<Status>Available</Status>
<OperationLocks>
<LockReason></LockReason>
</OperationLocks>
<Bandwidth>5</Bandwidth>
<InternetChargeType>PayByBandwidth</InternetChargeType>
<AllocationTime>2014-05-28T03:03:16Z</AllocationTime>
</EipAddress>
</EipAddresses>
</DescribeEipAddresses>
```

JSON format

```
{
"EipAddresses": {
"EipAddress": [
{
"AllocationId": "eip-2578g5v5a",
"AllocationTime": "2014-05-28T03:03:16Z ",
```

```
"Bandwidth": "1",
"InstanceId": "",
"InternetChargeType": " PayByBandwidth ",
"IpAddress": "123.56.0.36",
"OperationLocks": {
"LockReason": []
},
"RegionId": "cn-beijing",
"Status": "Available"
}
]
},
"PageNumber": 1,
"PageSize": 10,
"RequestId": "51BE7822-4121-428A-88F3-262AE4FD868D",
"TotalCount": 1
}
```


Description

Modify the attributes of a specified EIP. At present, this interface is mainly used to modify the bandwidth of the EIP.

- The bandwidth limit of an EIP can be modified infinitely, and the new setting takes effect immediately.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: ModifyEipAddressAttribute.
AllocationId	String	Yes	The allocation ID.
Bandwidth	String	Yes	Modified bandwidth of the EIP, measured in Mbps.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Error Code

Error Code	Description	Http status code	Meaning

InvalidParameter	Specified value of **Bandwidth** is not supported.	400	The specified Bandwidth value is invalid.
InsufficientBalance	Your account does not have enough balance.	400	Modifying the bandwidth of the EIP failed because your account balance is not enough.
InvalidAllocationId.NotFound	Specified allocation ID is not found.	404	The specified allocation ID of the EIP does not exist.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=ModifyEipAddressAttribute
&AllocationId=eip-25877c70x
&Bandwidth=1
&<Public Request Parameters>
```

Return Example

XML format

```
<ModifyEipAddressAttribute>
<RequestId>2C63EA73-A1E7-4C46-B8BC-E7C2E543E5E8</RequestId>
</ModifyEipAddressAttribute>
```

JSON format

```
{
"RequestId": "2C63EA73-A1E7-4C46-B8BC-E7C2E543E5E8"
}
```

Description

Release an EIP. The user no longer possesses the released EIP.

- Only an EIP in Available status can be released.

Request Parameters

Name	Type	Required	Description

Action	String	Yes	Required parameter, with a value: ReleaseEipAddress.
AllocationId	String	Yes	The allocation ID of the EIP to be released.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Error Code

Error Code	Description	Http status code	Meaning
IncorrectEipStatus	Current elastic IP status does not support this operation.	400	The specified EIP cannot be released because the current status of the specified EIP does not support this operation.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=ReleaseEipAddress
&AllocationId=eip-25877c70x
&<Public Request Parameters>
```

Return Example

XML format

```
<ReleaseEipAddressResponse>
<RequestId>748C38F6-9A3D-482E-83FB-DB6C39C68AEA</RequestId>
</ReleaseEipAddressResponse>
```

JSON format

```
{
"RequestId": "748C38F6-9A3D-482E-83FB-DB6C39C68AEA"
}
```

Physical Connection APIs

Description

- When you apply for Physical Connection access, the number of Physical Connections not in Enabled state at the same time cannot be greater than five.
- You are not allowed to create more Physical Connection if you have Physical Connection in arrears.
- Created Physical Connections are in Initial state.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: CreatePhysicalConnection
RegionId	String	Yes	Region (Region ID for managing instances)
AccessPointId	String	Yes	ID of the access point applied to be connected to the Physical Connection. The selected access point must be connectable.
Type	String	No	Physical Connection type. Default value: VPC; optional value: - VPC - VPC leased line
CircuitCode	String	No	Carrier circuit code corresponding to the leased line interface.
LineOperator	String	Yes	Carrier providing physical lines for access. Optional values: - CT - China

			Telecom - CU - China Unicom - CM - China Mobile - CO - Other (China) - Equinix - Equinix - Other - Other (outside China)
PeerLocation	String	Yes	Physical location of the Physical Connection peer (address). It contains 2 to 256 characters but cannot begin with http:// or https://.
Bandwidth	String	No	Bandwidth of the Physical Connection access interface, in Mbps. Default value: 100; optional values: 2 to 10,000
PortType	String	No	Type of Physical Connection access port. The default value is 1000Base-T. It can be left empty if the information is unclear. Optional values: - 100Base-T - 100M electrical port - 1000Base-T - 1G electrical port - 1000Base-LX - 1G single-mode optical port (10km) - 10GBase-T - 10G electrical port

			- 10GBase-LR - 10G single-mode optical port (10km)
RedundantPhysicalConnectionId	String	No	Redundant Physical Connection ID. (If a redundant Physical Connection ID is passed in when the second Physical Connection is connected, Alibaba Cloud will allocate to it as independent AD devices as possible to provide higher availability). There must be a corresponding Physical Connection in Allocated/Confirmed/Enabled state.
Name	String	No	Physical Connection name. It contains 2 to 128 characters but cannot begin with http:// or https://.
Description	String	No	Physical Connection description. It contains 2 to 256 characters but cannot begin with http:// or https://.
ClientToken	String	Yes	It is used to ensure the idempotence of the request. The value is generated by a client. It must be unique among all requests and can contain a maximum of 64 ASCII characters.

Return parameters

Name	Type	Description
PhysicalConnectionId	String	ID of the Physical Connection that is approved, in Initial state

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidAccessPointId.NotFound	The AccessPointId provided does not exist in our records.	404	The specified AccessPointID does not exist.
InvalidAccessPointId.NotEnabled	The specified AccessPointId is not in Enabled state.	400	The specified AccessPointID is not in Enabled state.
InvalidType.Malformd	The Type provided was invalid.	400	The specified Type value is invalid.
InvalidPeerLocation.Malformd	The PeerLocation provided was invalid.	400	The specified PeerLocation is invalid.
InvalidLineOperator.Malformd	The LineOperator provided was invalid.	400	The specified LineOperator value is invalid.
InvalidPortType.Malformd	The PortType provided was invalid.	400	The specified PortType value is invalid.
InvalidDescription.Malformed	The specified Description is not valid.	400	The specified leased line description is invalid.
InvalidRedundantPhysicalConnectionId.NotFound	The specified RedundantPhysicalConnectionId is not found.	404	The specified redundant leased line does not exist.
InvalidName.Malformed	The specified Name is not valid.	400	The specified leased line name is invalid.
QuotaExceeded.pConnPerAP	Physical connection count per ap quota exceed.	400	The total number of leased lines connected to the access point exceeds the quota limit.
InvalidBandwidth	invalid physical connection banwidth.	400	The specified Bandwidth is invalid.
InvalidRedundantPhysicalConnection	redundant physical connection doesn’t belong to current user.	400	The specified RedundantPhysicalConnection does not belong to the caller.
InvalidRedundantPhysicalConnectionStat	invalid redundant physical connection	400	The specified RedundantPhysicalC

us	status.		onnection status is invalid.
InvalidCircuitCode.Malformed	circuitCode is illegal.	400	The specified CircuitCode is invalid.
QuotaExceeded.freePconnPerAP	free physical connections count excceeded.	400	The number of physical leased lines with no VBR created exceeds the quota limit.

Description

Cancels Physical Connection access before a Chysical Connection is activated.

- Only a Physical Connection in Initial, Approved, Allocated, or Confirmed state (not in Enabled state) can be cancelled.
- The physical leased line enters the Canceled state when cancellation is finished.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: CancelPhysicalConnection
RegionId	String	Yes	Region
PhysicalConnectionId	String	Yes	Physical leased line ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidPhysicalConn	The	404	The specified

ectionId.NotFound	PhysicalConnectionId provided does not exist in our records.		PhysicalConnectionID does not exist.
Forbidden.NotAllowedInState	The request does not allow in this state.	400	The operation is not supported in the current status.

Description

Queries the Physical Connection list

- The query result can be filtered through various filters. Currently, the supported filters include PhysicalConnectionID, AccessPointID, Type, LineOperator, Spec, Status, and Name.
- The logical relationship between multiple values of a filter is "or" (the filter criteria are met as long as there is a matching value). The logical relationship between filters is "and" (values are included in the final query result only when they meet the criteria of all filters).

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DescribePhysicalConnections
RegionId	String	Yes	Region (Region ID for managing instances)
Filter.n.Key	String	No	Type of the nth filter. The n value starts from 1 and is not greater than 5.
Filter.n.Value.m	String	No	The mth value of the nth filter. The m value starts from 1 and is not greater than 5.
PageNumber	Integer	No	Page number of the query result. The default value is 1 when the parameter is not specified.Value range: a positive integer. If the PageNumber value is greater than the greatest page number in the actual result, the content of the last

			page is returned.
PageSize	Integer	No	Page size of the query result. The value range is 1 to 100, and the default value is 10.

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Name	Type	Description
PhysicalConnectionSet	PhysicalConnectionSetType	Set of PhysicalConnectionSetType values
TotalCount	Integer	Total number of instances
PageNumber	Integer	Page number of the instance list
PageSize	Integer	Number of rows per page set during input

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidFilterKey.ValueNotSupported	Specified filter key is not supported: Filter.X.key	404	The specified filter field is not supported.

Description

Modifies Physical Conneciton attributes.

- The Physical Conneciton enters the Initial state from the Rejected state when its attributes are modified.
- Spec and RedundantPhysicalConnectionID can be modified only in Initial/Rejected state.
- No attribute can be modified when a Physical Conneciton is in Canceled, Allocating, AllocationFailed, or Terminated state.

Request parameters

Name	Type	Required?	Description

Action	String	Yes	Required parameter, with a value: ModifyPhysicalConnectionAttribute
RegionId	String	Yes	Region
PhysicalConnectionId	String	Yes	ID of the Physical Conneciton whose attributes need modification
LineOperator	String	No	Carrier providing Physical Conneciton for access. Optional values: - CT - China Telecom - CU - China Unicom - CM - China Mobile - CO - Other (China) - Equinix - Equinix - Other - Other (outside China)
bandwidth	String	No	Bandwidth of the Physical Conneciton access interface, in Mbps. Optional value: \2 to 10,240\
PeerLocation	String	No	Physical location of the Physical Conneciton peer (address)
PortType	String	No	Type of a Physical Conneciton access port. Optional values: - E1 - 2M synchronous electrical port - 100Base-T - 100M electrical port - 1000Base-T -

			1G electrical port - 1000Base-LX - 1G single-mode optical port (10km) - 10GBase-T - 10G electrical port - 10GBase-LR - 10G single-mode optical port (10km) - Other - Unstated port
RedundantPhysicalConnectionId	String	No	Redundant Physical Conneciton ID
CircuitCode	String	No	Carrier circuit code corresponding to the Physical Conneciton interface
Name	String	No	Physical Conneciton name
Description	String	No	Physical Conneciton description
ClientToken	String	No	It is used to ensure the idempotence of the request. The value is generated by a client. It must be unique among all requests and can contain a maximum of 64 ASCII characters.

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.Not	The RegionId	404	The specified

Found	provided does not exist in our records.		RegionID does not exist.
InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	404	The specified PhysicalConnectionID does not exist.
InvalidLineOperator.Malformd	The LineOperator provided was invalid.	400	The specified leased line carrier is incorrect.
InvalidPeerLocation.Malformd	The PeerLocation provided was invalid.	400	The specified PeerLocation is invalid.
InvalidPortType.Malformd	The PortType provided was invalid.	400	The specified PortType is invalid.
InvalidDescription.Malformed	The specifid Description is not valid.	400	The entered Description is invalid.
InvalidRedundantPhysicalConnectionId.NotFound	The specified RedundantPhysicalConnectionId is not found.	404	The specified redundant Physical Conneciton ID does not exist.
InvalidName.Malformed	The specified Name is not valid.	400	The specified Physical Conneciton name is invalid.
InvalidStatus	invalid physical connection status.	400	The Physical Conneciton status is invalid.
InvalidBandwidth	invalid physical connection banwidth.	400	The Physical Conneciton bandwidth is invalid.
InvalidRedundantPhysicalConnection	redundant physical connection doesn’t belong to current user.	400	The specified RedundantPhysicalConnection does not belong to the caller.
InvalidRedundantPhysicalConnectionStatus	invalid redundant physical connection status.	400	The specified RedundantPhysicalConnection status is invalid.
InvalidCircuitCode.Malformed	circuitCode is illegal.	400	The specified CircuitCode is invalid.

Description

Terminates Physical Connection access when a Physical Connection is activated.

- Only a Physical Connection in Enabled state can be terminated.
- If there are VBRs whose owners are the Physical Connection owner, the Physical Connection cannot be terminated. (The Physical Connection owner must delete these VBRs.)
- If there are non-terminated VBRs that do not belong to the Physical Connection owner, the Physical Connection cannot be terminated. (The Physical Connection owner must delete VBRs not accepted by other users and terminate VBRs accepted by other users. VBRs accepted by other users cannot be deleted but can be terminated.)
- The Physical Connection first enters the Terminating state and then enters the Terminated state when termination is finished.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: TerminatePhysicalConnection
RegionId	String	Yes	Region (Region ID for managing instances)
PhysicalConnectionId	String	Yes	Physical Connection ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	404	The specified Physical Connection (PhysicalConnectionID) does not exist.
Forbidden.NotAllowedInState	The request does not allow in this state.	400	The specified Physical Connection is not in Enabled state.
Forbidden.VbrAttach	cannot terminate	400	There are still

ed	physical connection when virtual border routers are still attached.		associated VBRs on the physical leased line.

Description

- Only a Physical Connection in Confirmed state can be activated.
- The Physical Connection enters the Enabled state when activation is finished.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: EnablePhysicalConnection
RegionId	String	Yes	Region
PhysicalConnectionId	String	Yes	Physical Connection ID
ClientToken	String	Yes	It is used to ensure the idempotence of the request. The value is generated by a client. It must be unique among all requests and can contain a maximum of 64 ASCII characters.

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionI	404	The specified Physical Connection

	d provided does not exist in our records.		does not exist.
Forbidden.NotAllowedInState	The request does not allow in this state.	400	The specified Physical Connection is not in Confirmed state.

Description

Deletes a Physical Connection.

- Only a Physical Connection in Rejected, Canceled, AllocationFailed, or Terminated state can be deleted.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DeletePhysicalConnection
RegionId	String	Yes	Region (Region ID for managing instances)
PhysicalConnectionId	String	Yes	Physical Connection ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidPhysicalConnectionId.NotFound	The PhysicalConnectionId provided does not exist in our records.	404	The specified Physical Connection does not exist.
Forbidden.NotAllow	The request does	400	The specified

edInState	not allow in this state.		Physical Connection is not in a state for deletion (Rejected, Canceled, AllocationFailed, or Terminated).
Forbidden.VBRExists	physical connection owner’ s vbr still exists.	400	There are still VBRs created for Physical Connection owners under the specified Physical Connection.
Forbidden.VBRExists	vbr owner’ s vbr still exists.	400	There are still VBRs created for other users under the specified Physical Connection.

Router Interface APIs

Description

Note the following when creating a router interface:

- By using this API, you can only create a router interface. If you want to connect the router interfaces, you need to initiate a connection.
- After the router interfaces are connected, you need to configure route tables for the routers.
- Only one pair of connected router interfaces can exist between two routers.
- Up to 5 router interfaces can be created for each router.
- Up to 5 router interfaces can be created for each account.
- When an account has unpaid bills, no more router interfaces can be created by the account.
- OppositeRouterType, OppositeRouterId, OppositeInterfaceId, and OppositeInterfaceOwnerId are used for authentication when two router interfaces are connecting. The parameters must be set before initiating a connection. You can set the parameters when creating the router interfaces or call ModifyRouterInterfaceAttribute after the router interfaces are created.

Note the following when creating a router interface for a VBR:

- For the description and restriction of AccessPointId and OppositeAccessPointId, refer to the following parameter table.
- For the description and restriction of HealthCheckSourceIp and HealthCheckTargetIp, refer to the following parameter table.
- VBR must be InitiatingSide.

- If the local RouterType is VBR, the Role must be InitiatingSide and the OppositeRouterType must be VRouter. The role cannot be modified after the creation of the router interfaces.
- If the peer router is a VBR, the local router interface can only be AcceptingSide. When creating the router, you must set peer RouterType (VBR) and AccessPointId. The two parameters cannot be modified after the creation of the router interface.
- OppositeRouterType cannot be modified.
- If OppositeRouterType is VBR, the local Role must be AcceptingSide. OppositeAccessPointId cannot be modified or left blank.

- A VBR must be in **Enabled** status when you create a router interface for it.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	The interface name of the action. A parameter set by the system. Value: CreateRouterInterface.
RegionId	String	Yes	The region of the instance.
RouterType	String	Yes	Router type. Optional value: VRouter, VBR.
AccessPointId	String	No	Access point ID. The parameter must be set when the RouterType is VBR. It cannot be modified after the router interface is created.
RouterId	String	Yes	Router ID. When RouterType is VBR, the VBR specified by the RouterId must be in the access point specified by AccessPointId.
Role	String	Yes	The role the router interface plays, namely, InitiatingSide or AcceptingSide. Optional value: InitiatingSide|AcceptingSide.
Spec	String	Yes	Specification of router interfaces. For more about the

			specification, refer to **Router interface specification**.
OppositeRegionId	String	Yes	The Region of peer side.
OppositeAccessPointId	String	No	Access point ID of peer side. The ID must be entered when the OppositeRouterType is VBR. The ID cannot be modified after the router interface is created. The ID must be left blank when OppositeRouterType is VRouter. When OppositeRouterType is VBR, the VBR specified by the OppositeRouterId must be in the access point specified by OppositeAccessPointId.
OppositeRouterType	String	No	Peer router type. Value: VRouter, VBR. Default is VRouterType.
OppositeRouterId	String	No	The ID of peer router. When OppositeRouterType is VBR, the OppositeRouterId must be in the access point specified by OppositeAccessPointId.
OppositeInterfaceId	String	No	Peer router interface ID.
OppositeInterfaceOwnerId	String	No	Peer account ID. Log on to the Alibaba Cloud console, select **User Info** > **Account Management** to check your account ID.
Name	String	No	The name of the instance. Length must be 2-80 characters long. Only Chinese characters, English letters, numbers, period (.), underline (_), or dash (-) are

			permitted. The instance name will appear on the console. If the parameter is not specified, the default value is InstanceId. The name cannot start with http:// and https://.
Description	String	No	Instance description. The description can be 2-256 characters long or left blank. It cannot start with http:// and https://. The instance description will appear on the console.
HealthCheckSourceIp	String	No	Used as the Packet Target IP of health check for disaster recovery or ECMP. The IP is only valid for the router interface whose local side is a VBR and peer side is a VRouter. The IP must be an unused IP in the local VPC. HealthCheckSourceIp and HealthCheckTargetIp must be specified at the same time.
HealthCheckTargetIp	String	No	Used as the Packet Target IP of health check for disaster recovery or ECMP. The IP is only valid for the router interface whose local side is a VRouter and peer side is a VBR. The IP must be an unused IP in the local VPC. HealthCheckSourceIp and HealthCheckTargetIp must be specified at the same time.
ClientToken	String	No	To ensure the request idempotence. The parameter is generated by the customer side. Make

			sure the parameter is unique. It cannot excess 64 ASCII characters. For more information, refer to How to ensure idempotence.

Return parameters

Name	Type	Description
RouterInterfaceId	String	The ID of a router interface. The ID is generated by the system and is unique.

Error codes

Error code	Description	Http status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionId does not exist.
InvalidOppositeRegionId.NotFound	The OppositeRegionId provided does not exist in our records.	404	The OppositeRegionId is a non-existent regionId.
InvalidRegionPair.NotReachable	The specified OppositeRegion is not reachable by ExpressConnect from that region specified by ‘RegionId’.	400	The specified two regions cannot be connected by Express Connect.
InvalidRole.ValueNotSupported	The specified Role is not valid.	400	The specified Role is not valid.
InvalidSpec.ValudNotSupported	The specified Spec is not supported.	400	The specified Spec is not supported.
InvalidRouterType.ValueNotSupported	The specified RouterType is not valid.	400	The specified RouterType is not valid.
InvalidRouterId.NotFound	The specified RouterId does not exist in our recored.	404	The specified RouterId does not exist.
InvalidOppositeRouterType.ValueNotSupported	The specified OppositeRouterType is not valid.	400	The specified OppositeRouterType is not valid.
ParameterMismatch.	The specified Spec	400	The specified Spec

Role-Spec	and Role mismatch.		and Role are not matched.
ParameterMismatch.RegionId-OppositeRegionId-Spec	The specified Spec is not supported between the specified RegionId and OppositeRegionId.	400	The specification is not supported between the local region and the peer region.
InvalidName.Malformed	The specified ‘Name’ is not valid.	400	The specified Name is not valid.
InvalidDescription.Malformed	The specifid ‘Description’ is not valid.	400	The specified Description is not valid.
Forbidden.BillsOutstanding	You cannot create more RouterInterface because you have bills outstanding.	400	You have unpaid bills, so you are refused to create any Pay-As-You-Go instances.
QuotaExceed.RouterInterface	Living RouterInterface quota exceeded.	400	The number of router interfaces has exceed the specified quota of a router.
LimitationExceed.InterfaceNumberOnRouter	Total number of RouterInterfaces on a Router exceeded.	400	The number of router interfaces has exceed the specified quota of a router.
Forbidden.NotInRouterInterfaceCreateWhitelist	Not in router interface create whitelist.	500	The account is not in the whitelist of router interface creation.
RI_CREATE_ONE_LIMIT_BY_SYNC	Create ri only one limit by sync.	500	N/A
InvalidAccessPoint.ValueNotAllowed	The non-vbr router interface cannot have access point configured.	500	Non-vbr router interface cannot specify access point.
InvalidAccessPoint.ValueNotAllowed	The non-vbr opposite router interface cannot have opposite access point configured.	500	Non-vbr router interface cannot specify access point.
InvalidParam.NotFound	Parameter must not be null,uid, bid,regionNo, remoteRegionNo or routerId.	400	‘uid’, ‘bid’, ‘regionNo’, ‘remoteRegionNo’, ‘routerId’ cannot be blank.
InvalidAccessPoint.N	The accessPoint id is	400	The access point is

otMatch	not matched.		not matched.
InvalidAccessPoint.NotExist	The accessPoint not exit.	400	The access point does not exist.

Description

Queries the RouterInterface list.

The query result can be filtered through various filters. Currently, the supported filters include:

- RouterInterfaceId
- RouterId
- RouterType
- RouterInterfaceOwnerId
- OppositeInterfaceId
- OppositeRouterType
- OppositeRouterId
- OppositeInterfaceOwnerId
- Status
- Name

The logical relationship between multiple values of a filter is “or” (the filter criteria are met as long as a value is fit in the query result).

The logical relationship between filters is “and” (values are included in the final query result only when they meet the criteria of all filters).

Request parameters

Name	Type	Required?	Description
Action	string	Yes	Required parameter, with a value: DescribeRouterInterfaces
RegionId	string	Yes	Region of the instance
Filter.n.Key	string	No	Type of the nth filter. The n value starts from 1 and is not greater than 5.

Filter.n.Value.m	string	No	The mth value of the nth filter. The m value starts from 1 and is not greater than 5.
PageNumber	int	No	Page number of the query result. It is a positive integer, and the default value is 1. If the PageNumber value is greater than the greatest page number in the actual result, the content of the last page is returned.
PageSize	int	No	Page size of the query result. The value range is 1 to 100, and the default value is 10.

Return parameters

Name	Type	Description
TotalCount	Integer	Total number of instances
PageNumber	Integer	Page number of the instance list
PageSize	Integer	Number of rows per page set during input
Instances	RouterInterfaceSetType	Returned instance information, in array format of RouterInterfaceSetType

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidOppositeRegionId.NotFound	The oppositeRegionId provided does not exist in our records.	404	The specified peer RegionID does not exist.
InvalidFilterKey.ValueNotSupported	Specified filter key is not supported: Filter.X.key	404	The specified filter type is not supported.

Description

Initiates an open RouterInterface connection request to connect a local RouterInterface to a peer RouterInterface.

NOTE:

- Only the RouterInterface whose role is InitiatingSide can be used to perform this operation. The RouterInterface whose role is AcceptingSide can only be used to configure the connection peer information and wait to be connected.
- The connection operation can be successful only when an AcceptingSide RouterInterface sets the InitiatingSide RouterInterface as the connection peer.
- This is an asynchronous operation. A successful return of the API call indicates that the connection begins to be set up, and the InitiatingSide RouterInterface enters the Connecting state (the AcceptingSide RouterInterface enters the AcceptingConnect state). When the InitiatingSide RouterInterface enters the Active state, the connection is eventually set up.
- The RouterInterface connection means a connection of two routers through a virtual “link”. To transfer messages properly on the link, you need to configure the route table correctly for routers on both sides and configure access control rules correctly for objects in actual communication.

Restrictions for the operation:

- A RouterInterface can be connected to only one RouterInterface.
- A RouterInterface cannot be connected to itself.
- A RouterInterface cannot be connected to another RouterInterface on the same router.
- Only one pair of connected RouterInterfaces is allowed between any two routers.
- This operation can be performed only when RouterInterfaces are in Idle state.
- You are not allowed to perform this operation if you have RouterInterfaces in arrears (that is, you have unpaid RouterInterface bills).

Request parameters

Name	Type	Required?	Description
Action	string	Yes	Required parameter, with a value: ConnectRouterInterface
RegionId	string	Yes	Region.
RouterInterfaceId	string	Yes	ID of the RouterInterface to initiate a connection.

Return parameters

The return parameters are all public return parameters. For details, refer to Public Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The specified RegionId does not exist in our record.	404	The specified RegionID does not exist.
InvalidRouterInterfaceId.NotFound	The specified RouterInterfaceId does not exist in our record.	404	The specified RouterInterfaceID does not exist.
IncorrectRole.NotInitiatingSide	The spedified RouterInterface is not InitiatingSide	400	The specified RouterInterface is not on the InitiatingSide.
IncorrectStatus	RouterInterface can be operated by this action only when its status is Idle.	400	This operation can be performed only when RouterInterfaces are in “Idle” state.
IncorrectOppositeInterfaceInfo.NotSet	OppositeInterfaceId/OppositeRouterId/OppositeRouterType/OppositeRouterOwnerId must be all set.	400	The connection peer information is not configured.
IncorrectOppositeInterfaceInfo	The opposite RouterInterface information specified by OppositeInterfaceId/OppositeRouterId/OppositeRouterType/OppositeRouterOwnerId is wrong. Maybe the RouterInterface or Router does not exist, or the parameters mismatched, or that RouterInterface is not a AcceptingSide.	400	The peer RouterInterface information is incorrect. Maybe the peer RouterInterfaceID/RouterID does not exist, maybe parameter values do not match, or maybe the peer RouterInterface is not an AcceptingSide RouterInterface.
RejectedByOppositeInterface	The opposite RouterInterface does not set this RouterInterface as a OppositeRouterInter	403	The specified RouterInterface is not set as the connection peer on the peer

	face. Meybe it was wrongly set. Please check the configuration of the opposite RouterInterface.		RouterInterface. Maybe the peer information is not configured correctly on the peer RouterInterface. You need to check the configurations on the peer RouterInterface.
Forbidden.BillsOutstanding	You cannot use this action because you have bills outstanding.	400	You are not allowed to perform this operation because you have unpaid bills.

Description

Sets the status of an inactive RouterInterface to Active.

- This is an asynchronous operation. A successful return of the API call indicates that the RouterInterface enters the Activating state. You can perform round-robin to know whether the RouterInterface enters the Active state.
- This operation is not allowed if the RouterInterface is in arrears.

Request parameters

Name	Type	Required?	Description
Action	string	Yes	Required parameter, with a value: ActivateRouterInterface
RegionId	string	Yes	Region of the instance
RouterInterfaceId	string	Yes	RouterInterface ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning

InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	404	The specified RegionID does not exist.
InvalidRouterInterfaceId.NotFound	The specified RouterInterfaceId does not exist in our records.	404	The specified RouterInterfaceID does not exist.
IncorrectStatus	RouterInterface can be operated by this action only when its status is Inactive.	400	This operation is allowed only when the RouterInterface is in "Inactive" state.
Forbidden.FinacialLocked	This RouterInterface is finacial locked because of bills outstanding.	400	The instance is locked in arrears.

Description

Sets the status of an active RouterInterface to Inactive.

- This is an asynchronous operation. A successful return of the API call indicates that the RouterInterface enters the Deactivating state. You can perform round-robin to know whether the RouterInterface enters the Inactive state.
- This operation is not allowed if the RouterInterface is in arrears.

Request parameters

Name	Type	Required?	Description
Action	string	Yes	Required parameter, with a value: DeactivateRouterInterface
RegionId	string	Yes	Region of the instance
RouterInterfaceId	string	Yes	RouterInterface ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning

InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	404	The specified RegionID does not exist.
InvalidRouterInterfaceId.NotFound	The specified RouterInterfaceId does not exist in our records.	404	The specified RouterInterfaceID does not exist.
IncorrectStatus	RouterInterface can be operated by this action only when its status is Active.	400	This operation can be performed only when the RouterInterface is in “Active” state.
Forbidden.FinacialLocked	This RouterInterface is finacial locked because of bills outstanding.	400	The instance is locked in arrears.

Description

Modifies Name/Description/connection peer information of a RouterInterface.

- Connection peer information (OppositeInterfaceID/OppositeRouterID/OppositeInterfaceOwnerID) can be modified only when the RouterInterface is in Idle state.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: ModifyRouterInterfaceAttribute
RegionId	String	Yes	
RouterInterfaceId	String	Yes	RouterInterface ID
Name	String	No	Custom name. It is a string of 2 to 128 Chinese or English characters. It must begin with an uppercase/lowercase letter or a Chinese character and can contain numbers, “.”, “_”, or “-”. It cannot begin with http:// or https://.

Description	String	No	Custom description. It is a string of 2 to 256 characters. The instance description is displayed on Alibaba Cloud console. It cannot begin with http:// or https://.
OppositeInterfaceId	String	No	Interface ID of the connection peer
OppositeRouterId	String	No	Router ID of the connection peer interface. When OppositeRouterType is VBR, the VBR specified by OppositeRouterID must be in the access point specified by OppositeAccessPointID.During RouterInterface creation/modification, OppositeRouterID and OppositeAccessPointID are not verified and an error will occur during the connection.
OppositeInterfaceOwnerId	String	No	Owner account ID of the connection peer RouterInterface. You can log on to Alibaba Cloud official website and choose Management Console > User Center > Account Management to view your account ID.
HealthCheckSourceIp	String	No	Source IP address of the packet for leased line HealthCheck in leased line disaster tolerance and ECMP scenarios. It is valid only for a VRouter RouterInterface with a peer on a VBR. The source IP address must be in the VPC of the local VRouter and is not used. HealthCheckSourceIP and

			HealthCheckTargetIP parameters must be both specified or left unspecified.
HealthCheckTargetIp	String	No	Target IP address of the packet for leased line HealthCheck in leased line disaster tolerance and ECMP scenarios. It is valid only for a VRouter RouterInterface with a peer on a VBR. Usually you can use the CPE IP address of the leased line user’ s client (that is, the PeerGatewayIP on the VBR of the peer RouterInterface), you can also specify another IP address of the leased line user’ s client as the HealthCheck target IP address. HealthCheckSourceIP and HealthCheckTargetIP parameters must be both specified or left unspecified.

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The specified RegionId does not exist in our records.	404	The specified RegionID does not exist.
InvalidRouterInterfaceId.NotFound	The specified RouterInterfaceId does not exist in our records.	404	The specified RouterInterfaceID does not exist.
InvalidName.Malformd	The specified ‘Name’ is not valid.	400	The specified Name is invalid.

InvalidDescription.Malformed	The specifid ‘Description’ is not valid.	400	The specified Description is invalid.
InvalidOppositeRouterType.ValueNotSupported	The specified OppositeRouterType is not valid.	400	The specified OppositeRouterType is invalid.
IncorrectStatus	RouterInterface can be operated by this action only when the status is Active,idle or inactive.	400	This operation is supported when the RouterInterface status is “Active”, “Idle” or “Inactive”.
Forbidden.FinacialLocked	This RouterInterface is finacial locked because of bills outstanding.	400	The RouterInterface is locked in arrears.
Forbbiden	The Router instance owener error	400	The router does not belong to the current caller.
LinkRole.NotSupport	This linkrole is not supported	400	The connection role is not supported.
Forbbiden.ModifyIdAndType	Opposite is VBR, cannot modify the ID and type	400	The peer is a VBR and the ID and type cannot be edited.
InvalidParam.ModifyRouterInterface	Modify routerinterface param invalide	400	The parameter for editing a RouterInterface is invalid.

Description

Deletes a RouterInterface.

- This operation is allowed only when a RouterInterface is in Idle or Inactive state.
- Before RouterInterface deletion, custom routes directed to it must be all deleted in advance.

Request parameters

Name	Type	Required?	Description
Action	string	Yes	Required parameter, with a value: DeleteRouterInterface
RegionId	string	Yes	
RouterInterfaceId	string	Yes	RouterInterface ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound		404	The specified RegionID does not exist.
IncorrectStatus	This operation would be allowed only when status of this RouterInterface is Idle/Inactive.	400	This operation is allowed only when the RouterInterface is in “Idle” or “Inactive” state.
DependencyViolation.RouterInterfaceReferredByRouteEntry	RouterInterface cannot be deleted when it is referred by a route table entry as next hop.	400	The RouterInterface cannot be deleted when it is referenced by a route entry as the next hop.
InvalidInstanceId.NotFound	The InstanceId provided does not exist in our records.	404	The specified instance does not exist.

VBR APIs

Description

Creates a VBR.

- VBRs can be created only by the physical leased line owner for himself/herself or for other users.
- By default, two VBRs can be created on each physical leased line.
    - VBRs created for the physical leased line owner directly enters the Enabled state.
    - VBRs can be created for users other than the physical leased line owner, which enter the Unconfirmed state after creation.
- VlanID can be specified/modified only by the physical leased line owner.
    - A VlanID under a physical leased line cannot be used by two VBRs simultaneously.
    - VlanID of a VBR in Terminated state is automatically retained in seven days and

cannot be used by other VBRs only within these seven days.

- LocalGatewayIP, PeerGatewayIP, and PeeringSubnetMask cannot be configured for VBRs created for users other than the physical leased line owner.
- LocalGatewayIP, PeerGatewayIP, and PeeringSubnetMask must be verified. PeeringSubnetMask supports 24-30 bits. PeeringSubnetMask is in dotted decimal notation ranging from 255.255.255.0 to 255.255.255.252. LocalGatewayIP and PeerGatewayIP must be on the same subnet defined by PeeringSubnetMask.For example:
  - LocalGatewayIp: 192.168.50.17
  - PeerGatewayIp: 192.168.50.18
  - PeeringSubnetMask: 255.255.255.248

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: CreateVirtualBorderRouter
RegionId	String	Yes	Region
PhysicalConnectionId	String	Yes	Physical leased line ID
VbrOwnerId	String	No	User ID of the VBR owner. The default value is the ID of the current user (physical leased line owner).
VlanId	Integer	Yes	802.1Q VLAN ID [1-2999] of VBR leased line interface. It can be specified/modified only by the physical leased line owner.
CircuitCode	String	No	Carrier circuit code corresponding to VBR physical leased line. It can be specified/modified only by the physical leased line owner.
LocalGatewayIp	String	No	IP address of VBR leased line interface. It can be specified/modified only by the VBR owner. It is required when VBRs are created for the leased line owner and cannot

			be entered when VBRs are created for other users.
PeerGatewayIp	String	No	IP address of the peer VBR leased line interface. It can be specified/modified only by the VBR owner. It is required when VBRs are created for the leased line owner and cannot be entered when VBRs are created for other users.
PeeringSubnetMask	String	No	Subnet mask connecting the local and peer VBR leased line interfaces. It can be specified/modified only by the VBR owner. It is required when VBRs are created for the leased line owner and cannot be entered when VBRs are created for other users.
Name	String	No	VBR name, which contains 2 to 128 characters. It cannot begin with http:// or https://. It can be specified/modified only by the VBR owner.
Description	String	No	VBR description. It contains 2 to 256 characters and cannot begin with http:// or https://. It can be specified/modified only by the VBR owner.
ClientToken	String	Yes	It is used to ensure the idempotence of the request. The value is generated by a client. It must be unique among all requests and can contain a maximum of 64 ASCII characters.

Return parameters

Name	Type	Description
VbrId	String	VBR ID

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The specified RegionId is not found.	404	The specified RegionID does not exist.
InvalidPhysicalConnectionId.NotFound	The specified PhysicalConnectionId is not found.	400	The specified physical leased line ID does not exist.
InvalidVlanId.Used	The specified VlanId has been used.	400	The specified VlanID is used.
MissingParameter	The input parameter ‘PhysicalConnectionId’ that is mandatory for processing this request is not supplied.	400	The PhysicalConnectionID value is missing.
InvalidPhysicalConnectionId.NotEnabled	The specified PhysicalConnectionId is not in Enabled state.	400	The specified physical leased line is not in normal state currently.
InvalidVbrOwnerId.NotFound	The specified VbrOwnerId is not valid.	404	The specified VBROwnerID does not exist.
MissingParameter	The input parameter ‘VlanId’ that is mandatory for processing this request is not supplied.	400	The VlanID value is missing.
InvalidVlanId.Malformed	The specified VlanId is not valid.	400	The specified VlanID format is invalid.
InvalidCircuitCode.Malformed	The specified CircuitCode is not valid.	400	The specified CircuitCode format is invalid.
MissingParameter	The input parameter ‘LocalGatewayIp’ that is mandatory for processing this request is not	400	The LocalGatewayIP value is missing.

	supplied.		
InvalidLocalGatewayIp.Malformed	The specified LocalGatewayIp is not valid.	400	The specified LocalGatewayIP format is invalid.
MissingParameter	The input parameter 'PeerGatewayIp' that is mandatory for processing this request is not supplied.	400	The PeerGatewayIP value is missing.
InvalidPeerGatewayIp.Malformed	The specified PeerGatewayIp is not valid.	400	The specified PeerGatewayIP format is invalid.
MissingParameter	The input parameter 'PeeringSubnetMask' that is mandatory for processing this request is not supplied.	400	The PeerGatewayIP value is missing.
InvalidPeeringSubnetMask.Malformed	The specified PeeringSubnetMask is not valid.	400	The specified PeerGatewayIP format is invalid.
Forbidden.LocalGatewayIpNotAllowedByCaller	The caller is not allowed to specify the LocalGatewayIp parameter.	403	The caller is not allowed to specify the LocalGatewayIP parameter.
Forbidden.PeerGatewayIpNotAllowedByCaller	The caller is not allowed to specify the PeerGatewayIp parameter.	403	The caller is not allowed to specify the PeerGatewayIP parameter.
Forbidden.PeeringSubnetMaskNotAllowedByCaller	The caller is not allowed to specify the PeeringSubnetMask parameter.	403	The caller is not allowed to specify the PeeringSubnetMask parameter.
Forbidden.NameNotAllowedByCaller	The caller is not allowed to specify the Name parameter.	403	The caller is not allowed to specify the Name parameter.
Forbidden.DescriptionNotAllowedByCaller	The caller is not allowed to specify the Description parameter.	403	The caller is not allowed to specify the Description parameter.
InvalidName.Malformed	The specified 'Name' is not valid.	403	The specified Name format is invalid.
InvalidDescription.Malformed	The specified 'Description' is	400	The specified Description format is

	not valid.		invalid.
QuotaExceeded.vbrPerpConn	Virtual boarder router per PhysicalConnection quota exceed.	400	The number of VBRs created on the specified physical leased line exceeds the quota limit.
QuotaExceeded.freevbr	Free virtual boarder router quota exceed.	400	The number of VBRs exceeds the quota limit.
InvalidIP.Malformed	Ip malformed.	400	The IP address format is invalid.
MissingParameter	LocalGatewayIp, peerGatewayIp and peeringSubnetMask must not be null.	400	The value of LocalGatewayIP, PeerGatewayIP, or PeeringSubnetMask is missing.
InvalidIp.NotSameSubnet	Local gateway ip and peer gateway ip are not in the same subnet.	400	LocalGatewayIP and PeerGatewayIP are not on the same subnet.

Description

Deletes a VBR.

- A VBR with RouterInterfaces (excluding those on the user client) or routes on it cannot be deleted.
- The VBR owner is allowed to delete a VBR in Unconfirmed, Enabled, or Terminated state.
- The physical leased line owner is allowed to delete VBRs only in Unconfirmed state. A VBR in Active state (accepted by a VBR owner for use) can be deleted only by the VBR owner.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DeleteVirtualBorderRouter
RegionId	String	Yes	Region
VbrId	String	Yes	VBR ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The specified RegionId is not found.	404	The specified RegionID does not exist.
InvalidVbrId.NotFound	TThe specified VirutalBorderRouter does not exist in our records.	404	The specified VBR does not exist.
InvalidOperation.RouterInterfaceNotDeleted	The specified VirutalBorderRouter still has routerInterface.	400	The specified VBR still has a RouterInterface.
InvalidOperation.OperationNotAllowedInState	The specified VirutalBorderRouter is in invalid state.	400	The specified VBR cannot be deleted.
Forbidden.OperationNotAllowedByUser	The caller is not allowed to delete the specified VirtualBorderRouter.	403	The caller is not allowed to delete the specified VBR.

Description

- Queries the list of VBRs whose owner is the caller.
- The query result can be filtered through various filters. Currently, the supported filters include VbrID, PhysicalConnectionID, Status, and Name.
- The logical relationship between multiple values of a filter is “or” (the filter criteria are met as long as there is a matching value). The logical relationship between filters is “and” (values are included in the final query result only when they meet the criteria of all filters).

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DescribeVirtualBorderRouters

RegionId	String	Yes	Region
Filter.n.Key	String	No	Type of the nth filter. The n value starts from 1 and is not greater than 5.
Filter.n.Value.m	String	No	The mth value of the nth filter. The m value starts from 1 and is not greater than 5.
PageNumber	Integer	No	Page number of the query result. The default value is 1 when the parameter is not specified.Value range: a positive integer. If the PageNumber value is greater than the greatest page number in the actual result, the content of the last page is returned.
PageSize	Integer	No	Page size of the query result. The value range is [1,100], and the default value is 10.

Return parameters

The return parameters are all public return parameters. For details, refer to Public return parameters.

Name	Type	Description
VirtualBorderRouterSet	VirtualBorderRouterSetType	Set of VirtualBorderRouterTypes
TotalCount	Integer	Total number of instances
PageNumber	Integer	Page number of the instance list
PageSize	Integer	Number of rows per page set during input

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.

InvalidFilterKey.ValueNotSupported	Specified filter key is not supported: Filter.X.key	404	The specified filter field is not supported.

Description

Views the list of VBRs under a physical leased line.

- The physical leased line owner calls this interface to query the VBR list created based on a specified physical leased line of him/her.
- The query result may include VBRs whose owner is the caller and VBRs whose owner is not the caller.
- When this interface is called, fields that only the VBR owner can view are not returned.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DescribeVirtualBorderRoutersForPhysicalConnection
RegionId	String	Yes	Region
PhysicalConnectionId	String	Yes	Physical leased line ID
PageNumber	Integer	No	Page number of the query result. The default value is 1 when the parameter is not specified.Value range: a positive integer. If the PageNumber value is greater than the greatest page number in the actual result, the content of the last page is returned.
PageSize	Integer	No	Page size of the query result. The value range is [1,100], and the default value is 10.

Return parameters

The return parameters are all public return parameters. For details, refer to Public return parameters.

Name	Type	Description
VirtualBorderRouterForPhysicalConnectionSet	VirtualBorderRouterForPhysicalConnectionSetType	Set of VirtualBorderRouterForPhysicalConnectionTypes.
TotalCount	Integer	Total number of instances
PageNumber	Integer	Page number of the instance list
PageSize	Integer	Number of rows per page set during input

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.

Description

Modifies VBR attributes.

- VlanID can be specified/modified only by the physical leased line owner.
  - A VlanID under a physical leased line cannot be used by two VBRs simultaneously.
  - VlanID of a VBR in Terminated state is automatically retained in seven days and cannot be used by other VBRs only within these seven days.
- LocalGatewayIP, PeerGatewayIP, and PeeringSubnetMask cannot be configured for VBRs created for users other than the physical leased line owner.
- LocalGatewayIP, PeerGatewayIP, and PeeringSubnetMask must be verified. PeeringSubnetMask supports 24-30 bits. PeeringSubnetMask is in dotted decimal notation ranging from 255.255.255.0 to 255.255.255.252. LocalGatewayIP and PeerGatewayIP must be on the same subnet defined by PeeringSubnetMask.For example:
  - LocalGatewayIp: 192.168.50.17
  - PeerGatewayIp: 192.168.50.18
  - PeeringSubnetMask: 255.255.255.248

Request parameters

Name	Type	Required?	Description

Action	String	Yes	Required parameter, with a value: ModifyVirtualBorderRouterAttribute
RegionId	String	Yes	Region (Region ID for managing instances)
VBRId	String	Yes	VBR ID
VlanId	String	No	802.1Q VLAN ID (1-2,999) of VBR leased line interface.
CircuitCode	String	No	Carrier circuit code corresponding to VBR physical leased line. It can be specified/modified only by the physical leased line owner.
LocalGatewayIp	String	No	IP address of the local VBR leased line interface. It can be specified/modified only by the VBR owner. You are not allowed to change this attribute of VBRs in Enabled state to empty.
PeerGatewayIp	String	No	IP address of the peer VBR leased line interface. It can be specified/modified only by the VBR owner. You are not allowed to change this attribute of VBRs in Enabled state to empty.
PeeringSubnetMask	String	No	Subnet mask connecting the local and peer VBR leased line interfaces. It can be specified/modified only by the VBR owner. You are not allowed to change this attribute of VBRs in Enabled state to empty.
VBRName	String	No	VBR name
VBRDescription	String	No	VBR description

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The specified RegionId is not found.	404	The specified RegionID does not exist.
InvalidVbrId.NotFound	The specified VirutalBorderRouter is not found.	400	The specified VbrID does not exist.
InvalidVlanId.Used	The specified VlanId has been used.	400	The specified VlanID is used.
InvalidCircuitCode.Malformed	The specified CircuitCode is not valid.	400	The specified CircuitCode is invalid.
InvalidVlanId.Malformed	The specified VlanId is not valid.	400	The specified VlanID is invalid.
InvalidIp.Malformed	The specified ip address is not valid.	400	The specified IP address is invalid.
InvalidPeeringSubnetMask.Malformed	The specified PeeringSubnetMask is not valid.	400	The specified PeeringSubnetMask is invalid.
Forbidden.CircuitCodeNotAllowedByCaller	The caller is not allowed to modify.	403	
Forbidden.CircuitCodeNotAllowedByCaller	The caller is not allowed to specify the CircuitCode parameter.	403	The caller is not allowed to specify the CircuitCode parameter.
Forbidden.LocalGatewayIpNotAllowedByCaller	The caller is not allowed to specify the LocalGatewayIp parameter.	403	The caller is not allowed to specify the LocalGatewayIP parameter.
Forbidden.PeerGatewayIpNotAllowedByCaller	The caller is not allowed to specify the PeerGatewayIp parameter.	403	The caller is not allowed to specify the PeerGatewayIP parameter.
Forbidden.PeeringSubnetMaskNotAllowedByCaller	The caller is not allowed to specify the PeeringSubnetMask parameter.	403	The caller is not allowed to specify the PeeringSubnetMask parameter.

Forbidden.VlanIdNotAllowedByCaller	The caller is not allowed to specify the VlanId.	403	The caller is not allowed to specify the VlanID parameter.
Forbidden.NameNotAllowedByCaller	The caller is not allowed to specify the Name parameter.	403	The caller is not allowed to specify the Name parameter.
Forbidden.DescriptionNotAllowedByCaller	The caller is not allowed to specify the Description parameter.	403	The caller is not allowed to specify the Description parameter.
InvalidName.Malformed	The specified ‘Name’ is not valid.	400	The specified VBR name is invalid.
InvalidDescription.Malformed	The specifid ‘Description’ is not valid.	400	The specified description information is invalid.
MissingParameter	LocalGatewayIp, peerGatewayIp and peeringSubnetMask must not be null.	400	The value of LocalGatewayIP, PeerGatewayIP, or PeeringSubnetMask is missing.
InvalidIp.NotSameSubnet	Local gateway ip and peer gateway ip are not in the same subnet.	400	LocalGatewayIP and PeerGatewayIP are not on the same subnet.

Description

Restores a VBR.

- Only the physical leased line owner can call this interface to restore a VBR for it to use a leased line.
- Only a VBR in Terminated state can be restored.
- Only a VBR whose physical leased line is in Enabled state can be restored.
- The VBR first enters the Recovering state and then enters the Enabled state when restoration is finished.
- VlanID must be verified:
    - If VlanID is not occupied by other VBRs (in Terminated state within seven days), the VBR can be restored successfully.
    - If VlanID is occupied by other VBRs (in Terminated state after seven days and reused by the physical leased line owner on other VBRs), the VRB cannot be restored successfully.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: RecoverVirtualBorderRouter
RegionId	String	Yes	Region
VbrId	String	Yes	VBR ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidVbrId.NotFound	The specified VirutalBorderRouter is not found.	404	The specified VirutalBorderRouter does not exist.
InvalidOperation.OperationNotAllowedInState	The specified VirutalBorderRouter is in invalid state.	400	The specified VirutalBorderRouter is invalid.
OperationFailed.VlanIdAlreadyInUse	The specifed vlanId has been used.	400	The specified VlanID is occupied.
Forbidden.OperationNotAllowedByUser	The caller is not allowed to recover the specified VirtualBorderRouter.	403	The caller is not allowed to restore the specified VBR.

Description

Terminates a VBR.

- Only the physical leased line owner can call this interface to stop a VBR from using a leased line without deleting the VBR and other content (including RouterInterfaces and routes) on the VBR.

- Only a VBR in Enabled state can be terminated.
- The VBR first enters the Terminating state and then enters the Terminated state when termination is finished.
- VlanID of a VBR in Terminated state is automatically retained in seven days and cannot be used by other VBRs only within these seven days.
- To prevent misoperation, you are allowed to restore a VBR for it to use a leased line. If VlanID is not occupied by other VBRs (in Terminated state within seven days), the VBR can be restored successfully.

Request parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: TerminateVirtualBorderRouter
RegionId	String	Yes	Region
VbrId	String	Yes	VBR ID

Return parameters

The return parameters are all public return parameters. For details, refer to Public Return Parameters.

Error codes

Error code	Description	HTTP status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The specified RegionID does not exist.
InvalidVbrId.NotFound	The specified VirutalBorderRouter is not found.	404	The specified VbrID does not exist.
InvalidOperation.OperationNotAllowedInState	The specified VirutalBorderRouter is in invalid state.	400	The specified VirutalBorderRouter is invalid.
Forbidden.OperationNotAllowedByUser	The caller is not allowed to terminate the specified VirtualBorderRouter.	403	The caller is not allowed to terminate the specified VBR.

NAT Gateway APIs

Description

Create a NAT gateway for a VPC.

Note the following when creating a NAT gateway:

> Currently, the NAT gateway and the self-built SNAT gateway cannot coexist in a VPC.
>
> After creating a NAT gateway, a route entry of which the destination CIDR block is 0.0.0.0/0 is automatically added to the VRouters of the VPC. Therefore, the traffic can be routed to the NAT gateway.
>
> If a route entry of which the destination CIDR block is 0.0.0.0/0 already exists in the VRouter before creating the NAT gateway, delete it. Otherwise, the creation fails.

Specification

The NAT gateway has different specifications. Different specifications correspond to different SNAT performance metrics, but the specification does not affect DNAT functions and performance. If you only use the DNAT function, the small specification can meet your requirements.

The available specifications are listed as follows.

Specification	Max Connection	CPS
Small	10,000	1,000
Medium	50,000	5,000
Large	200,000	10,000

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: CreateNatGateway.
RegionId	String	Yes	The region where the NAT gateway is created.

VpcId	String	Yes	The VPC for which the NAT gateway is created.
Spec	String	No	The specification of the NAT gateway. Valid values: Small, Middle, Large. If no value provided, Small is used.
BandwidthPackage.n.IpCount	Integer	Yes	Number of public IPs in the {n} shared bandwidth package. The maximum value of {n} is 4. Valid value: 1-50.
BandwidthPackage.n.Bandwidth	Integer	Yes	The bandwidth in the {n} shared bandwidth package. The maximum value of {n} is 4. Valid value: 5-5000.
BandwidthPackage.n.Zone	String	No	The zone of the {n} shared bandwidth package. The maximum value of {n} is 4. If no value provided, a random zone is assigned. **Note**: When the public IP of the shared bandwidth package and the ECS instance are not in the same zone, there is no impact on its connectivity; however, you can get low latency if they are in the same zone.
Name	String	No	The name of the NAT gateway. The length is between 2-128 characters, including digits, ".", "_", "-", and must begin with Chinese characters or English letters and cannot begin with http:// or https://.

			If no value provided, the instance ID is used.
Description	String	No	The description of the NAT gateway. The length is between 2-256 characters and cannot begin with http:// or https://. If no value provided, the description is empty.
ClientToken	String	No	Used to ensure the request idempotence. This value is generated by the client and must be unique, and cannot exceed 64 ASCII characters. For details, refer to How to ensure idempotence.

Response parameters

Response parameter	Data type	Description
NatGatewayId	String	The ID of the NAT gateway generated by the system. It is the unique identifier to access the gateway.
ForwardTableIds	Array	Table ID list.
BandwidthPackageIds	Array	The list of the shared bandwidth package.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	Specified value of “RegionId” is not supported.	404	The specified region does not exist.
InvalidZoneId.NotFound	Specified value of ZoneId is not supported.	404	The specified zone does not exist.
InvalidVpcId.NotFound	Specified value of VpcId is not found in	404	The specified VPC does not exist.

	our record.		
MissingParameter.BandwidthPackage	At least 1 BandwidthPackage must be created with NatGateway.	400	At least one shared bandwidth package is required.
MissingParameter.BandwidthPackage.n.IpCount	Missing parameter IpCount in Bandwidth n.	400	Missing parameters for the shared bandwidth package, no value is provided for the Ipcount parameter.
MissingParameter.BandwidthPackage.n.Bandwidth	Missing parameter Bandwidth in BandwidthPackage n.	400	Missing parameters for the shared bandwidth package, no value is provided for the n parameter.
QuotaExceeded.NatGatewayCountInOneVpc	Natgateway count limit in one vpc exceeded.	400	Only one NAT gateway can be added to a VPC.
RouterEntryConflict.Duplicated	A route entry already exists, which CIDR is '0.0.0.0/0'	400	Cannot create the NAT gateway. A route entry of which the destination CIDR block is 0.0.0.0/0 already exists in the VRouter of the VPC. Delete the route entry first.
InvalidParameter.Name.Malformed	The specified Name is not valid.	400	Invalid name foramt.
InvalidParameter.Description.Malformed	The specified Description is not valid.	400	Invalid description format.
InvalidParameter.Spec.ValueNotSupported	The specified Spec is not valid.	400	Invalid specficiation.
TooManyBandwidthPackages	BandwidthPackage count limit on one NatGateway exceeded.	400	Exceed the shared bandwidth package limit. Up to four shared bandwidth packages can be added to a NAT gateway.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&VpcId=vpc-
11af8lp67&Name=MyNatGW&Format=json&TimeStamp=2016-05-
23T03%3A26%3A21Z&BandwidthPackage.1.IpCount=5&RegionId=cn-
shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-04-
28&Signature=I4KKhWgjJdImTqk4rCifAB3LbLw%3D&action=CreateNatGateway&SignatureNonce=1ebae49c-
2096-11e6-b781-2cf0ee28adf2&BandwidthPackage.1.Bandwidth=150&BandwidthPackage.1.Zone=cn-shanghai-
a&Description=My+first+NAT+Gateway
```

Response example

JSON format

```
{
"BandwidthPackageIds": {
"BandwidthPackageId": [
"bwp-11odxu2k7"
]
},
"ForwardTableIds": {
"ForwardTableId": [
"ftb-11tc6xgmv"
]
},
"NatGatewayId": "ngw-112za33e4",
"RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
}
```

Description

Query the NAT gateways in the specified regions. This interface supports querying by page, with 10 lines per page by default.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value:DescribeNatGateways.
RegionId	String	Yes	The region to query.
NatGatewayId	String	No	Filter parameter, that is, querying the NAT

			gateway with the specified ID. If no value provided, all the NAT gateways in the specified region are returned.
VpcId	String	No	Filter parameter, that is, querying the NAT gateway in the specified VPC. If no value provided, all the NAT gateways in the specified region are returned.
PageNumber	Integer	No	The number of pages. Both the start and default values are 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and the default value is 10.

Response parameters

Response parameter	Data type	Description
NatGateways	NatGatewaySetType	The list of the NAT gateways.
TotalCount	Integer	The total number of the queried items.
PageNumber	Integer	The current page number.
PageSize	Integer	The number of items on the current page.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	Specified value of “RegionId” is not supported.	404	The specified region does not exist.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&VpcId=vpc-11af8lp67&Format=json&TimeStamp=2016-05-23T03%3A27%3A14Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=JvXErso9g0fZdRTgBtNLepe%2F1e4%3D&action=DescribeNatGateways&SignatureNonce=3e1424eb-2096-11e6-bc31-2cf0ee28adf2
```

Response example

XML format

```
<DescribeNatGatewaysResponse>
<PageNumber>1</PageNumber>
<TotalCount>1</TotalCount>
<PageSize>10</PageSize>
<RequestId>CF5D6933-C574-4FEC-83C0-4DF63EBD19CE</RequestId>
<NatGateways>
<NatGateway>
<Description/>
<Spec>Small</Spec>
<ForwardTableIds>
<ForwardTableId>ftb-rj9p798gwt2k3yk6c6yxh</ForwardTableId>
</ForwardTableIds>
<VpcId>vpc-rj983s9gj1nssugzh49vr</VpcId>
<NatGatewayId>ngw-rj99ps4cq9lfse0ried3l</NatGatewayId>
<CreationTime>2017-01-23T02:30:31Z</CreationTime>
<BandwidthPackageIds>
<BandwidthPackageId>bwp-rj911xdpev0h9liwesfg4</BandwidthPackageId>
</BandwidthPackageIds>
<Name/>
<Status>Available</Status>
<BusinessStatus>Normal</BusinessStatus>
<RegionId>us-west-1</RegionId>
<SnatTableIds>
<SnatTableId>stb-rj9u47y5gl255bgmb3ady</SnatTableId>
</SnatTableIds>
<InstanceChargeType>PostPaid</InstanceChargeType>
</NatGateway>
</NatGateways>
</DescribeNatGatewaysResponse>
```

Description

Modify the specification of a NAT gateway.

In a billing cycle, the highest specification is used for billing regardless of the number of the specification changes.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: ModifyNatGatewaySpec.
RegionId	String	Yes	The region of the NAT gateway.
NatGatewayId	String	Yes	The ID of the NAT gateway to be modified.
Spec	String	No	The specification of the NAT gateway. Valid values: Small, Middle, Large. If no value provided, Small is used.
ClientToken	String	No	Used to ensure the request idempotence. This value is generated by the client and must be unique, and cannot exceed 64 ASCII characters. For details, refer to How to ensure idempotence.

Response parameters

Response parameter	Data type	Description
NatGatewayId	String	The ID of the NAT gateway generated by the system. It is the unique identifier to access the gateway.
ForwardTableIds	Array	Table list.

BandwidthPackageIds	Array	The list of shared bandwidth package.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidParameter.Spec.ValueNotSupported	The specified Spec is not valid.	400	The specified specification is invalid.
InvalidNatGatewayId.NotFound	Specified value of NatGatewayId is not found in our record.	404	The specified NAT gateway does not exist.

Description

Modify the name and description of the NAT gateway.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: ModifyNatGatewayAttribute.
RegionId	String	Yes	The region of the NAT gateway.
NatGatewayId	String	Yes	The ID of the NAT gateway to be modified.
Name	String	No	The name of the NAT gateway. The length is between 2-128 characters, including digits, ".", "_", "-", and must begin with Chinese characters or English letters and

			cannot begin with http:// or https://. If no value provided, the instance ID is used.
Description	String	No	The description of the NAT gateway. The length is between 2-256 characters and cannot begin with http:// or https://

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidNatGatewayId.NotFound	Specified value of NatGatewayId is not found in our record.	404	The specified NAT gateway does not exist.
InvalidParameter.Name.Malformed	The specified Name is not valid.	400	Invalid name foramt.
InvalidParameter.Description.Malformed	The specified Description is not valid.	400	Invalid description format.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Description=modified+description&Format=json&TimeStamp=2016-07-19T17%3A16%3A34Z&RegionId=cn-shanghai&NatGatewayId=ngw-7mwb327j1&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=YmhpTIu6piZKY3nMMJp%2BEffuxDw%3D&Action=ModifyNatGatewayAttribute&SignatureNonce=8b4e670a-4dd4-11e6-976b-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "AB5F62CF-2B60-4458-A756-42C9DFE108D1"
}
```

Description

Delete a NAT gateway.

If the NAT gateway has shared bandwidth packages, delete the packages first.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: DeleteNatGateway.
RegionId	String	Yes	The region of the NAT gateway.
NatGatewayId	Integer	Yes	The ID of the NAT gateway to be deleted.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
Invalid.RegionId	Specified region is not found during access authentication.	404	The specified region does not exist.
MissingParameter.N	The input parameter	400	No value provided

atGatewayId	“NatGatewayId” that is mandatory for processing this request is not supplied.		for the NAT gateway ID.
DependencyViolation.BandwidthPackages	There are BandwidthPackages on specified NatGateway not deleted.	400	The NAT gateway still has shared bandwidth packages.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T06%3A42%3A44Z&RegionId=cn-shanghai&NatGatewayId=ngw-112za33e4&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=tYpwSEabziAM8WdVxVNKkNCHhSI%3D&action=DeleteNatGateway&SignatureNonce=8e471ddc-20b1-11e6-9899-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF"
}
```

Description

Create a shared bandwidth package for a NAT gateway. Up to four shared bandwidth packages can be added to a NAT gateway.

The public IP and bandwidth in the NAT Gateway are abstractly grouped into a shared bandwidth package, which consists of:

- A shared public network bandwidth
- A group of public IPs

All the public IPs share this bandwidth. For details on pricing, refer to Billing overview.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value:CreateBandwidthPackage.
RegionId	String	Yes	The region of the NAT gateway.
NatGatewayId	String	Yes	The ID of the NAT gateway where the shared bandwidth package is created.
IpCount	Integer	Yes	The number of public IPs in the shared bandwidth package. Valid value: 1-50.
Bandwidth	Integer	Yes	The bandwidth of the shared bandwidth package. Valid value: 5-5000.
Zone	String	No	The zone of the shared bandwidth package. If no value provided, a random zone is assigned. **Note**: When the public IP of the shared bandwidth package and the ECS instance are not in the same zone, there is no impact on its connectivity; however, you can get low latency if they are in the same zone.
Name	String	No	The name of the shared bandwidth package. The length is between 2-128 characters, including digits,

			".", "_", "-", and must begin with Chinese characters or English letters and cannot begin with http:// or https://. If no value provided, the instance ID is used.
Description	String	No	The description of the shared bandwidth package. The length is between 2-256 characters and cannot begin with http:// or https://. If no value provided, the description is empty.

Response parameters

Response parameter	Data type	Description
BandwidthPackageId	String	The ID of the shared bandwidth package.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidZoneId.NotFound	Specified value of ZoneId is not supported.	404	The specified zone does not exist.
InvalidNatGatewayId.NotFound	Specified value of NatGatewayId is not found in our record.	404	The specified NAT gateway does not exist.
MissingParameter.IpCount	Missing parameter IpCount.	400	No value is provided for the IP count.
MissingParameter.	Bandwidth Missing parameter Bandwidth.	400	No value is provided for the bandwidth.
QuotaExceeded.Ban	BandwidthPackage	400	Exceed the shared

dwidthPackageCountOnNatGateway	count limit on one NatGateway exceeded.		bandwidth package limit. Up to four shared bandwidth packages can be added to a NAT gateway.
InvalidParameter.Name.Malformed	The specified Name is not valid.	400	Invalid name foramt.
InvalidParameter.Description.Malformed	The specified Description is not valid.	400	Invalid description format.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&NatGatewayId=ngw-7mwb327j1&Format=json&TimeStamp=2016-07-19T17%3A08%3A27Z&RegionId=cn-shanghai&Bandwidth=5&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=DIqV3jVRDoISfSPsjgYtEcHKLyM%3D&Action=CreateBandwidthPackage&SignatureNonce=690270e8-4dd3-11e6-93ce-2cf0ee28adf2&ZoneId=cn-shanghai-a&IpCount=1
```

Response example

JSON format

```
{
"BandwidthPackageId": "bwp-s6lmotmkk",
"RequestId": "54ED4074-3F89-4F11-B166-837DD3E20FE3"
}
```

Description

Query the shared bandwidth packages in the specified regions. This interface supports querying by page, with 10 lines per page by default.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter.

			Valid value:DescribeBandwidthPackages.
RegionId	String	Yes	The region to query.
BandwidthPackageId	String	No	Filter parameter, that is, querying the shared bandwidth package with the specified ID. If no value provided, all the shared bandwidth packages in the specified region are returned.
NatGatewayId	String	No	Filter parameter, that is, querying the specified shared bandwidth package. If no value provided, all the shared bandwidth packages in the specified region are returned.
PageNumber	Integer	No	The number of pages. Both the start and default values are 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and the default value is 10.

Response parameters

Response parameter	Data type	Description
BandwidthPackages	BandwidthPackageSetType	The list of the shared bandwidth packages.
TotalCount	Integer	The total number of the queried items.
PageNumber	Integer	The current page number.
PageSize	Integer	The number of items on the current page.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	Specified value of “RegionId” is not supported.	404	The specified region does not exist.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T03%3A33%3A30Z&RegionId=cn-shanghai&NatGatewayId=ngw-112za33e4&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=KN0C2Q4TUZtfECBn1c2lOdBzrb8%3D&action=DescribeBandwidthPackages&SignatureNonce=1e8941ae-2097-11e6-acbb-2cf0ee28adf2
```

Response example

JSON format

```
{
"BandwidthPackages": {
"BandwidthPackage": [
{
"Bandwidth": "150",
"BandwidthPackageId": "bwp-11odxu2k7",
"BusinessStatus": "Normal",
"CreationTime": "2016-05-23T03:26:24Z",
"Description": "",
"InstanceChargeType": "PostPaid",
"InternetChargeType": "PayByBandwidth",
"IpCount": "5",
"Name": "",
"NatGatewayId": "ngw-112za33e4",
"PublicIpAddresses": {
"PublicIpAddresse": [
{
"AllocationId": "nateip-11iopy3sl",
"IpAddress": "139.224.22.107"
},
{
"AllocationId": "nateip-11pt1f9ph",
"IpAddress": "139.224.22.55"
},
{
```

```
"AllocationId": "nateip-111ul670c",
"IpAddress": "139.224.22.79"
},
{
"AllocationId": "nateip-11ogfjj85",
"IpAddress": "139.224.22.59"
},
{
"AllocationId": "nateip-11s2jempe",
"IpAddress": "139.224.22.99"
}
]
},
"RegionId": "cn-shanghai",
"Status": "Available",
"ZoneId": "cn-shanghai-a"
}
]
},
"PageNumber": 1,
"PageSize": 10,
"RequestId": "14406B86-7CA1-4907-9755-86096F476A4F",
"TotalCount": 1
}
```


Description

Modify the bandwidth for a specified shared bandwidth package.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: ModifyBandwidthPackageSpec.
RegionId	String	Yes	The region of the shared bandwidth package.
BandwidthPackageId	String	Yes	The ID of the shared bandwidth package.
Bandwidth	String	Yes	The bandwidth of the shared bandwidth package. Valid value: 5-5000.

ClientToken	String	No	Used to ensure the request idempotence. This parameter value is generated by the client and must be unique. Cannot exceed 64 ASCII characters. For details, refer to How to ensure idempotence.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	Specified value of “RegionId” is not supported.	404	The specified region does not exist.
InvalidBandwidthPackageId.NotFound	Specified value of BandwidthPackageId is not found in our record.	404	The specified shared bandwidth package does not exist
InvalidBandwidth.ValueNotSupported	The specified value of Bandwidth not supported.	400	Invalid bandwidth value.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&BandwidthPackageId=bwp-11odxu2k7&Format=json&TimeStamp=2016-05-23T04%3A03%3A08Z&RegionId=cn-shanghai&Bandwidth=200&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=tozPphaDTYvhOI%2Bw%2FJjw7WaPn70%3D&action=ModifyBandwidthPackageSpec&SignatureNonce=42429561-209b-11e6-b869-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "079874CD-AEC1-43E6-AC03-ADD96B6E4907"
}
```


Description

Modify the name and description of a specified shared bandwidth package.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: ModifyBandwidthPackageAttribute.
RegionId	String	Yes	The region of the shared bandwidth package.
BandwidthPackageId	String	Yes	The ID of the shared bandwidth package.
Name	String	No	The name of the shared bandwidth package. The length is between 2-128 characters, including digits, ".", "_", "-", and must begin with Chinese characters or English letters and cannot begin with http:// or https://.
Description	String	No	The description of the shared bandwidth package. The length is between 2-256 characters and cannot begin with http:// or https://.

Response parameters

Public response parameters.

Erro code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidBandwidthPackageId.NotFound	Specified value of BandwidthPackageId is not found in our record.	404	The specified shared bandwidth package does not exist.
InvalidParameter.Name.Malformed	The specified Name is not valid.	400	Invalid name foramt.
InvalidParameter.Description.Malformed	The specified Description is not valid.	400	Invalid description format.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&BandwidthPackageId=bwp-s6lmotmkk&Name=modified&Format=json&TimeStamp=2016-07-19T17%3A11%3A39Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=fR3h0PELe%2Fxy%2Fgu6BJZyzWasnfc%3D&Action=ModifyBandwidthPackageAttribute&SignatureNonce=db570d0a-4dd3-11e6-b591-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "DFDDD35D-3F29-4E15-AA28-53F5341F9599"
}
```

Description

Add the number of public IPs for a specified shared bandwidth package.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: AddBandwidthPackageIps.
RegionId	String	Yes	The region of the shared bandwidth package.
BandwidthPackageId	String	Yes	The ID of the shared bandwidth package.
IpCount	String	Yes	The number of the public IPs after modification.
ClientToken	String	No	Used to ensure the request idempotence. This value is generated by the client and must be unique, and cannot exceed 64 ASCII characters. For details, refer to How to ensure idempotence.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	Specified value of “RegionId” is not supported.	404	The specified region does not exist.
InvalidBandwidthPackageId.NotFound	Specified value of BandwidthPackageId is not found in our	404	The specified shared bandwidth package does not exist.

	record.		
InvalidIpCount.Value NotSupported	The specified value of IpCount not supported.	400	Invalid IP count.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&BandwidthPackageId=bwp-11odxu2k7&Format=json&TimeStamp=2016-05-23T03%3A58%3A18Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=pSjC98nbDGgMl1tdjcXARIfW6t0%3D&action=AddBandwidthPackageIps&SignatureNonce=955c7d70-209a-11e6-907e-2cf0ee28adf2&IpCount=6
```

Response example

JSON format

```
{
"RequestId": "EC0B5C51-7F40-44D6-A642-1DE764B547EC"
}
```

Description

Delete the public IPs in a shared bandwidth package.

Note the following when specifying the list of the public IPs to be deleted:

Cannot delete all the public IPs in the shared bandwidth package. If the IP list contains all the public IPs of the shared bandwidth package, the deletion fails.

If the IP list contains the IP that is not included in the shared bandwidth package, the deletion fails.

If the public IP is used in either a DNAT entry or an SNAT entry, the deletion fails.

Request parameters

Request parameter	Data type	Required	Description

Action	String	Yes	System required parameter. Valid value: RemoveBandwidthPackageIps.
RegionId	String	Yes	The region where the NAT gateway is created.
BandwidthPackageId	String	Yes	The ID of the shared bandwidth package that the public IP belongs to.
RemovedIpAddresses.n	Array	No	The ID of the public IP. n starts from 1 and the largest value is 20.
ClientToken	String	No	Used to ensure the request idempotence. This value is generated by the client and must be unique, and cannot exceed 64 ASCII characters. For details, refer to How to ensure idempotence.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	Specified value of “RegionId” is not supported.	404	The specified region does not exist.
InvalidBandwidthPackageId.NotFound	Specified value of BandwidthPackageId is not found in our record.	404	The specified shared bandwidth package does not exist.
InvalidRemovedIpAddresses.NotFound	Some of the specified value of RemovedIpAddress not found in	400	An IP in the IP list does not belong to the specified shared bandwidth package.

	specified BandwidthPackage		
Forbidden.RemoveAllIps	It’s forbidden that remove all IPs in BandwidthPackage.	400	Cannot delete all the public IPs in the shared bandwidth package.
Forbidden.SomeIpReferredByForwardEntry	It’s forbidden because there are some specified RemovedIpAddresses referred by ForwardEntry.	400	One or more IPs are used by an SNAT entry or a DNAT entry.

Example

Request example

```
https://vpc.aliyuncs.com/?RemovedIpAddresses.2=nateip-11s2jempe&SignatureVersion=1.0&BandwidthPackageId=bwp-11odxu2k7&Format=json&TimeStamp=2016-05-23T04%3A01%3A34Z&RegionId=cn-shanghai&RemovedIpAddresses.1=nateip-1110a2l48&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=l4NbMQD5X1xkLrgBZm34Aj4uwiI%3D&action=RemoveBandwidthPackageIps&SignatureNonce=0a34f3f3-209b-11e6-b183-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "7D275A59-1EB0-4775-8A20-2A47055EAC5C"
}
```

Description

Delete the specified shared bandwidth package.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter.

			Valid value: DeleteBandwidthPackage.
RegionId	String	Yes	The region of the shared bandwidth package.
BandwidthPackageId	Integer	Yes	The ID of the shared bandwidth package to be deleted.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
Invalid.RegionId	Specified region is not found during access authentication.	404	The specified region does not exist.
MissingParameter.BandwidthPackageId	The input parameter “BandwidthPackageId” that is mandatory for processing this request is not supplied.	400	No value is provided for the shared bandwidth package ID.
Forbidden.SomeIpReferredByForwardEntry	It’s forbidden because there are some PublicIp in specified BandwidthPackage referred by ForwardEntry.	400	The IP in the shared bandwidth package is in use.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&BandwidthPackageId=bwp-11odxu2k7&Format=json&TimeStamp=2016-05-23T06%3A40%3A32Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=y%2B5U28PQJl4NuVNFa0EEBNR5TWw%3D&action=DeleteBandwidthPackage&SignatureNonce=3f
```

```
06e585-20b1-11e6-81df-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "7D275A59-1EB0-4775-8A20-2A47055EAC5C"
}
```

Description

Add a DNAT entry in the DNAT table. A DNAT table is automatically created after creating a NAT gateway.

Note the following when creating a DNAT entry:

Each DNAT entry consists of five parts: [ExternalIp, ExternalPort, Protocol, InternalIp, InternalPort].

The function of a DNAT entry is: forwarding the received data from [ExternalIp:ExternalPort] of the specified protocol to [InternalIp:InternalPort], and send the response in the same.

Limits on ExternalIp:

- Must be a public IP in the shared bandwidth package.
- Only support TCP and UDP protocols. If the protocol is Any, it means no restrictions on the protocol.
- A public IP cannot be used in both SNAT and DNAT entries.

Limits on InternalIp:

- Must belong to the VPC CIDR block of the NAT gateway.
- Can be an existing private IP of an ECS instance or a private IP not in use.
- The DNAT entry can only be used for ECS instances.

Uniqueness requirement:

The combination of these three parameters [public IP, public port and protocol] of all DNAT entries cannot be duplicated.

The combination of these three parameters [private IP, private port and protocol] of all DNAT entries cannot be duplicated.

Cannot create a DNAT entry, when the status of a DNAT entry in a DNAT table is Pending or Modifying.

Up to 40 DNAT entries can be added to a DNAT table.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: CreateForwardEntry.
RegionId	String	Yes	The region of the NAT gateway.
ForwardTableId	String	Yes	The ID of the DNAT table.
ExternalIp	String	Yes	The public IP used to receive and forward requests from the Internet.
ExternalPort	String	Yes	Public port. Valid value: 1-65535.
IpProtocol	String	Yes	Protocol type. Valid value: TCP、UDP or Any.
InternalIp	String	Yes	Destination private IP.
InternalPort	String	Yes	Destination private port. Valid value: 1-65535.

Response parameters

Response parameter	Data type	Description
ForwardEntryId	String	The ID of the DNAT entry allocated by the system.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidForwardTableId.NotFound	Specified forward table does not exist.	404	The specified DNAT table does not exist.
InvalidExternalIp.NotFound	Specified Source Ip address does not found on the VRouter	404	The specified public IP does not exist.
QuotaExceeded.ForwardEntry	Forward entry quota exceeded in this route table.	400	The number of DNAT entries in a DNAT table cannot exceed 40.
IncorretForwardEntryStatus	Some Forward entry status blocked this operation.	400	Cannot create a DNAT entry, because the status of a DNAT entry in a DNAT table is Pending or Modifying.
InvalidProtocol.ValueNotSupportedc	The specified IpProtocol does not exist or IpProtocol and ExternalPort or InternalPort do not match.	400	The specified protocol is not supported.
InvalidInternalIp.Malformed	The specified InternalIp is not a valid IP address.	400	Invalid private IP.
InvalidExternalIp.Malformed	The specified ExternalIp is not a valid IP address.	400	Invalid public IP.
InvalidExternalPort.Malformed	The specified ExternalPort is not a valid port.	400	Invalid public port.
InvalidInternalPort.Malformed	The specified InternalPort is not a valid port.	400	Invalid private port.
Forbidden.PortsAndIpProtocol	ExternalPort/InternalPort/IpProtocol must be all Any or all not Any.	400	The values of ExternalPort, InternalPort and IpProtocol must be either Any or not at the same time.
ForwardEntry.Duplic	The specified	400	Conflict with existing

ated.Source	<ExternalIp, IpProtocol, ExternalPort> is duplicated		DNAT entries: public IP, public port, and protocol.
ForwardEntry.Duplicated.Destination	The specified <InternalIp, InternalPort> is duplicated	400	Conflict with existing DNAT entries: private IP, private port, and protocol.
Forbidden.DestnationIpOutOfVpcCIDR	The specified Destination Ip is Out of VPC CIDR	400	The private IP does not belong to the VPC.
Forbidden.ExternalIp.UsedInSnatTable	The specified ExternalIp is already used in SnatTable	400	The public IP is already used in an SNAT entry.

Example

Request example

```
https://vpc.aliyuncs.com/?ExternalIp=139.224.22.107&SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T03%3A53%3A18Z&RegionId=cn-shanghai&ExternalPort=Any&InternalIp=192.168.1.1&Signature=iR4GSzhJQtowMJOj%2FRth3ABP4FA%3D&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-SHA1&Version=2016-04-28&IpProtocol=Any&action=CreateForwardEntry&SignatureNonce=e2ceae11-2099-11e6-b548-2cf0ee28adf2&InternalPort=Any
```

Response example

JSON format

```
{
"ForwardEntryId": "fwd-119smw5tk",
"RequestId": "A4AEE536-A97A-40EB-9EBE-53A6948A6928"
}
```

Description

Query the list of the DNAT entries in a specified DNAT table.

This interface supports querying by page, with 10 lines per page by default.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: DescribeForwardTableEntries.
RegionId	String	Yes	The region of the NAT gateway.
ForwardTableId	String	Yes	The ID of the DNAT table to query.
PageNumber	Integer	No	The number of pages. Both the start and default values are 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and the default value is 10.

Response parameters

Response parameter	Data type	Description
ForwardTableEntries	ForwardTableEntrySetType	The list of DNAT entries.
TotalCount	Integer	The number of the DNAT entries.
PageNumber	Integer	The current page number.
PageSize	Integer	The number of items on the current page.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidVRouterId.No	Specified VRouter is	404	Authentication fails,

tFound	not found during access authentication.		and cannot find the specified VRouter.
InvalidForwardTable.NotFound	Specified ForwardTable is not found during access authentication.	404	Authentication fails, and cannot find the specified DNAT table.
MissingParameter.VRouterIdOrFowardTableId	One of VRouterId and FowardTableId must be specified.	400	No specified DNAT table.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T04%3A10%3A16Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=9OeTVlgyBTn8uNF81Za0%2By3q8q0%3D&action=DescribeForwardTableEntries&SignatureNonce=41541235-209c-11e6-b0d5-2cf0ee28adf2
```

Response example

JSON format

```
{
"ForwardTableEntries": {
"ForwardTableEntry": [
{
"ExternalIp": "139.xxx.xx.107",
"ExternalPort": "any",
"ForwardEntryId": "fwd-119smw5tk",
"ForwardTableId": "ftb-11tc6xgmv",
"InternalIp": "192.168.1.1",
"InternalPort": "any",
"IpProtocol": "any",
"Status": "Available"
},
{
"ExternalIp": "139.xxx.xx.79",
"ExternalPort": "443",
"ForwardEntryId": "fwd-11cdhpjlk",
"ForwardTableId": "ftb-11tc6xgmv",
"InternalIp": "192.168.1.4",
"InternalPort": "443",
"IpProtocol": "tcp",
"Status": "Available"
```

```
},
{
"ExternalIp": "139.xxx.xx.55",
"ExternalPort": "any",
"ForwardEntryId": "fwd-11dz3ly9l",
"ForwardTableId": "ftb-11tc6xgmv",
"InternalIp": "192.168.1.2",
"InternalPort": "any",
"IpProtocol": "any",
"Status": "Available"
},
{
"ExternalIp": "139.xxx.xx.59",
"ExternalPort": "22",
"ForwardEntryId": "fwd-11iv34uj7",
"ForwardTableId": "ftb-11tc6xgmv",
"InternalIp": "192.168.1.5",
"InternalPort": "22",
"IpProtocol": "tcp",
"Status": "Available"
},
{
"ExternalIp": "139.xxx.xx.79",
"ExternalPort": "80",
"ForwardEntryId": "fwd-11r23r7p5",
"ForwardTableId": "ftb-11tc6xgmv",
"InternalIp": "192.168.1.3",
"InternalPort": "80",
"IpProtocol": "tcp",
"Status": "Available"
}
]
},
"PageNumber": 1,
"PageSize": 10,
"RequestId": "A6C4A8B1-7561-4509-949C-20DEB40D71E6",
"TotalCount": 5
}
```


Description

Modify a specified DNAT entry.

> Note: Cannot modify a DNAT entry, when the status of a DNAT entry in a DNAT table is Pending or Modifying.

Request parameters

Request parameter	Data type	Required	Description

Action	String	Yes	System required parameter. Valid value: ModifyForwardEntry.
RegionId	String	Yes	The region of the NAT gateway.
ForwardTableId	String	Yes	The ID of the DNAT table.
ForwardEntryId	String	Yes	The ID of the DNAT entry to be modified.
ExternalIp	String	No	>The public IP used to receive and forward requests from the Internet.
IpProtocol	String	No	Protocol type. Valid value: TCP、UDP or Any.
ExternalPort	String	No	Public port. Valid value: 1-65535.
InternalIp	String	No	Destination private IP.
InternalPort	String	No	Destination private port. Valid value: 1-65535.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidForwardTableId.NotFound	Specified forward table does not exist.	404	The specified DNAT table does not exist.
InvalidForwardEntryId.NotFound	Specified forward entry ID does not exist	404	The specified DNAT entry does not exist.
InvalidExternalIp.Not	Specified Source Ip	404	The specified public

Found	address does not found on the VRouter		IP does not exist.
QuotaExceeded	Forward entry quota exceeded in this route table.	400	The number of DNAT entries in a DNAT table cannot exceed 40.
IncorretForwardEntryStatus	Some Forward entry status blocked this operation.	400	Cannot modif a DNAT entry, because the status of a DNAT entry in a DNAT table is Pending or Modifying.
InvalidProtocal.ValueNotSupportedc	The specified IpProtocol does not exist or IpProtocol and ExternalPort or InternalPort do not match.	400	The specified protocol is not supported.
InvalidInternalIp.Malformed	The specified InternalIp is not a valid IP address.	400	Invalid private IP.
InvalidExternalIp.Malformed	The specified ExternalIp is not a valid IP address.	400	Invalid public IP.
InvalidExternalPort.Malformed	The specified ExternalPort is not a valid port.	400	Invalid public port.
InvalidInternalPort.Malformed	The specified InternalPort is not a valid port.	400	Invalid private port.
ForwardEntry.Duplicated	The specified <ExternalIp, IpProtocol, ExternalPort> is duplicated	400	Conflict with existing DNAT entries: public IP, public port, and protocol.
Forbidden.InternalIpAndInternalPortDuplicate	The specified <InternalIp, InternalPort> is duplicated.	400	Conflict with existing DNAT entries: private IP, private port, and protocol.
Forbidden.PortsAndIpProtocol	ExternalPort/InternalPort/IpProtocol must be all Any or all not Any.	400	The values of ExternalPort, InternalPort and IpProtocol must be either Any or not at the same time.
Forbidden.ExternalIp.UsedInSnatTable	The specified ExternalIp is already used in SnatTable	400	The public IP is already used in an SNAT entry.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T04%3A09%3A16Z&RegionId=cn-shanghai&ForwardEntryId=fwd-11iv34uj7&InternalIp=192.168.1.3&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=DM6q9yvEuEPSryxJtyLlN4S2hXE%3D&action=ModifyForwardEntry&SignatureNonce=1daf567d-209c-11e6-aba8-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "24CC85DC-7700-4F09-9624-99E988C7DD03"
}
```

Description

Delete a specified DNAT entry.

Note: Cannot delete a DNAT entry, when the status of a DNAT entry in a DNAT table is Pending or Modifying.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: DeleteForwardEntry.
RegionId	String	Yes	The region of the NAT gateway.
ForwardTableId	String	Yes	The ID of the DNAT table.
ForwardEntryId	String	Yes	The ID of the DNAT entry to be deleted.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidForwardTableId.NotFound	Specified forward table does not exist.	404	The specified DNAT table does not exist.
IncorretForwardEntryStatus	Some Forward entry status blocked this operation.	400	Cannot delete a DNAT entry, because the status of a DNAT entry in a DNAT table is Pending or Modifying.
InvalidForwardEntryId.NotFound	Specified forward entry ID does not exist	404	The specified DNAT entry does not exist.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T05%3A07%3A14Z&RegionId=cn-shanghai&ForwardEntryId=fwd-11iv34uj7&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=dqe76byYB1FVIq8BTUCJRyTVtbY%3D&action=DeleteForwardEntry&SignatureNonce=36754954-20a4-11e6-aa16-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "4EC47282-1B74-4534-BD0E-403F3EE64CAF"
}
```

Description

Add an SNAT entry in an SNAT table. The SNAT table is automatically created after creating a NAT gateway.

Note the following when creating an SNAT entry:

- Each SNAT entry consists of SourceVSwitchId and SnatIp.
- The function of an SNAT entry is: the ECS instances in the specified VSwitch can access the Internet using the public IP (SnatIp).
- Limits on the VSwitch：
  - The VSwitch must belong to the same VPC as the NAT gateway.
  - Cannot create an SNAT entry if the VSwitch has HAVIPs.
  - Only one SNAT entry can be added to a VSwitch.
- Limits on the public IP (SnatIp):
  - Must be a public IP in the shared bandwidth package.
  - A public IP cannot be used in both SNAT and DNAT entries.
  - A public IP can be added to multiple SNAT entries.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: CreateSnatEntry.
RegionId	String	Yes	The region of the NAT gateway.
SnatTableId	String	Yes	The ID of the SNAT table.
SourceVSwitchId	String	Yes	The ID of the VSwitch that needs to access the Internet.
SourceCIDR	String	No	The CIDR block of the VSwitch, such as 10.1.1.0/24. **Note**: This parameter is mutually exclusive with the SourceVSwitchId parameter and cannot be used at the same time.

			If you have specified the SourceVSwitchId parameter, no need to specify the SourceCIDR parameter.
SnatIp	String	Yes	The public IP to provide the Internet access. If you want to use the IP pool function, specify the IP list in this parameter. The public IPs are separated by commas, such as SnatIp=47.XXX.XXX.98,47.XXX.XXX.99,47.XXX.XXX.241.

Response parameters

Response parameter	Data type	Description
SnatEntryId	String	The ID of the SNAT entry allocated by the system.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	404	The specified SNAT table does not exist.
Forbidden.SourceVSwitchId.IncludeHaVip	There is some HaVips under specified VSwitch	400	The specified VSwitch has configured HAVIPs.
Forbidden.SourceVSwitchId.Duplicated	The specified SourceCIDRis duplicated	400	The specified VSwitch has configured an SNAT entry.
InvalidSnatIp.Malformed	The specified SnatIp is not a valid IP address.	400	Invalid public IP.
InvalidSnatIp.NotFo	Specified SnatIp	404	The specified public

und	does not found on the NAT Gateway		IP does not exist in the NAT gateway.
IncorretSnatEntrySta tus	Some SNAT entry status blocked this operation.	400	Cannot create an SNAT entry, because the status of an SNAT entry in an SNAT table is Pending or Modifying.
Forbidden.IpUsedInF orwardTable	The specified SnatIp already used in forward table	400	The public IP is already used in a DNAT entry.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-07-19T16%3A46%3A28Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SnatTableId=stb-gz3r3odaw&SignatureMethod=HMAC-SHA1&Version=2016-04-28&SnatIp=139.224.22.40&Signature=2nxkCU%2FIt6rUuT9OYG4jcIUccoc%3D&Action=CreateSnatEntry&SignatureNonce=56f17700-4dd0-11e6-9548-2cf0ee28adf2&SourceVSwitchId=vsw-yrv0winkw
```

Response example

JSON format

```
{
"RequestId": "69B31D6E-9F34-4A5A-8DBC-230A3918E828",
"SnatEntryId": "snat-kmd6nv8fy"
}
```

Description

Query the list of the SNAT entries in a specified SNAT table.

This interface supports querying by page, with 10 lines per page by default.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required

			parameter. Valid value: DescribeSnatTableEntries.
RegionId	String	Yes	The region of the NAT gateway.
SnatTableId	String	Yes	The ID of the SNAT table to query.
PageNumber	Integer	No	The number of pages. Both the start and default values are 1.
PageSize	Integer	No	The number of lines per page set for paging query. The maximum value is 50 and the default value is 10.

Response parameters

Response parameter	Data type	Description
SnatTableEntries	SnatEntrySetType	The list of SNAT entries.
TotalCount	Integer	The number of the SNAT entries.
PageNumber	Integer	The current page number.
PageSize	Integer	The number of items on the current page.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.

Example

Request example

```
https://vpc.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-07-19T16%3A49%3A36Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SnatTableId=stb-gz3r3odaw&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=t0BtL%2B1xK7Tt%2B0EhUJ3NeU2fP2s%3D&Action=DescribeSnatTableEntries&SignatureNonce=c6a764fd-4dd0-11e6-8a81-2cf0ee28adf2
```

Response example

JSON format


```
{
"PageNumber": 1,
"PageSize": 10,
"RequestId": "6D7E89B1-1C5B-412B-8585-4908E222EED5",
"SnatTableEntries": {
"SnatTableEntry": [
{
"SnatEntryId": "snat-kmd6nv8fy",
"SnatIp": "139.xxx.xx.40",
"SnatTableId": "stb-gz3r3odaw",
"SourceCIDR": "192.168.1.0/24",
"SourceVSwitchId": "vsw-yrv0xxxxx",
"Status": "Available"
},
{
"SnatEntryId": "snat-bs5bezbme",
"SnatIp": "139.xxx.xx.40",
"SnatTableId": "stb-gz3r3odaw",
"SourceCIDR": "192.168.3.0/24",
"SourceVSwitchId": "vsw-3xbxxxxx",
"Status": "Available"
}
]
},
"TotalCount": 2
}
```


Description

Modify the public IP in the specified SNAT entry.

Note: You cannot change the VSwitch in the SNAT table.

Request parameters

Request parameter	Data type	Required	Description

Action	String	Yes	System required parameter. Valid value: ModifySnatEntry.
RegionId	String	Yes	The region of the NAT gateway.
SnatTableId	String	Yes	The ID of the SNAT table.
SnatEntryId	String	Yes	The ID of the SNAT entry to be modified.
SnatIp	String	No	The public IP to provide the Internet access. If you want to use the IP pool function, specify the IP list in this parameter. The public IPs are separated by commas, such as SnatIp=47.XXX.XXX.98,47.XXX.XXX.99,47.XXX.XXX.241.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	404	The specified SNAT table does not exist.
InvalidSnatEntryId.NotFound	Specified SNAT entry does not exist.	404	The specified SNAT entry does not exist.
InvalidSnatIp.Malformed	The specified SnatIp is not a valid IP address.	400	Invalid public IP.
InvalidSnatIp.NotFound	Specified SnatIp does not found on the NAT Gateway	404	The specified public IP does not exist in the NAT gateway.

IncorretSnatEntryStatus	Some SNAT entry status blocked this operation.	400	Cannot modify the SNAT entry, because the status of an SNAT entry in an SNAT table is Pending or Modifying.

Example

Request example

```
https://vpc.aliyuncs.com/?SnatEntryId=snat-bs5bezbme&SignatureVersion=1.0&Format=json&TimeStamp=2016-07-19T17%3A14%3A38Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SnatTableId=stb-gz3r3odaw&SignatureMethod=HMAC-SHA1&Version=2016-04-28&SnatIp=139.224.36.107&Signature=J7l4MX74d5Zv5yonzAEIw7yd0xs%3D&Action=ModifySnatEntry&SignatureNonce=45f23d9e-4dd4-11e6-8b16-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "C4C873E5-8B92-4CD8-9163-66703A808E46"
}
```

Description

Delete a specified SNAT entry.

Request parameters

Request parameter	Data type	Required	Description
Action	String	Yes	System required parameter. Valid value: DeleteSnatEntry.
RegionId	String	Yes	The region of the NAT gateway.
SnatTableId	String	Yes	The ID of the SNAT table.

SnatEntryId	String	Yes	The ID of the SNAT entry to be deleted.

Response parameters

Public response parameters.

Error code

Error code	Error message	HTTP status code	Description
InvalidRegionId.NotFound	The specified RegionId is not found in our record.	404	The specified region does not exist.
InvalidSnatTableId.NotFound	Specified SNAT table does not exist.	404	The specified SNAT table does not exist.
InvalidSnatEntryId.NotFound	Specified SNAT entry ID does not exist	404	The specified SNAT entry does not exist.

Example

Request example

```
https://vpc.aliyuncs.com/?SnatEntryId=snat-bs5bezbme&SignatureVersion=1.0&Format=json&TimeStamp=2016-07-19T17%3A15%3A25Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SnatTableId=stb-gz3r3odaw&SignatureMethod=HMAC-SHA1&Version=2016-04-28&Signature=8SindEe8sQyTJv41zGDG7P6CoLE%3D&Action=DeleteSnatEntry&SignatureNonce=6200df19-4dd4-11e6-8ffb-2cf0ee28adf2
```

Response example

JSON format

```
{
"RequestId": "47B80B6A-759A-479C-A565-76D04BDA29F3"
}
```

Monitor APIs

Description

Query EIP monitoring information

> Up to 200 monitoring data entries can be returned at once. If the specified (EndTime - StartTime)/ Period > 200, an error is returned.
>
> If EndTime - StartTime < period, then only the data for the StartTime point are returned.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value: DescribeEipMonitorData.
AllocationId	String	Yes	EIP application Id.
StartTime	String	Yes	The start time of the retrieved data: which is represented according to ISO8601, and UTC is required. Format: YYYY-MM-DDThh:mm:ssZ. If the seconds place is not 00, it is automatically set to start by the next minute.
EndTime	String	Yes	The end time of the retrieved data: which is represented according to ISO8601, and UTC is required. Format: YYYY-MM-DDThh:mm:ssZ. If the seconds place is not 00, it is automatically set to start by the next minute.
Period	Integer	No	The precision of the

			retrieved monitoring data. The default value is 60 seconds and the available value options are 60 | 300 | 900 | 3600.

Return Parameters

Name	Type	Description
EipMonitorDatas	EipMonitorDataSetType	A collection composed of instance monitoring data EipMonitorDataType.

Error Code

Error Code	Description	Http status code	Meaning
InvalidAllocationId.NotFound	Specified allocation id is not found.	400	EIP not found
InvalidStartTime.Malformed	Specified start time is malformed.	400	The StartTime format is invalid.
InvalidEndTime.Malformed	Specified end time is malformed.	400	The EndTime format is invalid.
InvalidParameter	Specified value of **Period** is not valid.	400	The Period value is not in the available range.
OperationDenied.TooManyDataQueried	Specified operation is denied as too many data to return.	400	There are too many query entries. Please reduce the time interval.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action= DescribeEipMonitorData
&AllocationId=eip-2578g5v5a
&StartTime=2014-10-29T23:00:00Z
&EndTime=2014-10-30T08:00:00Z
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeEipMonitorDataResponse>
<RequestId>C8B26B44-0189-443E-9816-D951F59623A9</RequestId>
<EipMonitorDatas>
<EipMonitorData>
<EipRX>122</EipRX>
<EipTX>343</EipTX>
<EipFlow>675</EipFlow>
<EipPackets>3434</EipPackets>
<EipBandwidth>10</EipBandwidth>
<TimeStamp>2010-01-21T09:50:23Z</TimeStamp>
</EipMonitorData>
</EipMonitorDatas>
</DescribeEipMonitorDataResponse>
```

JSON format

```
{
"RequestId": "C8B26B44-0189-443E-9816-D951F59623A9",
"EipMonitorDatas": {
"EipMonitorData": [{
"EipRX": "122",
"EipTX": "343",
"EipFlow": "675",
"EipPackets": "3434",
"EipBandwidth": "10",
"IntranetFlow": 675,
"IntranetBandwidth": 10,
"TimeStamp": "2010-01-21T09:50:23Z",
}]
}
}
```

Region APIs

Request Parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DescribeRegions.

Return Parameters

All are public return parameters. For details, see Public Return Parameters.

Name	Type	Description
Regions	RegionType	A collection composed of region information RegionType.

Error Code

Refer to Public Error Codes.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeRegions
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeRegionsResponse>
<RequestId>611CB80C-B6A9-43DB-9E38-0B0AC3D9B58F</RequestId>
<Regions>
<Region>
<RegionId>cn-hangzhou </RegionId>
</Region>
<Region>
<RegionId>cn-qingdao</RegionId>
</Region>
</Regions>
</DescribeRegionsResponse>
```

JSON format

```
{
"RequestId": "611CB80C-B6A9-43DB-9E38-0B0AC3D9B58F",
"Regions": {
"Region": [{
"RegionId": "cn-hangzhou "
},
{
```

```
"RegionId": "cn-qingdao"
}]
}
}
```

Request Parameters

Name	Type	Required?	Description
Action	String	Yes	Required parameter, with a value: DescribeZones.
RegionId	String	Yes	Destination RegionId. See Regions and zones for region IDs.

Return Parameters

Name	Type	Description
Zones	ZoneType	A collection composed of data center information ZoneType.

Error Code

Error Code	Description	Http status code	Meaning
MissingParameter	The input parameter **RegionId** that is mandatory for processing this request is not supplied.	400	RegionId value missing (or the user might not be authorized to use the region). See Regions and zones for region IDs.

Examples

Request Example

```
https://ecs.aliyuncs.com/?Action=DescribeZones
&RegionId=cn-hangzhou
&<Public Request Parameters>
```

Return Example

XML format

```
<DescribeZonesResponse>
<Zones>
<Zone>
<AvailableResourceCreation>
<ResourceTypes>Instance</ResourceTypes>
<ResourceTypes>Disk</ResourceTypes>
</AvailableResourceCreation>
<LocalName></LocalName>
<ZoneId>cn-hangzhou-d</ZoneId>
<AvailableDiskCategories>
<DiskCategories>cloud</DiskCategories>
</AvailableDiskCategories>
</Zone>
<Zone>
<AvailableResourceCreation>
<ResourceTypes>Instance</ResourceTypes>
<ResourceTypes>Disk</ResourceTypes>
</AvailableResourceCreation>
<LocalName></LocalName>
<ZoneId>cn-hangzhou-b</ZoneId>
<AvailableDiskCategories>
<DiskCategories>cloud</DiskCategories>
</AvailableDiskCategories>
</Zone>
</Zones>
<RequestId>6DB97BCC-92BA-424D-A7C8-3F6486612BAE</RequestId>
</DescribeZonesResponse>
```

JSON format

```
{
"RequestId": "A347EF0E-BBCC-4EFA-BD79-27AA3ACFD1BF",
"Zones": {
"Zone": [
{
"AvailableDiskCategories": {
"DiskCategories": [
"cloud"
]
},
"AvailableResourceCreation": {
"ResourceTypes": [
"Instance",
"Disk"
]
},
"LocalName": "",
"ZoneId": "cn-hangzhou-d"
},
```

```
{
"AvailableDiskCategories": {
"DiskCategories": [
"cloud"
]
},
"AvailableResourceCreation": {
"ResourceTypes": [
"Instance",
"Disk"
]
},
"LocalName": "",
"ZoneId": "cn-hangzhou-b"
}
]
}
}
```


Description

- Query the supported access point.

Request Parameters

Name	Type	Required	Description
Action	String	Yes	Required parameter, with a value:DescribeAccessPoints
RegionId	String	Yes	Destination RegionId
Type	String	Yes	The type of access point. If this parameter is not appointed, the request will return access point of all types. Optional value: VPC - Which indicates that this access point can support a physical leased line connecting to VPC.
PageNumber	Integer	No	Page number of the query result. The default value is 1 when the parameter is not specified. Value

			range: a positive integer. If the PageNumber value is greater than the greatest page number in the actual result, the content of the last page is returned.
PageSize	Integer	No	Page size of the query result. The value range is 1 to 100, and the default value is 10.

Return Parameters

Name	Type	Description
AccessPointSet	AccessPointSetType	A collection composed of data center information AccessPointType

Error Code

Error Code	Description	Http status code	Meaning
InvalidRegionId.NotFound	The RegionId provided does not exist in our records.	404	The appointed RegionId is not exisit.

Data Type APIs

Description

Set of leased line access point information. It is a list comprised of AccessPointType.

Node name

It depends on the interface.

Subnode

AccessPointType

Description

Type of access point information

Node name

It depends on the interface.

Subnode

Name	Type	Description
AccessPointId	String	Access point ID
Type	String	Type of a leased line access point. Optional value: - VPC - VPC access point, which can be connected to a leased line accessing a VPC network
Status	String	Status of a leased line access point. Optional values: - Recommended - The status is good, and connection is recommended. - Hot - The status is normal, and the number of connected users is large. - Full - The number of connected users reaches the maximum value, and no more users can be connected.

Name	String	Name of a leased line access point
Description	String	Description of a leased line access point
AttachedRegionId	String	Physical region ID of an access point. If this region ID is empty, the access point does not belong to any region physically.
Location	String	Physical location of a leased line access point
HostOperator	String	Machine room carrier of a leased line access point

Description

A list of shared bandwidth packages.

Node

It depends on the interface.

Subnode

An array comprised of BandwidthPackageItemType.

Description

Type of EIP binding information.

Node Name

Depend on the interface.

Subnode

Name	Type	Description
AllocationId	String	Instance ID of the ECS with EIP.
IpAddress	String	EIP

Bandwidth	Integer	Internet bandwidth limit for the EIP. It is 5Mbps by default.
InternetChargeType	String	Charge type for the EIP.

Description

Set of EIP information.

Node Name

Depend on the interface.

Subnode

Name	Type	Description
RegionId	String	Region of the ECS with EIP
IpAddress	String	EIP
AllocationId	String	Instance ID of the EIP
Status	String	Current status of the EIP, which can be Associating, Unassociating, InUse, or Available.
InstanceId	String	Instance currently bound to the EIP. It is null if no instance is bound.
Bandwidth	Integer	Internet bandwidth limit for the EIP. It is 5Mbps by default.
InternetChargeType	String	Charge type for the EIP.
OperationLocks	OperationLocksType	Array of LockReason strings. It has no subnode if no lock is active.
AllocationTime	String	Time of allocation. It is represented according to ISO8601, and UTC time is used. Supported format: YYYY-MM-DDThh:mmZ.

Description

Type of EIP monitoring data.

Node Name

Depend on the interface.

Subnode

Name	Type	Description
EipRX	Integer	Data traffic received at the EIP within a period of time, measured in: Bytes.
EipTX	Integer	Data traffic sent from the EIP within a period of time, measured in: Bytes.
EipFlow	Integer	Network traffic at the EIP within a period of time, measured in bytes.
EipBandwidth	Integer	Bandwidth of the EIP (network traffic per unit time), measured in bytes/s.
EipPackets	Integer	Total packets received and sent by the EIP within a period of time.
TimeStamp	String	Time point of the traffic query, which is presented according to ISO8601, and UTC time is used. Supported format: YYYY-MM-DDThh:mmZ.

Description

A list of port forwarding rules.

Node

It depends on the interface.

Subnode

An array comprised of ForwardEntryItemType.

Description

Description of port forwarding rules.

Node

It depends on the interface.

Subnode

Name	Type	Description
ForwardTableId	String	ID of the forwarding table to which an entry belongs
ForwardEntryId	String	ID of a forwarding table entry
ExternalIp	String	Forwarded IP address, which is a public IP address on a NAT gateway.
ExternalPort	String	Forwarded port number; value range: 1 to 65,535|Any.
IpProtocol	String	Protocol type of the forwarded message; optional values: TCP|UDP|Any
InternalIp	String	Target IP address in forwarding, which is a private IP address.
InternalPort	String	Target port number in forwarding; value range: 1 to 65,535|Any.
Status	String	Status of a forwarding table entry; optional values: Pending | Available | Modifying

Description

A set of HaVip information. It is a list comprised of HaVipItemType.

Node

depend on the interface.

Subnode

HaVipItemType.

Description

HaVip description.

Node

It depends on the interface.

Subnode

Name	Type	Description
HaVipId	String	ID of a HaVip object
RegionId	String	Region ID
VpcId	String	VPC ID
VSwitchId	String	VSwitch ID
IpAddress	String	Private IP address of a HaVip object
Status	String	Current status; optional values: Available, Associating, InUse, Unassociating, and Deleted.
AssociatedInstances	String array	List of ECS instances associated with the specified HaVip. The list items are in no particular order.
MasterInstanceId	String	ID of the instance with the specified IP address. If currently no instance has the specified IP address, the ID of the instance that had the IP address most recently is displayed. This field is null if no instance has had the IP address yet.
AssociatedEipAddresses	String array	List of EIPs associated with the specified HaVip. Note that the

		list stores AllocateIDs rather than EIPs.
Description	String	Description. It is null if not specified. The default value is null. It can contain 2 to 256 characters. It cannot start with “http:// “ or “https:// “.
CreationTime	String	Creation time, which follows the ISO8601 standard and uses UTC time. The format is YYYY-MM-DDThh:mmZ.

Description

Set of IP addresses.

Node Name

Depends on the interface.

Subnode

Name	Type	Description
IpAddress	String	IP address

Description

A list of NAT gateways.

Node

It depends on the interface.

Subnode

An array comprised of NatGatewayItemType.

Description

NAT gateway description.

Node

It depends on the interface.

Subnode

Name	Type	Description
NatGatewayId	String	NAT gateway ID, for example, ngw-xxoo123
RegionId	String	Region
VpcId	String	VPC ID of a NAT gateway
Name	String	Display name of an instance, which is a string of two to 128 English or Chinese characters. It must start with an uppercase/lowercase letter or a Chinese character and can contain numbers, “.”, “_”, or “-”. It cannot start with “http://” or “https://”.
Description	String	Custom description of an instance, which is a string of two to 256 characters. The instance description is displayed on the console. This parameter is null if not specified. The default value is “null”. It cannot start with “http://” or “https://”.
Spec	String	Specifications; value: Small
Status	String	Instance status. Initiating. NAT gateway configuration (for example, portmap) is not allowed when an instance is being initialized. Available; Pending: Configuration in progress. NAT gateway configuration (for example, portmap) is not allowed when an instance is being configured.
ForwardTableIds	Array	A list of IDs in a port forwarding table. Currently, only one port forwarding table exists.

BandwidthPackageIds	Array	A list of the IDs of the bandwidth packages on a NAT gateway
InstanceChargeType	String	Payment option for an instance. Currently, only Pay-As-You-Go is supported. Value: PostPaid, applicable to Pay-As-You-Go instances
BusinessStatus	string	Optional values: Normal, FinancialLocked (locked due to overdue charges), and SecurityLocked (locked by security risk control)
CreationTime	String	Creation time, The time format follows the ISO8601 standard and uses UTC time. It is in the format of YYYY-MM-DDThh:mmZ.

Description

- A list of the next hop data of multiple routes.
- ECMP routes are supported.

Node

NextHopList

Subnode

NextHopItemType

Description

- Data on the specific next hop of a route.

Node

NextHopItem

Subnode

Name	Type	Description
NextHopType	String	Type of the next-hop target object; optional values: Instance|Tunnel|HaVip|RouterInterface
NextHopId	String	ID of the next-hop instance

Description

Type of the reason why a resource is locked.

Node Name

OperationLock

Subnode

Name	Type	Description
LockReason	String	Lock reason - financial: locked because the account is in arrears. - security: locked for security reasons.

Description

A set of physical connection information. It is a list comprised of PhysicalConnectionType.

Node

It depends on the interface.

Subnode

PhysicalConnectionType

Description

A set of physical connection information.

Node

It depends on the interface.

Subnode

Name	Type	Description
PhysicalConnectionId	String	Physical connection ID
AccessPointId	String	ID of a physical connection access point
Type	String	Physical connection type; optional values: - VPC: VPC physical connection - Classic: Physical connection in a classic network, which is used only for AntCloud. When connected, it can be used to access resources in the classic network of AntCloud (which is temporarily not supported).
Status	String	Physical connection status; optional values: - Initial: Application in progress - Approved: Application approved - Allocating: Resources

		being allocated - Allocated: Access construction in progress - Confirmed: Waiting for user confirmation - Enabled: Normal - Rejected: Application rejected - Canceled: Application canceled - Allocation Failed: Resource allocation failed - Terminated: Connection terminated
BusinessStatus	String	- Normal - FinancialLocked (locked due to overdue charges). - SecurityLocked (locked by security risk control).
CreationTime	String	Time when a physical connection is created
EnabledTime	String	Time when a physical connection is activated (which is the same as the time when regular billing starts)
LineOperator	String	Carrier providing physical connections for access; optional values: - CT: China Telecom - CU: China Unicom - CM: China Mobile - CO: Other carriers in China) - Equinix - Equinix - Other: Other carriers outside China
Spec	String	Physical connection specifications

PeerLocation	String	Physical location (address) of the physical connection peer
PortType	String	Type of a physical connection access port; optional values: - E1: 2M synchronous electrical port - 100Base-T: 100M electrical port - 1000Base-T: 1G electrical port - 1000Base-LX: 1G single-mode optical port (10 km) - 10GBase-T: 10G electrical port - 10GBase-LR: 10G single-mode optical port (10 km) - Other: Unstated port
RedundantPhysicalConnectionId	String	ID of a redundant physical connection
Name	String	Name of a physical connection
Description	String	Description of a physical connection
ADLocation	String	Physical location (rack location) of the physical connection access device
PortNumber	String	Number of the port allocated (connected) to the physical connection access device
CircuitCode	Long	Circuit code of the corresponding carrier
Bandwidth	String	Physical connection bandwidth

Description

Type of region information.

Node Name

Region

Subnode

Name	Type	Description
RegionId	String	Region ID
LocalName	String	Name of the region

Description

Set of router interface information. It is a list comprised of RouterInterfaceItemType.

Node name

It depends on the interface.

Subnode

RouterInterfaceItemType

Description

Set of routing tables.

Node Name

Depend on the interface.

Subnode

Name	Type	Description
VRouterId	String	ID of the VRouter
RouteTableId	String	ID of the routing table

RouteEntrys	RouteEntrySetType	A set of route entry details RouteEntrySetType.
RouteTableType	String	Type of the routing table, which can be System or Custom.
CreationTime	String	Time of creation. It is represented according to ISO8601, and UTC time is used. Supported format: YYYY-MM-DDThh:mmZ.

Description

A set of information about the virtual border router (VBR) over a physical connection. It is a list comprised of VirtualBorderRouterForPhysicalConnectionType.

Node

It depends on the interface.

Subnode

VirtualBorderRouterType

Description

A set of information about the virtual border router (VBR) over a physical connection.

Node

It depends on the interface.

Subnode

Name	Type	Description
VbrId	String	VBR ID
VbrOwnerUid	String	UID of a VBR owner. **null** is returned if the VBR owner is the physical connection owner.

CreationTime	String	Time when a VBR is created
ActivationTime	String	Time when a VBR is activated (accepted by a VBR owner) for the first time
TerminationTime	String	Time when a VBR is terminated (by a physical connection owner) most recently
RecoveryTime	String	Time when a VBR is activated from the terminated state (recovered by a physical connection owner) most recently
VlanId	String	802.1Q VLAN ID (1 to 2,999) of the VBR physical connection interface
CircuitCode	String	Carrier circuit code corresponding to the VBR physical connection interface

Description

A set of virtual border router (VBR) information. It is a list comprised of VirtualBorderRouterType.

Node

It depends on the interface.

Subnode

VirtualBorderRouterType

Description

A set of virtual border router (VBR) information.

Node

It depends on the interface.

Subnode

Name	Type	Description
VbrId	String	VBR ID
CreationTime	String	Time when a VBR is created
ActivationTime	String	Time when a VBR is activated (accepted by a VBR owner) for the first time
TerminationTime	String	Time when a VBR is terminated (by a physical connection owner) most recently
RecoveryTime	String	Time when a VBR is activated from the terminated state (recovered by a physical connection owner) most recently
Status	String	VBR status
VlanId	String	802.1Q VLAN ID (0 to 2,999) of the VBR physical connection interface. The value 0 indicates there is no VLAN encapsulation.
CircuitCode	String	Carrier circuit code corresponding to the VBR physical connection interface
RouteTableId	String	VBR route table ID
VlanInterfaceId	String	ID of the VBR physical connection interface. It can be used as the next hop of the route on VBR.
LocalGatewayIp	String	IP address of the local VBR physical connection interface
PeerGatewayIp	String	IP address of the peer VBR physical connection interface
PeeringSubnetMask	String	Subnet mask connecting the local and peer VBR physical connection interfaces
Name	String	VBR name
Description	String	VBR description
PhysicalConnectionId	String	Physical connection ID
PhysicalConnectionStatus	String	Physical connection status (The Deleted status indicates that the physical connection is deleted).
PhysicalConnectionBusinessStatus	String	Business status of a physical connection (The value is **null** if

		the physical connection is deleted).
PhysicalConnectionOwnerUid	String	UID of the physical connection owner (The value is **null** if the physical connection owner is deleted).
AccessPointId	String	Access point ID

Description

Set of VPC information.

Node Name

Depends on the interface.

Subnode

Name	Type	Description
VpcId	String	VpcId
RegionId	String	Region of the VPC.
Status	String	Status of the VPC, including Pending and Available.
VpcName	String	The name of the VPCis null by default. It can be a string of [2, 128] English or Chinese characters and must begin with an uppercase/lowercase letter or Chinese character. It can contain numerals, “_ “ and “- “. This value will appear on the console. It cannot begin with http:// or https://.
VSwitchIds	String	List of VSwitchIds
CidrBlock	String	Network segment address of the VPC
VRouterId	String	ID of the VRouter
Description	String	The description is null by default. It can be a string of [2, 256] English or Chinese characters. It cannot begin with http:// or https://.

CreationTime	String	Time of creation. It is represented according to ISO8601, and UTC time is used. Supported format: YYYY-MM-DDThh:mmZ.

Description

Set of VRouter information.

Node Name

Depends on the interface.

Subnode

Name	Type	Description
VRouterId	String	ID of the VRouter
RegionId	String	ID of the region
VpcId	String	ID of the VPC
RouteTableIds	String	List of virtual routing table IDs
VRouterName	String	Name of the VRouter
Description	String	The description of the VRouter is null by default. It can be a string of [2, 256] English or Chinese characters. It cannot begin with http:// or https://.
CreationTime	String	Time of creation. It is represented according to ISO8601, and UTC time is used. Supported format: YYYY-MM-DDThh:mmZ.

Description

Set of VSwitch information.

Node Name

Depend on the interface.

Subnode

Name	Type	Description
VSwitchId	String	ID of the VSwitch
VpcId	String	ID of the VPC to which the VSwitch belongs
Status	String	Status of the VSwitch, including Pending and Available
CidrBlock	String	Address of the VSwitch
ZoneId	String	ID of the zone to which the VSwitch belongs
AvailableIpAddressCount	Integer	Quantity of IP addresses available for the VSwitch
Description	String	The description is null by default. It can be a string of [2, 256] English or Chinese characters. It cannot begin with http:// or https://.
VSwitchName	String	The name of the VSwitch is null by default. It can be a string of [2, 128] English or Chinese characters and must begin with an uppercase/lowercase letter or Chinese character. It can contain numerals, “_ “ and “- “. This value will appear on the console.It cannot begin with http:// or https://.
CreationTime	String	Time of creation. It is represented according to ISO8601, and UTC time is used. Supported format: YYYY-MM-DDThh:mmZ.

Appendix

ISO 8601 Data elements and interchange formats – Information interchange – Representation of dates and times is an international standard covering the exchange of date and time-related data. It was issued by the International Organization for Standardization (ISO). The time format of ECS Open API adopts the ISO8601. For details, refer to ISO 8601.

Error code table

Client Errors

For details, refer to the error codes of each interface.

Server Errors

Error Code	Description	Http Status Code	Meaning
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503	The service is unavailable.
InternalError	The request processing has failed due to some unknown error, exception or failure.	500	Internal error.

If a request timeout or internal server error is encountered when calling the CreateInstance interface to create an ECS in the ECS, the client might try to resend the request. At this time, the client can prevent the server from creating more instances than expected by providing the optional **ClientToken** parameter. Providing this parameter will also ensure the idempotence of the request. **ClientToken** is a unique, case sensitive string generated by the client that cannot exceed 64 ASCII characters.

If a user uses the same **ClientToken** value to call the CreateInstance interface, the server will return identical request results, including the same **InstanceId**. Therefore, when the user encounters an error and tries again, providing the same **ClientToken** value can ensure that the ECS creates only one instance and obtains this **InstanceId**.

If the user provides a **ClientToken** that has already been used, but with different request parameters, the ECS will return the **IdempotentParameterMismatch** error code. However, you must note that the **SignatureNonce**, **TimeStamp**, and **Signature** parameters must be changed when trying to submit the

request again. Because the ECS uses **SignatureNonce** to prevent replay attacks and **TimeStamp** to mark the time of each request, the duplicate request must provide different **SignatureNonce** and **TimeStamp** parameter values. This will also produce a different **Signature** value.

Generally, clients will only need to retry an operation if they encounter a 500 (**InternalError**) or 503 (**ServiceUnAvailable**) error or cannot receive a response. When 200 is returned, retrying the operation will give you the same results as the last time, but will not have any effect on the server status. When a 4xx error code is returned, unless the message explicitly says “try it later”, retrying the operation will usually not be successful.

How are interfaces called

The VPC service interface is called by sending an HTTP request to the VPC (you can send it through the HTTP or HTTPS channel) and receiving the VPC’s response to this request. After the VPC receives a user request, it will perform necessary authentication and parameter verification on the request. After all verifications are successful, it submits or completes the associated operation based on the parameters specified for the request. Then, it returns the processing results to the caller in the form of an HTTP response.

Request Composition

Requests are composed of the following parts:

HTTP method - Currently, all VPC service interfaces only support GET method calls.

Request URL - The request’s service address, name of the operation to be executed, operation parameters, and public request parameters are included in the request URL.

Server address: The VPC service domain names are http://ecs.aliyuncs.com/ and https://ecs.aliyuncs.com/. In order to ensure the security of the request, we strongly recommend that you use the HTTPS channel (HTTPS has added the SSL layer for encrypted communication and can prevent communication interception leading to the leakage of sensitive information) .

Operation name: Each interface requires that the name of the operation to be executed is specified, i.e. the Action parameter.

Operation parameter: Different operation parameters must be set for different operations to be executed. For details, see the instructions for each interface.

Public request parameters: Parameters such as TimeStamp and Signature must be included in each request.

For the server to correctly authenticate the user’s identity and authorize request execution, the request must be signed before submission for processing. For signature rules, refer to the signature mechanism section.

After the server finishes processing the request, it will return the response results. Response results are categorized into successful results and error messages. For an illustration of the format, refer to the Returned Results section. The client can parse the response message body to obtain the execution results.

Call Example

Taking the **DescribeRegions** interface for example:

The corresponding Action is **DescribeRegions**, and the required operation parameter is **RegionId** (in VPC, all RegionIds can be obtained by using the interface to query the available region list). After adding all the public request parameters (except **Signature**), the request URL will be (for ease of reading, this is the URL before URL encoding):

```
http://ecs.aliyuncs.com/?TimeStamp=2012-12-
26T10:33:56Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod=HMAC-
SHA1&SignatureNonce=NwDAxvLU6tFE0DVb&Version=2014-05-26&SignatureVersion=1.0
```

According to the signature calculation rules, the Canonicalized Query String is constructed first, as shown below:

```
http://ecs.aliyuncs.com/?TimeStamp=2012-12-
26T10:33:56Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod=HMAC-
SHA1&SignatureNonce=NwDAxvLU6tFE0DVb&Version=2014-05-26&SignatureVersion=1.0
```

Then, **StringToSign** is constructed as a signature string with a value:

```
GET&%2F&AccessKeyId%3Dtestid&Action%3DDescribeRegions&Format%3DXML&SignatureMethod%3DHMAC-
SHA1&SignatureNonce%3DNwDAxvLU6tFE0DVb&SignatureVersion%3D1.0&TimeStamp%3D2012-12-
26T10%253A33%253A56Z&Version%3D2014-05-26
```

The following Java sample code demonstrates how public request parameters are added, how the Canonicalized Query String is constructed from the request parameters, and how the **StringToSign** is constructed. This example assumes that all request parameters are placed in a Map<String, String> object and the Access Key ID is **testid**.

```
    final String HTTP_METHOD = "GET";

Map<String, String> parameters = new HashMap<String, String>();
// Add public request parameters
parameters.put("Action", "DescribeRegions");
parameters.put("Version", "2014-05-26");
parameters.put("AccessKeyId", "testid");
parameters.put("TimeStamp", formatIso8601Date(new Date()));
parameters.put("SignatureMethod", "HMAC-SHA1");
parameters.put("SignatureVersion", "1");
parameters.put("SignatureNonce", UUID.randomUUID().toString());
```

```
parameters.put("Format", "XML");

// Sort the parameters
String[] sortedKeys = parameters.keySet().toArray(new String[]{});
Arrays.sort(sortedKeys);

final String SEPARATOR = "&";

// Generate the stringToSign
StringBuilder stringToSign = new StringBuilder();
stringToSign.append(HTTP_METHOD).append(SEPARATOR);
stringToSign.append(percentEncode("/")).append(SEPARATOR);

StringBuilder canonicalizedQueryString = new StringBuilder();
for(String key : sortedKeys) {
// Be sure to encode the key and value
canonicalizedQueryString.append("&")
.append(percentEncode(key)).append("=")
.append(percentEncode(parameters.get(key)));
}

// Be sure to encode the canonicalizedQueryString
stringToSign.append(percentEncode(
canonicalizedQueryString.toString().substring(1)));
```

In this example, note that the **TimeStamp** parameter must comply with the ISO8601 norms. Furthermore, note that UTC time is used. Otherwise, the request will encounter an error. The following sample code demonstrates how a compliant TimeStamp string is generated:

```
    private static final String ISO8601_DATE_FORMAT = "yyyy-MM-dd'T'HH:mm:ss'Z'";
private static String formatIso8601Date(Date date) {
SimpleDateFormat df = new SimpleDateFormat(ISO8601_DATE_FORMAT);
df.setTimeZone(new SimpleTimeZone(0, "GMT"));
return df.format(date);
}
```

When generating a Canonicalized Query String (the canonicalizedQueryString variable in the example) and **StringToSign**, both must be encoded. The encoding rules are described in detail in the signature mechanism section. The following sample code demonstrates how the java.net.URLEncoder class is used to complete encoding:

```
    private static final String ENCODING = "UTF-8";

private static String percentEncode(String value) throws UnsupportedEncodingException {
return value != null ? URLEncoder.encode(value, ENCODING).replace("+", "%20").replace("*", "%2A").replace("%7E",
"~") : null;
}
```

If we assume the “Access Key ID” is “testid”, the “Access Key Secret” is “testsecret”, and the Key used for HMAC calculation is “testsecret&”, the calculated signature value is:

```
        SDFQNvyH5rtkc9T5Fwo8DOjw5hc=
```

Sample code for signature calculation (Java):

```
    // The following is a sample code for signature calculation
final String ALGORITHM = "HmacSHA1";
final String ENCODING = "UTF-8";
key = "testsecret&";

Mac mac = Mac.getInstance(ALGORITHM);
mac.init(new SecretKeySpec(key.getBytes(ENCODING), ALGORITHM));
byte[] signData = mac.doFinal(stringToSign.getBytes(ENCODING));

String signature = new String(Base64.encodeBase64(signData));
```

After adding the Signature parameter, perform URL encoding according to the RFC3986 rules:

```
http://ecs.aliyuncs.com/?TimeStamp=2012-12-
26T10%3A33%3A56Z&Format=XML&AccessKeyId=testid&Action=DescribeRegions&SignatureMethod=HMAC-
SHA1&RegionId=region1&SignatureNonce=NwDAxvLU6tFE0DVb&Version=2012-09-
13&SignatureVersion=1.0&Signature=SDFQNvyH5rtkc9T5Fwo8DOjw5hc%3d
```

Next, send an HTTP request to the above URL and receive a response to the request from the VPC server, as shown below:

```
<DescribeRegionsResponse>
<Regions>
<Region>
<LocalName>Qingdao node</LocalName>
<RegionId>cn-qingdao</RegionId>
</Region>
<Region>
<LocalName>Hangzhou node</LocalName>
<RegionId>cn-hangzhou</RegionId>
</Region>
</Regions>
<RequestId>833C6B2C-E309-45D4-A5C3-03A7A7A48ACF</RequestId>
</DescribeRegionsResponse>
```

By parsing this XML output, you can obtain an ID and LocalName list for all available regions. If, when submitting a request, the specified Format parameter is JSON, and then the result will also be returned in the JSON format.

SDK Reference

The SDK for ECS contains VPC related functions. For details, click here.