

Alibaba Cloud IoT Platform

Developer Guide (Cloud)

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Generic conventions

Table -1: Style conventions

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

Style	Description	Example
<code>{}</code> or <code>{a b}</code>	It indicates that it is a required value, and only one item can be selected.	<code>switch {stand slave}</code>

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1 SDK reference

1.1 Download SDKs

IoT Platform SDKs support the following programming languages: Java, Python, PHP, and .NET.

Download an IoT SDK

Click one of the following links to download the corresponding SDK source code:

- [SDK Demo](#)



Note:

Platform API demo resources are available for Java, Python, PHP, and .NET.

- [IoT Java SDK](#)
- [IoT Python SDK](#)
- [IoT PHP SDK](#)
- [IoT .NET SDK](#)

1.2 Java SDK

The IoT Java SDK allows you to create Java applications to interact with IoT platform easily.

Install the IoT Java SDK

1. Install a Java development environment.

You can download a Java IDE from [Java official website](#) , and install the IDE by following the instructions.

2. Install the IoT Java SDK.

- a. Visit [Apache Maven official website](#) to download a Maven installation package.
- b. Add a Maven dependency.

Maven coordinates of the IoT Java SDK dependency

```
<!-- https://mvnrepository.com/artifact/com.aliyun/aliyun-java-sdk-iot -->  
<dependency>
```

```
< groupId > com . aliyun </ groupId >
< artifactId > aliyun - java - sdk - iot </ artifactId >
< version > 6 . 9 . 0 </ version >
</ dependency >
```

Public libraries

```
< dependency >
  < groupId > com . aliyun </ groupId >
  < artifactId > aliyun - java - sdk - core </ artifactId >
  < version > 3 . 5 . 1 </ version >
</ dependency >
```

Initialize the SDK



Note:

The following example uses the China (Shanghai) region and the corresponding endpoint. You must specify the region of your IoT Platform and the endpoint of your service to use the SDK.

```
String accessKey = "< your accessKey >";
String accessSecret = "< your accessSecret >";
DefaultProfile profile = DefaultProfile.getProfile("cn-shanghai", "cn-shanghai", "Iot", "iot.cn-shanghai.aliyuncs.com");
IClientProfile clientProfile = DefaultProfile.getProfile("cn-shanghai", accessKey, accessSecret);
DefaultAcsClient client = new DefaultAcsClient(profile);
// Initialize the SDK
```

`accessKeyId` is the `AccessKeyId` of your account, and `accessSecret` is the `AccessKeySecret` paired with the `AccessKeyId`. You can go to [AccessKey](#) page in the console to create or view your AccessKey.

Initiate a call

The following example demonstrates how to call the Pub operation to publish messages to a topic.

1.3 Python SDK

Install the Python SDK

1. Install a Python IDE.

Download the Python installation package from [Official website of Python](#) and install Python 3.6 or later versions.

2. Install pip. Skip this step if pip has already been installed.

Download the pip installation package from [Official website of pip](#) and install pip.

3. Install the Python SDK.

Run the following commands as an administrator to install the Python SDK.

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

4. Run the following commands to import the related IoT Python SDK files to a Python file.

```
from aliynsdkc ore import client
from aliynsdki ot . request . v20180120 import RegisterDe
viceReques t
from aliynsdki ot . request . v20180120 import PubRequest
...
```

Initialize the SDK

```
accessKeyI d = '< your accessKey >'
accessKeyS ecret = '< your accessSecr et >'
clt = client . AcsClient ( accessKeyI d , accessKeyS ecret , '
cn - shanghai ')
```

`accessKeyI d` is the `AccessKeyId` of your account, and `accessKeyS ecret` is the `AccessKeySecret` corresponding to the `AccessKeyId`. You can create and view your `AccessKey` on the `AccessKey Management` in the console.

Initiate a call

In this example, call the Pub API to publish messages to the device.

```
request = PubRequest . PubRequest ()
request . set_accept _format ( ' json ' ) # Set the response
format . The default is XML .
request . set_Produc tKey ( ' productKey ' )
request . set_TopicF ullName ( '/ productKey / deviceName / get ' ) #
Full name of the topic to which the messages are
sent .
request . set_Messag eContent ( ' aGVsbG8gd2 9ybGQ =' ) # hello
world Base64 String
request . set_Qos ( 0 )
result = clt . do_action_ with_excep tion ( request )
```

```
print 'result : ' + result
```

1.4 PHP SDK

You can use the PHP SDK to manage IoT Platform.

Install the IoT PHP SDK

1. Install the PHP development environment.

Go to the [PHP website](#) to download the PHP installation package and complete the installation.

2. Download and then extract the IoT PHP SDK package.

Click [IoT PHP SDK Download Address](#) to download the PHP SDK package, and then extract the package to the specified directory. The PHP SDK is a software development kit that does not require installation.

Initialize the SDK

```
<? php
include_once 'aliyun-php-sdk-core/Config.php';
use \Iot\Request\V20180120 as Iot;
// Set your AccessKeyId, AccessSecret, and ProductKey.
$accessKeyId = "";
$accessSecret = "";
$iClientProfile = DefaultProfile::getProfile("cn-shanghai",
    $accessKeyId, $accessSecret);
$client = new DefaultAcsClient($iClientProfile);
```

`accessKeyId` is the `AccessKeyId` of your account. `accessSecret` is the `AccessKeySecret` for the `AccessKeyId`. You can go to [AccessKey](#) page in the console to create or view your `AccessKey`.

Initiate a call

The following example shows how to call the Pub operation to publish data to a device.

```
$request = new Iot\PubRequest();
$request->setProductKey("productKey");
$request->setMessageContent("aGVsbG93b3JsZA=="); // hello world Base64 String.
$request->fig("/productKey/ergonomic/ename/get"); // Full name of the topic that the message is sent to.
$response = $client->getAcsResponse($request);
```

```
print_r ($ response );
```

1.5 .NET SDK

Install the IoT .NET SDK

1. Install a .NET development environment.

Recommendations:

- Microsoft .NET Framework 4.0 and later.
- Visual Studio 2010 and later.

2. Download Alibaba Cloud .NET SDK packages.

Click [IoT.NET SDK releases](#) to download the IoT .NET SDK package and [.NET SDK core](#) to download the Alibaba Cloud core library package, and then extract the DLL files from the packages.

3. Import Alibaba Cloud .NET SDK libraries.

- a. In the Solution Explorer of Visual Studio, right-click your project, and select Reference.
- b. Click Add Reference.
- c. Click Browse in the dialog box.
- d. Select the DDL file `aliyun - net - sdk - Iot . dll` and `aliyun - net - sdk - Core . dll`, and click OK.

Initialize the SDK



Note:

The following example uses the China (Shanghai) region and the corresponding endpoint. You must specify the region of your IoT Platform and the endpoint of your service to use the SDK.

```
using Aliyun . Acs . Core ;
using Aliyun . Acs . Core . Exceptions ;
using Aliyun . Acs . Core . Profile ;
DefaultProfile . AddEndpoint (" cn - shanghai ", " cn - shanghai ", " Iot ", " iot . cn - shanghai . aliyuncs . com ");
IClientProfile clientProfile = DefaultProfile . GetProfile (" cn - shanghai ", "< your - access - key - id >", "< your - access - key - secret >");
```

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

Create or view your AccessKeyId and AccessKeySecret on the [AccessKey](#) page in the console.

Initiate a call

In this example, call the Pub API to send messages to a topic.

```
PubRequest request = new PubRequest ();
request.ProductKey = "< productKey >";
request.TopicFullName = "< productKey >/< deviceName >/ get ";
byte [] payload = Encoding.Default.GetBytes (" Hello World
.");
String payloadStr = Convert.ToBase64String ( payload );
request.MessageContent = payloadStr ;
request.Qos = 0 ;
try
{
    PubResponse response = client.GetAcsResponse ( request
);
    Console.WriteLine (" publish message result : " + response
        . Success );
    Console.WriteLine ( response.ErrorMessage );
}
catch ( ServerException e )
{
    Console.WriteLine ( e.ErrorCode );
    Console.WriteLine ( e.ErrorMessage );
}
catch ( ClientException e )
{
    Console.WriteLine ( e.ErrorCode );
    Console.WriteLine ( e.ErrorMessage );
}
```


2 API reference

2.1 Overview

If you want to call the API provided by IoT Platform, you can send an HTTP or HTTPS GET or POST request to the API endpoint. Specify the required request parameters in your request. The system returns a response after handling the request.

The following sections describe how to call the API.

- [Calling method](#)
- [Common parameters](#)

To ensure the security of your Alibaba Cloud account, we recommend that you call the API as a RAM user.

For more information about how to grant RAM users access to the API, see [API permissions](#).

2.2 Calling method

Request structure

You can call the API provided by IoT Platform by sending HTTP or HTTPS requests.

The request structure is as follows:

```
http://Endpoint/?Action=xx&Parameters
```

In the request,

- **Endpoint**: address where you can access IoT Platform. The following addresses are available:
 - **China (Shanghai)**: `iot.cn-shanghai.aliyuncs.com`
 - **Singapore**: `iot.ap-southeast-1.aliyuncs.com`
 - **US (Silicon Valley)**: `iot.us-west-1.aliyuncs.com`
 - **Japan (Tokyo)**: `iot.ap-northeast-1.aliyuncs.com`
 - **Germany (Frankfurt)**: `iot.eu-central-1.aliyuncs.com`

- **Action** : operation to be performed. For example, call the Pub operation to publish messages.
- **Parameters** : request parameters. Separate each parameter with an ampersand (&).

Request parameters are comprised of common request parameters and parameters customized for the API. Common parameters include the API version number, authentication information, and other information.

The following example describes how to call Pub to publish a message to a specified topic.



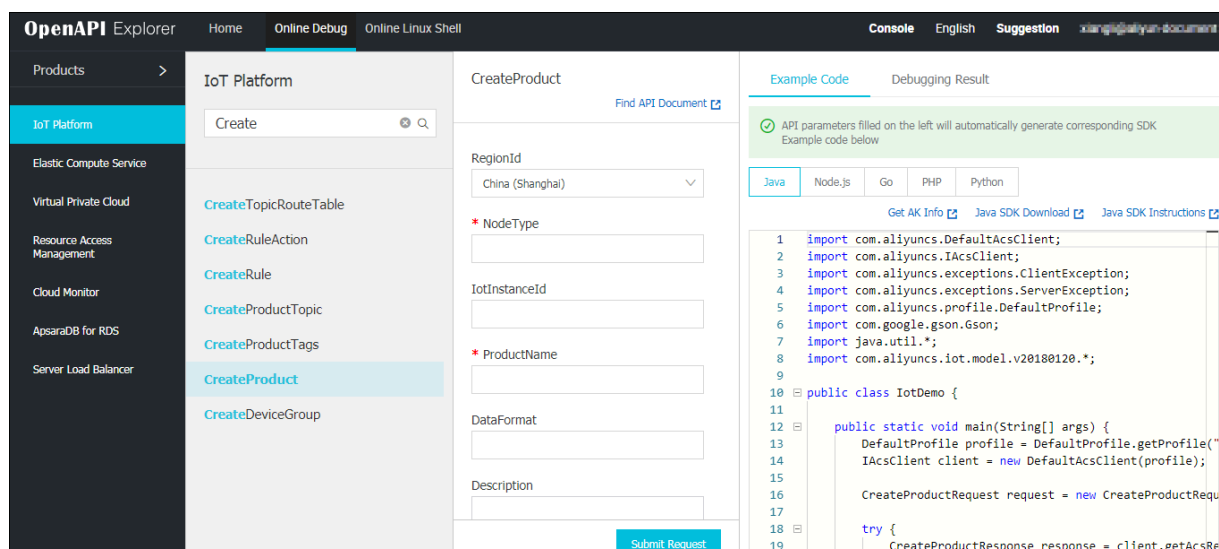
Note:

In the following example, the service region is China (Shanghai). To assist reading, examples provided in this document are formatted.

```
https://iot.cn-shanghai.aliyuncs.com/?Action=Pub
&Format=XML
&Version=2017-04-20
&Signature=Pc5WB8gokVn0xfeu%2FZV%2BiNM1dgI%3D
&SignatureMethod=HMAC-SHA1
&SignatureNonce=15215528852396
&SignatureVersion=1.0
&AccessKeyId=...
&Timestamp=2017-07-19T12:00:00Z
&RegionId=cn-shanghai
...
```

Online debug for APIs

Alibaba Cloud provides [OpenAPI Explorer](#) for you to debug APIs online. On OpenAPI Explorer, you can query the APIs that you want to debug and enter parameters to call the APIs. The system will generate SDK demos according to the parameters that you have entered. You can view SDK demos under Example Code on the left side of the page. Select Debugging Result, you can view the real URL of the request and the response in JSON format.



API authorization

To ensure the security of your Alibaba Cloud account, we recommend that you call the APIs using a RAM user account. Before calling APIs as a RAM user, you need to create and attach specific authorization policies to the RAM user to allow access to the APIs.

For more information about API permissions that can be granted to RAM users, see [API permissions](#).

2.3 Common parameters

This section lists the common request parameters and response parameters of the IoT Platform API.

Common request parameters

Common request parameters are the request parameters required every time you call the API.

Parameter	Type	Required	Description
Format	String	No	Format of the response data. JSON and XML are supported. The default value is XML.

Parameter	Type	Required	Description
Version	String	Yes	The API version number. The parameter value needs to be in the YYYY - MM - DD format. The latest version is 2018 - 01 - 20 . Each API operation may have multiple versions.
AccessKeyId	String	Yes	The access key ID issued by Alibaba Cloud for users to access services.
Signature	String	Yes	Signature string.
SignatureMethod	String	Yes	The signature method. Currently, HMAC - SHA1 is supported.
Timestamp	String	Yes	Required timestamp Date is in ISO8601 format, and must use UTC time. The parameter value needs to be in the YYYY - MM - DDThh : mm : ssZ format. For example, you can set the parameter to 2016 - 01 - 04T12 : 00 : 00Z , which indicates January 4, 2016 20:00:00 Beijing Time (UTC+8).
SignatureVersion	String	Yes	The signature algorithm version. The current version is 1.0.
SignatureNonce	String	Yes	The unique random number. It is used to prevent replay attacks. You need to use different random numbers in different requests.
RegionId	String	Yes	The region where your devices are located. The region you specify must match the region specified in the console, for example, cn-shanghai.

Example

```
https://iot.cn-shanghai.aliyuncs.com/
? Format = XML
& Version = 2018 - 01 - 20
& Signature = Pc5WB8gokV_n0xfeu%2FZV%2BiNM1dgI%3D
& SignatureMethod = HMAC - SHA1
& SignatureNonce = 1521552885_2396
& SignatureVersion = 1.0
& AccessKeyId = ...
& Timestamp = 2018 - 05 - 20T12 : 00 : 00Z
```

```
& RegionId = cn - shanghai
```

Common response parameters

The response parameters are displayed in specific formats. If HTTP status code 2xx is returned, the API operation call was successful. If HTTP status code 4xx or 5xx is returned, the API operation call has failed. The response data can be in either XML or JSON. You can specify the format of response data when sending your request. By default, response data is in the XML format.

Regardless of whether your API operation call is successful or not, the system returns `RequestId` as a unique identifier.

- Formats of data returned by a successful call

- JSON format

```
{
  "RequestId": "4C467B38 - 3910 - 447D - 87BC - AC049166F2 16",
  /* Response data */
}
```

- XML format

```
<? xml version = "1.0" encoding = "UTF-8" ? >
<!-- Root node of the response data -->
< API operation name + Response >
  <!-- Request tag -->
  < RequestId > 4C467B38 - 3910 - 447D - 87BC - AC049166F2 16
</ RequestId >
  <!-- Response data -->
</ API operation name + Response >
```

- Formats of data returned by a failed call

If any error occurs when you call an API operation, no data is returned. You can use the error code to locate the cause.

If an error occurs, an HTTP status code 4xx or 5xx is returned. The returned message body contains the specific error code and error message. It also contains a globally unique request ID (RequestId). If you cannot confirm what error occurs, contact Alibaba Cloud customer service and provide your request ID for assistance.

- JSON format

```
{
  "RequestId": "8906582E - 6722 - 409A - A6C4 - 0E7863B733 A5",
  "Code": "UnsupportedOperation",
  "Message": "The specified action is not supported.",
}
```

```
}
```

- XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 "? >
< Error >
  < RequestId > 8906582E - 6722 - 409A - A6C4 - 0E7863B733 A5 </
RequestId >
  < Code > Unsupporte dOperation </ Code >
  < Message > The specified action is not supported .</
Message >
</ Error >
```

2.4 Signature

IoT Platform performs sender identity authentication for every access request.

Therefore, you must include the signature information in requests, irrespective of the use of HTTP or HTTPS protocol.

Signing method



Note:

Alibaba Cloud provides SDKs in multiple programming languages, such as Java, Python, and PHP. If you use these SDKs, you can skip the signing process. See [Download SDKs](#).

When you are signing the parameters, you can view the AccessKey ID and the AccessKey Secret for your account on the [AccessKey](#) page in the console, and then encrypt them in symmetry. An AccessKey ID is used to identify the visitor, and an AccessKey Secret is the secret key used to encrypt the signature string and verify the signature string on the server. You must keep your AccessKey confidential to minimize the risk of data breaches.

Sign the request parameters as follows:

1. Create a canonicalized query string.
 - a. Sort the request parameters in a lexicographical order.

Sort the request parameters, including the [common request parameter](#) (except for `Signature` parameter) and the special parameters of an interface in a lexicographical order.



Note:

When you make a request by using the GET method, these parameters constitute the part of the URL following `?` and are connected by `&`.

b. Encode the parameter names and values.

Encode the request parameters by using the UTF-8 character set and according to the [RFC3986](#) rules. The encoding rules are as follows:

- Do not encode A-Z, a-z, 0-9, and special characters including hyphens `-`, underscores `_`, periods `.` and tildes `~`.
- Encode other characters in the `% XY` format, with `XY` representing the hexadecimal ASCII value of the characters. For example, the half-width double quotes `"` are encoded as `% 22`.
- Encode the extended UTF-8 characters in `% XY % ZA ...` format.
- Encode whitespaces to `% 20` instead of the plus signs `+`.

Alternatively, you can use libraries that support the `application / x - www - form - urlencoded` MIME-type URL encoding.

For example, you use `java . net . URLEncoder` of Java language. Firstly, use `percentEnc ode` to encode a string, and then replace plus signs `+` in the encoded string with `% 20`, asterisks `*` with `% 2A`, and `% 7E` with tildes `~`. See the following example:

```
private static final String ENCODING = " UTF - 8 ";
private static String percentEnc ode ( String value )
throws Unsupporte dEncodingException {
return value != null ? URLEncoder . encode ( value ,
ENCODING ). replace ( "+", "% 20 "). replace ( "*", "% 2A ").
replace ( "% 7E ", "~") : null ;
}
```

- c. Connect the encoded parameter names and the values with equal signs `=`.
- d. Connect all the request parameters with ampersands `&`. The order of the parameters must be the same as that in step a.

You now have a canonicalized query string.

2. Construct the string to be signed.

You can use `percentEnc ode` to process the canonicalized query string that is created in step 1. See the following rules:

```
StringToSi gn =
HTTPMethod + "&" + // HTTPMethod : HTTP method used for
making request , for example GET .
```

```
percentEncode ("/") + "&" + // percentEncode ("/"): Encode
backslash (/) to % 2F .
percentEncode ( CanonicalizedQueryString ) // Encode the
canonicalized query string that is created in
step 1 .
```

3. Calculate the HMAC value.

Calculate the HMAC-SHA1 value of the `StringToSign` created in step 2, according to the [RFC2104](#) rules. The Java Base64 encoding method is used in the following example:

```
Signature = Base64 ( HMAC - SHA1 ( AccessSecret , UTF - 8 -
Encoding - Of ( StringToSign ) ) )
```



Note:

When calculating for the signature value, you use the `AccessKeySecret` of your account and an ampersand & (the hexadecimal ASCII value of an ampersand is 38) as the key. The hash algorithm used is SHA1.

4. Calculate the signature value.

Encode the preceding HMAC value into a string based on Base64 encoding rules to obtain the signature value.

5. Add the signature.

Encode the `Signature` value according to the [RFC3986](#) rules, and add the encoded signature value in the request.

Signature example

Take calling the API Pub as an example, and suppose your `AccessKey` information is

`AccessKeyId = testid`, and `AccessKeySecret = testsecret`.

1. Create a canonicalized query string.

```
http://iot.cn-shanghai.aliyuncs.com/?MessageContent=
aGVsbG93b3JsZA%3D&Action=Pub&Timestamp=2017-10-02T09%3A39%3A41Z&SignatureVersion=1.0&ServiceCode=iot&Format=XML&Qos=0&SignatureNonce=0715a395-aedf-4a41-bab7-746b43d38d88&Version=2017-04-20&AccessKeyId=testid&SignatureMethod=HMAC-SHA1&RegionId=cn-shanghai&ProductKey=12345abcdeZ&TopicFullName=%2FproductKey%2Ftestdevice%2Fget
```

2. Create a `StringToSign` based on the canonicalized query string.

```
GET %&%2F&AccessKeyId%3Dtestid%26Action%3DPub%26Format%3DXML%26MessageContent%3DaGVsbG93b3JsZA%253D%26ProductKey%3D12345abcdeZ%26Qos%3D0%26RegionId%3Dcn
```



```
- shanghai % 26ServiceCode % 3Diot % 26SignatureMethod % 3DHMAC
- SHA1 % 26SignatureNonce % 3D0715a395 - aedf - 4a41 - bab7 -
746b43d38d 88 % 26SignatureVersion % 3D1 . 0 % 26Timestamp %
3D2017 - 10 - 02T09 % 253A39 % 253A41Z % 26TopicFullName % 3D %
252FproductKey % 252Ftestdevice % 252Fget % 26Version % 3D2017
- 04 - 20
```

3. Calculate the HMAC-SHA1 value.

Because you have the `AccessKeySecret = testsecret`, the key used in RFC2104 calculation is `testsecret &`. The HMAC-SHA1 value is:

```
Y9eWn4nF8Q Ph3c4zAFkM / k / u7eA =
```

4. Add this value to the request URL as the `Signature` parameter value to produce the following request URL:

```
http://iot.cn-shanghai.aliyuncs.com/?MessageContent=
aGVsbG93b3JsZA%3D&Action=Pub&Timestamp=2017-10-02T09%3A39%3A41Z&SignatureVersion=1.0&ServiceCode=
iot&Format=XML&Qos=0&SignatureNonce=0715a395-aedf-4a41-
bab7-746b43d38d88&Version=2017-04-20&AccessKeyId=testid&Signature=Y9eWn4nF8QPh3c4zAFkM%2Fk%2Fu7eA%3D&SignatureMethod=HMAC-SHA1&RegionId=cn-shanghai&ProductKey=12345abcdeZ&TopicFullName=%2FproductKey%2Ftestdevice%2Fget
```

Java code sample

The following are examples of Java code for signing parameters:

1. Config.java

```
/*
 * Copyright © 2018 Alibaba. All rights reserved.
 */
package com.aliyun.iot.demo.sign;

/**
 * API signature configuration file
 *
 * @author : ali
 * @version : 0.1 2018-08-08 08:23:54
 */
public class Config {

    // AccessKey information
    public static String accessKey = "1234567890123456";
    public static String accessKeySecret = "123456789012345678901234567890";

    public final static String CHARSET_UTF8 = "utf8";
}
```

2. UrlUtil.java

```
/*
 * Copyright © 2018 Alibaba. All rights reserved.
```

```

*/
package com . aliyun . iot . demo . sign ;

import java . net . URLEncoder ;
import java . util . Map ;

import org . apache . commons . lang3 . StringUtil s ;

/**
 * URL encoding
 *
 * @ author : ali
 * @ version : 0 . 1 2018 - 06 - 21 20 : 40 : 52
 */
public class UrlUtil {

    private final static String CHARSET_UTF8 = " utf8 ";

    public static String urlEncode ( String url ) {
        if ( ! StringUtil s . isEmpty ( url ) ) {
            try {
                url = URLEncoder . encode ( url , " UTF - 8 " );
            } catch ( Exception e ) {
                System . out . println ( " Url encode error : " + e .
getMessage () );
            }
        }
        return url ;
    }

    public static String generateQueryString ( Map < String ,
String > params , boolean isEncodeKV ) {
        StringBuilder canonicalizedQueryString = new
StringBuilder ();
        for ( Map . Entry < String , String > entry : params .
entrySet () ) {
            if ( isEncodeKV )
                canonicalizedQueryString . append ( percentEncode ( entry
.getKey () ) ) . append ( "=" )
                . append ( percentEncode ( entry . getValue () ) ) . append
("&");
            else
                canonicalizedQueryString . append ( entry . getKey () ) .
append ( "=" ) . append ( entry . getValue () ) . append ( "&");
        }
        if ( canonicalizedQueryString . length () > 1 ) {
            canonicalizedQueryString . setLength ( canonicali
zedQueryString . length () - 1 );
        }
        return canonicalizedQueryString . toString ();
    }

    public static String percentEncode ( String value ) {
        try {
            // After using URLEncoder . encode for encoding ,
            replace "+", "%20", and "% 7E " with values that conform to
            the encoding standard specified by the API
            return value == null ? null
                : URLEncoder . encode ( value , CHARSET_UTF8 ) . replace
            ("+", "% 20 " ) . replace ("*", "% 2A " ) . replace ("% 7E ",
                "~");
        } catch ( Exception e ) {

        }
    }
}

```

```

        return "";
    }
}

```

3. SignatureUtils.java

```

/*
 * Copyright © 2018 Alibaba. All rights reserved.
 */
package com.aliyun.iot.demo.sign;

import java.io.IOException;
import java.io.UnsupportedEncodingException;
import java.net.URI;
import java.net.URISyntaxException;
import java.net.URLDecoder;
import java.net.URLEncoder;
import java.util.Map;
import java.util.TreeMap;

import javax.crypto.Mac;
import javax.crypto.spec.SecretKeySpec;

import org.apache.commons.codec.binary.Base64;
import org.apache.commons.lang3.StringUtils;

/**
 * API signature
 *
 * @author : ali
 * @version : 0.1 2018-06-21 20:47:05
 */
public class SignatureUtils {

    private final static String CHARSET_UTF8 = "utf8";
    private final static String ALGORITHM = "UTF-8";
    private final static String SEPARATOR = "&";

    public static Map<String, String> splitQueryString (
        String url )
        throws URISyntaxException, UnsupportedEncodingException {
        URI uri = new URI ( url );
        String query = uri.getQuery();
        final String[] pairs = query.split("&");
        TreeMap<String, String> queryMap = new TreeMap<String, String>();
        for ( String pair : pairs ) {
            final int idx = pair.indexOf("=");
            final String key = idx > 0 ? pair.substring ( 0, idx ) : pair;
            if (! queryMap.containsKey ( key )) {
                queryMap.put ( key, URLDecoder.decode ( pair.substring ( idx + 1 ), CHARSET_UTF8 ));
            }
        }
        return queryMap;
    }

    public static String generate ( String method, Map<String, String> parameter, String accessKeySecret )
        throws Exception {

```

```

        String signString = generateSignatureString ( method ,
parameter );
        System . out . println ( " signString ---" + signString );
        byte [] signBytes = hmacSHA1Signature ( accessKeySecret +
"&", signString );
        String signature = newStringBase64 ( signBytes );
        System . out . println ( " signature ----" + signature );
        if ( " POST ". equals ( method ))
            return signature ;
        return URLEncoder . encode ( signature , " UTF - 8 " );
    }

    public static String generateSignatureString ( String
httpMethod , Map < String , String > parameter ) throws
IOException {
        TreeMap < String , String > sortParameter = new TreeMap <
String , String > ();
        sortParameter . putAll ( parameter );
        String canonicalizedQueryString = UrlUtil . generateQu
eryString ( sortParameter , true );
        if ( null == httpMethod ) {
            throw new RuntimeException ( " httpMethod can not be
empty " );
        }
        StringBuilder stringToSign = new StringBuilder ();
        stringToSign . append ( httpMethod ). append ( SEPARATOR );
        stringToSign . append ( percentEncode ("/")). append (
SEPARATOR );
        stringToSign . append ( percentEncode ( canonicali
zedQueryString ));
        return stringToSign . toString ();
    }

    public static String percentEncode ( String value ) {
        try {
            return value == null ? null
                : URLEncoder . encode ( value , CHARSET_UTF8 ). replace
( "+", "% 20 "). replace ( "*", "% 2A "). replace ( "% 7E ",
                "~");
        } catch ( Exception e ) {
        }
        return "";
    }

    public static byte [] hmacSHA1Signature ( String secret
, String baseString ) throws Exception {
        if ( StringUtil . isEmpty ( secret )) {
            throw new IOException ( " secret can not be empty
");
        }
        if ( StringUtil . isEmpty ( baseString )) {
            return null ;
        }
        Mac mac = Mac . getInstance ( " HmacSHA1 " );
        SecretKeySpec keySpec = new SecretKeySpec ( secret .
getBytes ( CHARSET_UTF8 ), ALGORITHM );
        mac . init ( keySpec );
        return mac . doFinal ( baseString . getBytes ( CHARSET_UTF8
));
    }

    public static String newStringBase64 ( byte [] bytes )
throws UnsupportedEncodingException {
        if ( bytes == null || bytes . length == 0 ) {

```

```

        return null ;
    }
    return new String ( Base64 . encodeBase 64 ( bytes , false
    ), CHARSET_UT F8 );
}
}

```

4. Main.java

```

/*
 * Copyright © 2018 Alibaba . All rights reserved .
 */
package com . aliyun . iot . demo . sign ;

import java . io . UnsupportedEncodingException ;
import java . net . URLEncoder ;
import java . util . HashMap ;
import java . util . Map ;

/**
 * Main entry point of signature tool
 *
 * @ author : ali
 * @ version : 0 . 1 2018 - 09 - 18 15 : 06 : 48
 */
public class Main {

    // 1 . Use the AccessKey information in Config . java
    // 2 . We recommend that you use Method 2 and you
    // must provide all the parameters .
    // 3 . The final signature is the value you need .
    public static void main ( String [] args ) throws
    UnsupportedEncodingException {

        // Method 1
        System . out . println ( " Method 1 : " );
        String str = " GET &% 2F & AccessKeyId % 3D " + Config .
        accessKey
        + "% 26Action % 3DRegister Device % 26DeviceName %
        3D15330230 37 % 26Format % 3DJSON % 26ProductKey % 3DaxxxUtga
        RLB % 26RegionId % 3Dcn - shanghai % 26SignatureMethod % 3DHMAC -
        SHA1 % 26SignatureNonce % 3D15330230 37 % 26SignatureVersion %
        3D1 . 0 % 26Timestamp % 3D2018 - 07 - 31T07 % 253A43 % 253A57Z %
        26Version % 3D2018 - 01 - 20 " ;
        byte [] signBytes ;
        try {
            signBytes = SignatureUtils . hmacSHA1Signature ( Config .
            accessKeySecret + "&", str . toString ( ) );
            String signature = SignatureUtils . newStringB yBase64 (
            signBytes );
            System . out . println ( " signString ---" + str );
            System . out . println ( " signature ----" + signature );
            System . out . println ( " signature : " + URLEncoder . encode (
            signature , Config . CHARSET_UT F8 ) );
        } catch ( Exception e ) {
            e . printStackTrace ( );
        }
        System . out . println ( );

        // Method 2
        System . out . println ( " Method 2 : " );
    }
}

```

```

Map < String , String > map = new HashMap < String ,
String >();
// Common parameters
map . put ( " Format " , " JSON " );
map . put ( " Version " , " 2018 - 01 - 20 " );
map . put ( " AccessKeyId " , Config . accessKey );
map . put ( " SignatureMethod " , " HMAC - SHA1 " );
map . put ( " Timestamp " , " 2018 - 07 - 31T07 : 43 : 57Z " );
map . put ( " SignatureVersion " , " 1 . 0 " );
map . put ( " SignatureNonce " , " 1533023037 " );
map . put ( " RegionId " , " cn - shanghai " );
// Request parameters
map . put ( " Action " , " RegisterDevice " );
map . put ( " DeviceName " , " 1533023037 " );
map . put ( " ProductKey " , " axxxUtgaRL B " );
try {
    String signature = SignatureUtils . generate ( " GET " ,
map , Config . accessKeySecret );
    System . out . println ( " signature : " + signature );
} catch ( Exception e ) {
    e . printStackTrace ();
}
System . out . println ();
}
}

```

2.5 Error codes

This article lists the error codes which are returned when calls to IoT Platform APIs fail.

System error codes

An error code beginning with `iot . system` indicates a system error.

Error code	Description
<code>iot.system.SystemException</code>	A system exception occurred.

Common error codes

Error codes beginning with `iot . common` are common error codes.

Error code	Description
<code>iot.common.InvalidPageParams</code>	The specified page size or page number is invalid.
<code>iot.common.InvalidTenant</code>	The tenant is invalid.
<code>iot.common.QueryDeviceActionError</code>	Failed to query the device.
<code>iot.common.QueryDevicePropertyActionError</code>	Failed to query the device property.

Error code	Description
iot.common.QueryProductActionError	Failed to query the product.
iot.common.QueryProductCountActionError	Failed to query the total number of products.
iot.common.RamActionPermissionDeny	You do not have the RAM permission to access the resource.

Error codes related to IoT Platform products

Error codes beginning with `iot . prod` are error codes related to IoT Platform products.

Error code	Description
iot.prod.AlreadyExistedProductName	The product name is already in use.
iot.prod.CreateProductFailed	Failed to create the product.
iot.prod.CreateProductTopicFailed	Failed to create the topic category.
iot.prod.InvalidAliyunCommodityCode	The value of AliyunCommodityCode is invalid.
iot.prod.InvalidFormattedCatId	The format of the device type is invalid.
iot.prod.InvalidFormattedProductkey	The format of the ProductKey is invalid.
iot.prod.InvalidFormattedProductName	The format of the ProductName is invalid .
iot.prod.LongProductDesc	The product description length exceeds the maximum limit.
iot.prod.InvalidNodeType	The node type of the product is invalid.
iot.prod.NotExistedProduct	The specified product does not exist.
iot.prod.NotOpenID2Service	You have not activated the ID2 service.
iot.prod.NotSeniorProduct	The product is not a Pro Edition product.
iot.prod.NullProductKey	ProductKey cannot be empty.
iot.prod.NullProductName	ProductName cannot be empty.
iot.prod.ProductCountExceedMax	The total number of products exceeds the maximum limit.
iot.prod.QueryDeviceCountActionError	Failed to query the total number of devices.
iot.prod.QueryProductAbilitiesFailed	Failed to query the product feature.

Error code	Description
iot.prod.QueryProductAbilityFailed	Failed to query the product feature.
iot.prod.QueryProductListActionError	Failed to query the product list.
iot.prod.UpdateProductFailed	Failed to update the product information.

Error codes related to devices

Error codes beginning with `iot . device` are error codes related to devices.

Error code	Description
iot.device.AddTopoRelationFailed	Failed to add topological relationship.
iot.device.AlreadyExistedDeviceName	The device name is already in use.
iot.device.ApplyManyDevicesFailed	Failed to batch register devices.
iot.device.CreateDeviceFailed	Failed to create the device.
iot.device.CreateDeviceTaskIsRunning	The device creation task is still in progress.
iot.device.DeviceApplyIsNotFound	The ApplyId is not found.
iot.device.DeviceCountExceeded	Number of devices requested exceeds the maximum limit.
iot.device.DeleteDeviceFailed	Failed to delete the device.
iot.device.DeleteDevicePropertyFailed	Failed to delete the device property.
iot.device.DisableDeviceFailed	Failed to disable the device.
iot.device.EnableDeviceFailed	Failed to enable the device.
iot.device.InactiveDevice	The device is inactive.
iot.device.InvalidFormattedApplyId	The ApplyId is incorrect.
iot.device.IncorrentDeviceApplyInfo	The device application information is incorrect.
iot.device.InvalidFormattedDeviceName	The format of the device name is invalid.
iot.device.InvalidFormattedDevicePropertyKey	The format of the device property name is invalid.
iot.device.InvalidFormattedDevicePropertiesString	The format of device property string is invalid.
iot.device.InvalidIoTId	The device IoTId is incorrect.
iot.device.InvalidTimeBucket	The specified time range is invalid.

Error code	Description
iot.device.InvokeThingServiceFailed	Failed to invoke the service.
iot.device.LongDevicePropertiesString	The length of the property string exceeds the maximum limit.
iot.device.NoneDeviceNameElement	The device name list cannot be empty.
iot.device.NoneDeviceProperties	No valid device property is found.
iot.device.NotExistedDevice	The specified device does not exist.
iot.device.NullApplyId	ApplyId cannot be empty.
iot.device.NullDeviceName	Device name cannot be empty.
iot.device.NullDevicePropertyKey	Device property name cannot be empty.
iot.device.NullDevicePropertiesString	Device property cannot be empty.
iot.device.QueryDeviceApplyActionError	An error occurred when the device application information was queried.
iot.device.QueryDeviceAttrDataHistoryFailed	Failed to query the device property data.
iot.device.QueryDeviceAttrStatusFailed	Failed to query the device property status.
iot.device.QueryDeviceEventHistoryFailed	Failed to query the device event data.
iot.device.QueryDeviceListActionError	Failed to query the device list.
iot.device.QueryDeviceServiceHistoryFailed	Failed to query the device service data.
iot.device.QueryDeviceStatisticsFailed	Failed to query the device statistics.
iot.device.QueryDeviceStatusFailed	Failed to query the device status.
iot.device.QueryTopoRelationFailed	Failed to query the topological relationship.
iot.device.RemoveTopoRelationFailed	Failed to delete the topological relationship.
iot.device.SaveOrUpdateDevicePropertiesFailed	Failed to add or update the device property.
iot.device.SetDevicePropertyFailed	Failed to set device property.
iot.device.TooManyDevicePropertiesPerTime	The total number of device properties exceeds the limit.

Error code	Description
iot.device.TopoRelationCountExceeded	The number of topology relationships exceeds the limit.
iot.device.VerifyDeviceFailed	Failed to verify the device.

Device group related error codes

Error codes beginning with `iot . group` are error codes related to device groups.

Error code	Description
iot.group.NullGroupId	Value of the parameter <code>GroupId</code> cannot be empty.
iot.group.DeleteGroupFailed	Failed to delete the group.
iot.group.SubGroupNotNull	This group has sub-groups.
iot.group.InvalidGroupName	The group name is invalid.
iot.group.GroupNameExisted	The group name is already in use.
iot.group.QueryGroupInfoFailed	Failed to query the group details.
iot.group.NotExistedGroup	The specified group is not found.
iot.group.QueryGroupCountFailed	Failed to query the number of groups.
iot.group.QueryGroupListFailed	Failed to query the group list.
iot.group.BindGroupRelationFailed	Failed to build the group relationship.
iot.group.UpdateGroupFailed	Failed to modify the group information.
iot.group.QueryGroupTreeFailed	Failed to query the group relationship tree.
iot.group.CreateGroupFailed	Failed to create the group.
iot.group.InvalidFormattedTagString	The tag format is invalid.
iot.group.TagCountExceedMax	The number of tags exceeds the maximum limit.
iot.group.GroupCountExceedMax	The number of groups exceeds the maximum limit.
iot.group.SetGroupTagFailed	Failed to create the group tag(s).
iot.group.QueryGroupTagFailed	Failed to query the group tag(s).
iot.group.LongGroupDescError	The length of the description exceeds the limit.
iot.group.QueryGroupRelationFailed	Failed to query the group relationship.

Error code	Description
iot.group.GroupLevelExceedingLimitError	The number of group levels exceeds the limit.

Message related error codes.

Error codes beginning with `iot . messagebroker` are error codes related to message communication. This type of error code appears when you fail to call APIs related to message communication, device shadow, and rule engine. (For error codes related to rule engine APIs, see the following section.)

Error code	Description
iot.messagebroker.CreateTopicRouteFailed	Failed to create the route between the specified topics.
iot.messagebroker.CreateTopicTemplateException	An exception occurred when creating the topic category.
iot.messagebroker.CreateTopicTemplateFailed	Failed to create the topic category.
iot.messagebroker.DeleteTopicTemplateException	An exception occurred when deleting the topic category.
iot.messagebroker.DeleteTopicTemplateFailed	Failed to delete the topic category.
iot.messagebroker.DestTopicNameArraySizeIsLarge	The number of target topics for one source topic exceeds the limit.
iot.messagebroker.DeleteTopicRouteFailed	Failed to delete the route between the topics.
iot.messagebroker.DesireInfoInShadowMessageIsNotJson	<code>desire</code> information of device shadow is not in JSON format.
iot.messagebroker.DesireValueIsNullInShadowMessage	<code>desire</code> information of device shadow cannot be empty.
iot.messagebroker.ElementKeyOrValueIsNullInDesire	<code>desire</code> information key or value is empty.
iot.messagebroker.ElementKeyOrValueIsNullInReport	<code>report</code> information key or value is empty.
iot.messagebroker.HALFCONN	Failed because the device is semi-connected.

Error code	Description
iot.messagebroker.InvalidFormattedSrcTopicName	Format of the source topic is invalid.
iot.messagebroker.InvalidFormattedTopicName	Format of the topic is invalid.
iot.messagebroker.InvalidFormattedTopicTemplateId	Format of the topic category is invalid.
iot.messagebroker.InvalidTimeoutValue	The timeout value is invalid.
iot.messagebroker.InvalidTopicTemplateOperationValue	The operation value of the topic category is incorrect.
iot.messagebroker.InvalidVersionValueInShadowMessage	The version value of device shadow is incorrect.
iot.messagebroker.MethodValueIsNotUpdate	The method value of device shadow is not update .
iot.messagebroker.MessageContentIsNotBase64Encode	The message content is not base64 encoded.
iot.messagebroker.NoneElementInDesire	desire cannot be empty.
iot.messagebroker.NoneElementInReport	report cannot be empty.
iot.messagebroker.NoneElementDestTopicNameInArray	Target topic list cannot be empty.
iot.messagebroker.NotFoundDesireInShadowMessage	desire information of state of device shadow is not found.
iot.messagebroker.NotFoundMethodInShadowMessage	method information of device shadow is not found.
iot.messagebroker.NotFoundReportInShadowMessage	report information of device shadow is not found.
iot.messagebroker.NotFoundStateInShadowMessage	state information of device shadow is not found.
iot.messagebroker.NotFoundVersionOrNullVersionValue	version information is not complete or the value of version is empty.
iot.messagebroker.NotMatchedProductKeyWithSrcTopicOwner	The product, which the source topic belongs to, does not belong to the current account.
iot.messagebroker.NullMessageContent	Message content cannot be empty.

Error code	Description
iot.messagebroker.NullShadowMessage	Content of device shadow cannot be empty.
iot.messagebroker.NullSrcTopicName	Source topic name cannot be empty.
iot.messagebroker.NullTopicName	Topic cannot be empty.
iot.messagebroker.NullTopicTemplateId	Topic category cannot be empty.
iot.messagebroker.NullTopicTemplateOperation	Operation of the topic category cannot be empty.
iot.messagebroker.OFFLINE	Failed because the device is offline.
iot.messagebroker.PublishMessageException	An exception occurred when publishing message.
iot.messagebroker.PublishMessageFailed	Failed to publish message.
iot.messagebroker.QueryDeviceShadowActionError	Failed to query device shadow.
iot.messagebroker.QueryProductTopicListActionError	Failed to query topic category list.
iot.messagebroker.QueryTopicReverseRouteTableListActionError	Failed to query source topic list.
iot.messagebroker.QueryTopicRouteTableListActionError	Failed to query route table list.
iot.messagebroker.QueryTopicTemplateActionError	Failed to query topic category.
iot.messagebroker.QueryTopicTemplateException	An exception occurred when querying topic category.
iot.messagebroker.RateLimit	Failed because of rate limit.
iot.messagebroker.ReportInShadowMessageIsNotJson	report information of state is not in JSON format.
iot.messagebroker.RrpcException	An exception occurred when sending message by PPRC.
iot.messagebroker.RrpcFailed	Failed to send message by using RRPC.
iot.messagebroker.ShadowMessageIsNotJson	Device shadow is not in JSON format.
iot.messagebroker.ShadowMessageLengthIsLarge	The length of device shadow exceeds the limit.
iot.messagebroker.TIMEOUT	Failed because of timeout.

Error code	Description
iot.messagebroker.TooManyElementInDesire	The total number of desire elements exceeds the limit.
iot.messagebroker.TooManyElementInReport	The total number of report elements exceeds the limit.
iot.messagebroker.TopicAlreadyFound	The topic category name already exists.
iot.messagebroker.TopicTemplateCountExceedMax	The number of topic categories of the product exceeds the limit.
iot.messagebroker.TopicTemplateIsNotFound	The topic category is not found.
iot.messagebroker.UpdateDeviceShadowMessageFailed	Failed to update device shadow.
iot.messagebroker.UpdateTopicTemplateException	An exception occurred when updating the topic category.
iot.messagebroker.UpdateTopicTemplateFailed	Failed to update the topic category.

Error codes related to rule engine.

Error codes beginning with `iot . rule` and `iot . ruleng` , and some `iot . messagebroker` started error codes are related to rule engine.

Error code	Description
iot.rule.CreateRuleException	An exception occurred when creating the rule.
iot.rule.DeleteRuleFailed	Failed to delete the rule.
iot.rule.IncorrentRuleActionId	The rule action ID is incorrect.
iot.rule.IncorrentRuleActionType	The type of the rule action is incorrect.
iot.rule.IncorrentRuleId	The rule ID is incorrect.
iot.rule.NullForwardDestForRule	The data forwarding destination cannot be empty.
iot.rule.NullSqlForRule	SQL statement for the rule cannot be empty.
iot.rule.NotFoundRule	The specified rule is not found.
iot.rule.NotFoundRuleAction	The specified rule action is not found.

Error code	Description
iot.rule.ParseRuleActionConfigError	Failed to parse the rule action configuration.
iot.rule.QueryRuleActionListError	Failed to query the rule action list.
iot.rule.QueryRulePageActionError	Failed to query the rule list.
iot.rule.RuleActionIsAlreadyCreated	The same rule action already exists.
iot.rule.RuleCountExceedMax	The total number of rules exceeds the limit.
iot.rule.RuleNameIsAlreadyExisted	The rule name already exists.
iot.rule.StartRuleFailed	Failed to start the rule.
iot.rule.StopRuleFailed	Failed to stop the rule.
iot.rule.TooManyRuleAction	The number of rule actions exceeds the limit.
iot.rule.UpdateRuleFailed	Failed to update the rule.
iot.ruleng.CreateRuleActionFailed	Failed to create the rule action.
iot.ruleng.DeleteRuleActionFailed	Failed to delete the rule action.
iot.ruleng.IncorrectType	The topic type is incorrect.
iot.ruleng.IncorrectSysTopic	The system topic is incorrect.
iot.ruleng.InvalidRamRole	The RAM role is invalid.
iot.ruleng.QueryRuleActionFailed	Failed to query the rule action.
iot.ruleng.RuleActionConfigurationIsNotJson	The rule action configuration is not in JSON format.
iot.ruleng.RuleAlreadyIsStarted	The rule is already in a started status.
iot.ruleng.NullRamRoleArn	roleArn cannot be empty.
iot.ruleng.NullRamRoleName	roleName cannot be empty.
iot.ruleng.NullRuleActionConfig	Rule action configuration cannot be empty.
iot.ruleng.NullRuleActionType	Rule action type cannot be empty.
iot.messagebroker.IncorrectRuleSql	The SQL statement of the rule is incorrect.
iot.messagebroker.QueryRuleConfigActionException	An exception occurred when configuring the rule.

The following tables list the error codes related to different message targets.

Table 2-1: Error codes when the target is REPUBLISH (another IoT Platform topic)

Error code	Description
iot.messagebroker.InvalidFormattedTopicName	The theme name format is invalid.
iot.prod.NotExistedProduct	The specified product does not exist.
iot.common.QueryProductActionError	Failed to query the product.
iot.ruleng.IncorrectSysTopic	The system topic is incorrect.
iot.messagebroker.NullTopicName	Topic name cannot be empty.

Table 2-2: Error codes when the target is OTS (Table Store)

Error code	Description
iot.ruleng.NullOtsInstanceName	The name of the Table Store instance cannot be empty.
iot.ruleng.NullTableNameInOtsInstance	The table name of the Table Store instance cannot be empty.
iot.ruleng.NullPrimaryKeyInOtsTable	Primary key of the table cannot not be empty.
iot.ruleng.NullPrimaryKeyNameInOts	The name of the primary key cannot be empty.
iot.ruleng.NullPrimaryKeyValueInOts	The value of the primary key cannot be empty.
iot.ruleng.IncorrectPrimaryKeyValueInOtsTable	The value of the primary key is incorrect.

Table 2-3: Error codes when the target is MNS (Message Service)

Error code	Description
iot.ruleng.NullTopicNameInMns	Name of the target theme cannot be empty.
iot.ruleng.NotFoundTopicInMns	The specified theme name is not found.
iot.ruleng.QueryMnsTopicListActionError	Failed to query the theme list in Message Service.

Table 2-4: Error codes when the target is FC (Function Compute)

Error code	Description
iot.ruleng.NullServiceNameInFc	The service name in Function Compute cannot be empty.
iot.ruleng.NullFunctionNameInFc	The function name in Function Compute cannot be empty.
iot.ruleng.NotFoundServiceInFc	The specified service is not found in Function Compute.

Table 2-5: Error codes when the target is ONS (Message Queue)

Error code	Description
iot.messagebroker.NullTopicName	Message receiving topic cannot be empty .

2.6 Manage products

2.6.1 CreateProduct

Call this operation to create a product.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>CreateProduct</code> .
ProductName	String	Yes	The name of the product. A product name can be 4 to 30 characters in length and can contain Chinese characters, English letters, digits, and underscores (_).  Note: A product name must be unique in an account.

Parameter	Type	Required	Description
NodeType	Integer	Yes	The node type of the product. Values: 0 : Device. A device cannot be mounted with sub-devices. It can connect to IoT Platform either directly or as a sub-device of a gateway. 1 : Gateway. A gateway can be mounted with sub-devices. It can manage sub-devices, maintain the topological relationships with sub-devices, and synchronize the topological relationships to IoT Platform.
AliyunCommodityCode	String	No	The edition of the product that you want to create. There are two options: - iothub_sensor : Pro Edition. - iothub : Basic Edition. If you do not input this parameter, the default value is used, which is iothub (Basic Edition).
DataFormat	Integer	Yes	You must specify this parameter if the value of AliyunCommodityCode is iothub_sensor. This parameter is only available and required when you create a Pro Edition product. Options: 0 : Do not parse/Custom. 1 : Alink JSON.
Description	String	No	A description of the product. The description can be a maximum of 100 characters in length.

Parameter	Type	Required	Description
ProtocolType	String	No	The protocol that devices of this product use to connect to gateways. Set this parameter only if you are creating a product whose devices will be connected to gateways. Options: • modbus : Modbus. • opc - ua : OPC UA. • customize : Customized protocol. • ble : BLE. • zigbee : ZigBee.
NetType	String	No	Networking mode. Set this parameter only if you are creating a product whose devices directly connect to IoT Platform. Options: • WIFI • CELLULAR • ETHERNET • OTHER The default value is WIFI.
Common request parameters	-	No	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
ProductKey	String	The globally unique identifier of the product issued by IoT Platform.
Data	Data	The information of the created product that is returned when the call is successful. See Table 2-6: ProductInfo .

Table 2-6: ProductInfo

Parameter	Type	Description
ProductName	String	The name of the product.
ProductKey	String	The globally unique identifier of the product issued by IoT Platform .  Note: Keep the value of ProductKey confidential. The ProductKey value is required in other operations related to the product and its devices.
Description	String	The description of the product.
DataFormat	Integer	The data type of the product. 0 : Do not parse/Custom. 1 : Alink JSON. This parameter is only available for Pro Edition products.
AliyunCommodityCode	String	The product edition. - iothub_senior : Pro Edition. - iothub : Basic Edition.
ProtocolType	String	The protocol that devices of this product use to connect to a gateway. This parameter is only available for Pro Edition products.

Parameter	Type	Description
NodeType	Integer	The node type of the product. Values include: 0 : Device. A device cannot be mounted with sub-devices. This kind of devices can connect to IoT Platform directly or as sub-devices of gateway devices. 1 : Gateway. A gateway can be mounted with sub-devices. It can manage sub-devices, maintain the topological relationships with sub-devices, and synchronize the topological relationships to IoT Platform. This parameter is only available for Pro Edition products.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=CreateProduct
&AliyunCommandCode=iothub_sensor
&DataFormat=1
&Description=Product test
&NodeType=0
&ProductName=Test
&ProtocolType=modbus
&CommonRequestParameters
```

Response example

· JSON format

```
{
  RequestId : 8AE93DAB - 958F - 49BD - BE45 - 41353C6DEB CE ,
  Success : true ,
  ProductKey : a1QDKAU ****,
  Data :{
    ProductKey : a1QDKAU ****,
    DataFormat : 1 ,
    NodeType : 0 ,
    ProtocolType : modbus ,
    ProductName : Test ,
    Description : Product test ,
    AliyunCommandCode : iothub_sensor
  }
}
```

· XML format

```
<? xml version="1.0" encoding="UTF-8"? >
<CreateProductResponse>
```

```

    < RequestId > 8AE93DAB - 958F - 49BD - BE45 - 41353C6DEB CE
  </ RequestId >
    < ProductKey > a1QDKAU ****</ ProductKey >
    < Data >
      < Descriptio n > Product test </ Descriptio n >
      < DataFormat > 1 </ DataFormat >
      < ProductKey > a1QDKAU ****</ ProductKey >
      < ProtocolTy pe > modbus </ ProtocolTy pe >
      < NodeType > 0 </ NodeType >
      < ProductNam e > Test </ ProductNam e >
      < AliyunComm odityCode > iothub_sen ior </ AliyunComm
odityCode >
    </ Data >
    < Success > true </ Success >
  </ CreateProd uctRespons e >

```

2.6.2 QueryProduct

Call this API to query the details of a product.

Limits

You can call this API at a frequency of up to 50 times per second.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryProdu ct</code> .
ProductKey	String	Yes	The <code>ProductKey</code> of the product. <code>ProductKey</code> is issued by IoT Platform. It is the globally unique identifier (GUID) of a product. This value is generated by IoT Platform when the product is successfully created.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The product information returned when the call is successful. See the following table Data.

Table 2-7: Data

Parameter	Type	Description
GmtCreate	Long	The time when the product was created.
DataFormat	Integer	The data format of communications between devices and IoT Platform. This parameter is only for Pro Edition products. Values: 0 : Passthrough mode (Do not parse/Custom) indicating that you want to use a custom serial port data format. In this mode, devices report raw data such as binary data to IoT Platform. Alibaba Cloud IoT Platform runs the data parsing script that you have configured in the IoT Platform console to convert the raw data into Alink JSON-formatted data. 1 : Alink JSON. This is the standard data format that is defined by Alibaba Cloud IoT Platform for data exchange between devices and IoT Platform.  Note: This parameter is only available for Pro Edition products.
Description	String	The product description.
DeviceCount	Integer	The number of devices of this product.

Parameter	Type	Description
NodeType	Integer	The node type of a Pro Edition product. Values: 0 : Device. A device cannot be mounted with sub-devices. It can connect to IoT Platform either directly or as a sub-device of a gateway. 1 : Gateway. A gateway can be mounted with sub-devices. It can manage sub-devices, maintain the topological relationships with sub-devices, and synchronize the topological relationships to IoT Platform.
ProductKey	String	The globally unique identifier of the product generated by IoT Platform when the product is created.
ProductName	String	The name of the product.
ProductSecret	String	The product secret.
CategoryName	String	The device type of a Pro Edition product. The value is the device type which you specified when you were creating the product.
CategoryKey	String	The identifier of the device type of a Pro Edition product.
AliyunCommodityCode	String	Values: • <code>iothub</code> : IoT Platform Basic. • <code>iothub_senior</code> : IoT Platform Pro.
ProductStatus	String	The status of the product. • <code>DEVELOPMENT_STATUS</code> : The product is not published. • <code>RELEASE_STATUS</code> : The product is published.
NetType	Integer	The method for the devices of this product to connect to the Internet. • 3 : WiFi • 6 : Cellular (2G/3G/4G) • 7 : Ethernet • 8 : Other

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryProduct
&ProductKey=a1*****
&PublicRequestParameters
```

Response example

• JSON format

```
{
  "Data": {
    "Owner": true,
    "DataFormat": 1,
    "CategoryName": "",
    "ProductStatus": "DEVELOPMENT_STATUS",
    "ProductKey": "a1*****",
    "GmtCreate": 1530117156000,
    "NodeType": 0,
    "ProductSecret": "i6YZucqlp6*****",
    "ProductName": "protest",
    "NetType": 3,
    "DeviceCount": 1,
    "Id2": false,
    "AliyunCommunityCode": "iothub_sensor"
  },
  "RequestId": "E4F94B97-1D64-4080-BFD2-67461667AA43",
  "Success": true
}
```

• XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<QueryProductResponse>
  <Data>
    <Owner>true</Owner>
    <DataFormat>1</DataFormat>
    <CategoryName></CategoryName>
    <ProductStatus>DEVELOPMENT_STATUS</ProductStatus>
    <ProductKey>a1*****</ProductKey>
    <GmtCreate>1530117156000</GmtCreate>
    <NodeType>0</NodeType>
    <ProductSecret>i6YZucqlp6*****</ProductSecret>
    <ProductName>protest</ProductName>
    <NetType>3</NetType>
    <DeviceCount>1</DeviceCount>
    <Id2>>false</Id2>
    <AliyunCommunityCode>iothub_sensor</AliyunCommunityCode>
  </Data>
  <RequestId>E4F94B97-1D64-4080-BFD2-67461667AA43</RequestId>
  <Success>>true</Success>
```

```
</ QueryProductResponse >
```

2.6.3 QueryProductList

Call this operation to query the products of an account.

Description

You can query all the products of an account, or query only Pro Edition products or Basic Edition products.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryProductList</code> .
CurrentPage	Integer	Yes	The page of returned results to be displayed.
PageSize	Integer	Yes	The number of products per page in the response. The maximum limit is <code>200</code> .
AliyunCommodityCode	String	No	The edition of products that you want to query. Value options: <code>iothub_senior</code> : Pro Edition products. <code>iothub</code> : Basic Edition products.  Note: If you do not specify this parameter, all the products of the account will be returned.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	Product data returned when the call is successful. See the following table Data.

Table 2-8: Data

Parameter	Type	Description
PageSize	Integer	The number of products displayed per page.
PageCount	Integer	The total number of pages.
CurrentPage	Integer	The current page number.
Total	Integer	The total number of products.
List	List	Information of all the products that have been queried. See the following table ProductInfo.  Note: Product information is listed in reverse chronological order.

Table 2-9: ProductInfo

Parameter	Type	Description
DataFormat	Integer	The data format in which devices of the product communicate with IoT Platform. 0 : Do not parse/Custom (passthrough mode), indicating a custom serial port data format. In this mode, devices can report raw data such as binary data to IoT Platform. Alibaba Cloud IoT Platform runs the data parsing script that you have configured in the console to convert the raw data into Alink JSON-formatted data. 1 : Alink JSON. The standard data format which is defined by IoT Platform for data communication between devices and IoT Platform is JSON.  Note: This parameter is only available for Pro Edition products.
ProductKey	String	The product key. It is the globally unique identifier (GUID) of the product.
NodeType	Integer	The node type of the product. Values: 0 : Device. A device cannot be mounted with sub-devices. It can connect to IoT Platform either directly or as a sub-device of a gateway. 1 : Gateway. A gateway can be mounted with sub-devices. It can manage sub-devices, maintain the topological relationships with sub-devices, and synchronize the topological relationships to IoT Platform.
ProductName	String	The name of the product.
DeviceCount	Integer	The number of devices of the product.
GmtCreate	Long	The time when the product was created.
Description	String	The product description.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryProductList
&CurrentPage=1
&PageSize=10
&PublicRequestParameters
```

Response example

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "PageCount": 4,
    "PageSize": 20,
    "List": [
      {
        "ProductInfo": {
          "DataFormat": 0,
          "ProductKey": "a1*****",
          "NodeType": 0,
          "ProductName": "test123123123",
          "DeviceCount": 4,
          "GmtCreate": 1517479077000,
          "Description": "Description"
        }
      },
      {
        "DataFormat": 1,
        "ProductKey": "a1*****",
        "NodeType": 0,
        "ProductName": "TestEvent",
        "DeviceCount": 0,
        "GmtCreate": 1517466635000,
        "Description": "Description"
      }
    ]
  },
  "CurrentPage": 1,
  "Total": 79
}
```

· XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<QueryProductListResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
  <Data>
    <PageCount>4</PageCount>
    <PageSize>20</PageSize>
    <List>
      <ProductInfo>
```

```

        < DataFormat > 0 </ DataFormat >
        < ProductKey > a1 *****</ ProductKey >
        < NodeType > 0 </ NodeType >
        < ProductName > test123123 123 </ ProductName >
    >

        < DeviceCount > 4 </ DeviceCount >
        < GmtCreate > 1517479077 000 </ GmtCreate >
        < Description > Description </ Description >
    </ ProductInfo >
    < ProductInfo >
        < DataFormat > 1 </ DataFormat >
        < ProductKey > a1 *****</ ProductKey >
        < NodeType > 0 </ NodeType >
        < ProductName > Test Event </ ProductName >
        < DeviceCount > 0 </ DeviceCount >
        < GmtCreate > 1517466635 000 </ GmtCreate >
        < Description > Description </ Description >
    </ ProductInfo >
</ List >
< CurrentPage > 1 </ CurrentPage >
< Total > 79 </ Total >
</ Data >
</ QueryProductListResponse >

```

2.6.4 UpdateProduct

Call this operation to update the information of a product.

Limits

This API can be called up to 50 times per second.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>UpdateProduct</code> .
ProductKey	String	Yes	The unique identifier of the product for which you want to update information.
ProductName	String	Yes	The new product name that you want to use. The product name must consist of 4 to 30 characters, including Chinese characters (each Chinese character counts as two characters), English letters, digits, and underscores (_).  Note: The product name must be unique in the current account.

Parameter	Type	Required	Description
Description	String	No	The new product description that you want to use. The description can be up to 100 characters.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=UpdateProduct
&ProductKey=al*****
&ProductName=TestProductNew
&PublicRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "C4FDA54C-4201-487F-92E9-022F42387458",
  "Success": true,
}
```

• XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<UpdateProductResponse>
```

```
< RequestId > C4FDA54C - 4201 - 487F - 92E9 - 022F423874 58
</ RequestId >
  < Success > true </ Success >
</ UpdateProductResponse >
```

2.6.5 DeleteProduct

Call this operation to delete a specified product.

Description

You can delete a product if you no longer need it. After a product is deleted, the ProductKey of the product is no longer valid, and all information associated with the product is deleted. Furthermore, you cannot perform actions on the product after it has been deleted.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteProduct</code> .
ProductKey	String	Yes	The unique identifier of the product that you want to delete.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteProduct
&ProductKey=a1QDKAU****
&PublicRequestParameters
```

Response example

- JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true
}
```

- XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<DeleteDeviceResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207
</RequestId>
  <Success>true</Success>
</DeleteDeviceResponse>
```

2.6.6 CreateProductTags

Call this operation to create tags for a specified product.

Limits

- You can call this operation to create up to 10 tags for a specified product at one time.
- Each product can have up to 100 tags.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Value: CreateProductTags.
ProductKey	String	Yes	The unique identifier of the product.

Parameter	Type	Required	Description
ProductTags	List<String>	Yes	The list of tags to be created. A tag is represented by a pair of TagKey and TagValue, which correspond to the key and value of the tag, respectively. For more information, see ProductTag.  Note: The tag keys must be unique within the product.
Common request parameters	N/A	Yes	See Common parameters .

Table 2-10: ProductTag

Parameter	Type	Required	Description
TagKey	String	Yes	The key of the tag, which can contain English letters, numbers and dots (.), and cannot exceed 30 characters in length.
TagValue	String	Yes	The value of the tag, which can contain Chinese characters, English letters, numbers, hyphens (-), underscores (_), and dots (.), and cannot exceed 128 characters. A Chinese character is counted as two characters.

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Parameter	Type	Description
InvalidProductTags	List<ProductTag>	The list of invalid tags returned when the call fails.

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/?Action=CreateProductTags
&ProductKey=al7h7knJdld1
&ProductTag.1.TagKey=first
&ProductTag.1.TagValue=value1
&ProductTag.2.TagKey=second
&ProductTag.2.TagValue=value2
&CommonRequestParameters
```

Sample response

JSON format

```
{
  "RequestId": "354A4F9B-6B01-4498-8084-867F59720BA5",
  "Success": true
}
```

XML format

```
<CreateProductTagsResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
</CreateProductTagsResponse>
```

2.6.7 UpdateProductTags

You can call this operation to update product tags.

Restriction

You can update a maximum of 10 tags each time you call this operation.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to UpdateProductTags.
ProductKey	String	Yes	The unique identifier of the product.

Name	Type	Required	Description
ProductTags	List<String>	Yes	The tags that you want to update. A tag consists of a TagKey and a TagValue, which correspond to the key and value of the tag respectively. For more information, see the table ProductInfo.  Note: • The TagKey must be unique. • The TagKey must already exist.
Common request parameters	-	Yes	See Common parameters .

Table 2-11: ProductTag

Name	Type	Required	Description
TagKey	String	Yes	The key of the tag.
TagValue	String	Yes	The value of the tag, which can contain Chinese characters, English letters, numbers, hyphens (-), underscores (_), and dots (.), and cannot exceed 128 characters. A Chinese character is counted as two characters.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
InvalidProductTags	List<String>	The invalid tags returned when the call fails.

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/&Action=
UpdateProductTags
&ProductKey=a1h7knJdld1
&ProductTag.1.TagKey=first
&ProductTag.1.TagValue=value1
&ProductTag.2.TagKey=second
&ProductTag.2.TagValue=value2
&Common request parameters
```

Sample responses

JSON format

```
{
  "RequestId": "92586B4B-FF78-494A-A22C-368E4293FB B7",
  "Success": true
}
```

XML format

```
<UpdateProductTagsResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b2 07</
RequestId>
  <Success>true</Success>
</UpdateProductTagsResponse>
```

2.6.8 DeleteProductTags

You can call this operation to delete product tags.

Restriction

You can delete a maximum of 10 tags each time you call this operation.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteProductTags</code> .
ProductKey	String	Yes	The unique identifier of the product.
ProductTag Keys	List<String>	Yes	The keys of tags in a list.
Common parameters	-	Yes	See Common parameters .

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/&Action=DeleteProductTags
&ProductKey=alh7knJdld1
&ProductTagKey.1=first
&ProductTagKey.2=second
&Common request parameters
```

Sample responses

JSON format

```
{
  "RequestId": "E7E8456E-EDD7-41D3-83B1-62FF4F5ED6BD",
  "Success": true
}
```

XML format

```
<DeleteProductTagsResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
```

```
</ DeleteProductTagsResponse >
```

2.6.9 ListProductTags

You can call this operation to query all tags of a product.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>ListProductTags</code> .
ProductKey	String	Yes	The unique identifier of the product.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	List<String>	The list of tags returned when the call is successful. For more information, see the table ProductTag .

Table 2-12: ProductTag

Name	Type	Required	Description
TagKey	String	Yes	The key of the tag.
TagValue	String	Yes	The value of the tag.

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/&Action=
ListProductTags
&ProductKey=alh7knJdld1
&Common request parameters
```

Sample responses

JSON format

```
{
  "Data": {
    "ProductTag": [
      {
        "TagValue": "alterTable",
        "TagKey": "binary"
      },
      {
        "TagValue": "json2",
        "TagKey": "extt"
      },
      {
        "TagValue": "1234",
        "TagKey": "Lock"
      },
      {
        "TagValue": "support",
        "TagKey": "Lockk"
      },
      {
        "TagValue": "reen",
        "TagKey": "Reen"
      },
      {
        "TagValue": "try",
        "TagKey": "Reenn"
      },
      {
        "TagValue": "DropTable",
        "TagKey": "roc"
      }
    ]
  },
  "RequestId": "7FBE60F8-4AB5-4A8C-AFCB-F4F38851F01F",
  "Success": true
}
```

XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<ListProductTagsResponse>
  <Data>
    <ProductTag>
      <TagValue>alterTable</TagValue>
      <TagKey>binary</TagKey>
    </ProductTag>
    <ProductTag>
```



```

    < TagValue > json2 </ TagValue >
    < TagKey > extt </ TagKey >
  </ ProductTag >
  < ProductTag >
    < TagValue > 1234 </ TagValue >
    < TagKey > Lock </ TagKey >
  </ ProductTag >
  < ProductTag >
    < TagValue > support </ TagValue >
    < TagKey > Lockk </ TagKey >
  </ ProductTag >
  < ProductTag >
    < TagValue > reen </ TagValue >
    < TagKey > Reen </ TagKey >
  </ ProductTag >
  < ProductTag >
    < TagValue > try </ TagValue >
    < TagKey > Reenn </ TagKey >
  </ ProductTag >
  < ProductTag >
    < TagValue > DropTable </ TagValue >
    < TagKey > roc </ TagKey >
  </ ProductTag >
</ Data >
  < RequestId > 7FBE60F8 - 4AB5 - 4A8C - AFCB - F4F38851F0 1F </
RequestId >
  < Success > true </ Success >
</ ListProduc tTagsRespo nse >

```

2.6.10 ListProductByTags

You can call this operation to query products by tags.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to ListProductByTags.
ProductTags	List<String>	Yes	The tags of the products. A tag consists of a TagKey and a TagValue, which correspond to the key and value of the tag respectively. For more information, see ProductTag. - You can search products by combining TagKey and TagValue. - You can search products by TagKey only. - When you specify multiple tags, the logical relationship among these tags is OR.

Parameter	Type	Required	Description
PageSize	Integer	No	The number of products displayed per page in the response. Maximum value: 50 . Default value: 10.
CurrentPage	Integer	No	The page of returned results to be displayed. Default value: 1.
Common request parameters	-	Yes	See Common parameters .

Table 2-13: ProductTag

Parameter	Type	Required	Description
TagKey	String	Yes	The key of the tag.
TagValue	String	No	The value of the tag.

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
ProductInfos	List<String>	The list of products returned when the call is successful. For more information, see the table ProductInfo .

Table 2-14: ProductInfo

Parameter	Type	Description
ProductKey	String	The unique identifier of the product.
ProductName	String	The name of the product.
NodeType	Integer	The node type of the product.

Parameter	Type	Description
CreateTime	Long	The time when the product was created.
Description	String	The description of the product.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/&Action=
ListProductByTags
&CurrentPage=1
&PageSize=10
&ProductTag.1.TagKey=Reen
&ProductTag.1.TagValue=reen
&ProductTag.2.TagKey=Lock
&ProductTag.2.TagValue=1234
&Common request parameters
```

Response example

JSON format

```
{
  "ProductInfos": {
    "ProductInfo": [
      {
        "Description": "Bulbs in the rooms",
        "ProductKey": "a1h7knJdld_1",
        "NodeType": 0,
        "CreateTime": 1545355537000,
        "ProductB": "Bulbs"
      }
    ]
  },
  "RequestId": "2E410BE3-C688-487B-9BF1-F04B33632C-CC",
  "Success": true
}
```

XML format

```
<ListProductByTagsResponse>
  <ProductInfos>
    <ProductInfo>
      <Description>Bulbs in the rooms</Description>
      <ProductKey>a1h7knJdld_1</ProductKey>
      <NodeType>0</NodeType>
      <CreateTime>1545355537000</CreateTime>
      <ProductName>Bulbs</ProductName>
    </ProductInfo>
  </ProductInfos>
  <RequestId>2E410BE3-C688-487B-9BF1-F04B33632C-CC</RequestId>
  <Success>true</Success>
```

```
</ ListProductByTagsResponse >
```

2.7 Manage devices

2.7.1 RegisterDevice

Call this operation to register a device.

Description

Registering a device means creating a device for a product. After a device is successfully registered, Alibaba Cloud IoT Platform issues a globally unique ID (`IotId`) for the device. When you perform operations related to the device, you can provide the `IotId` to identify the device.



Note:

Besides `IotId` , you also can use the combination of `ProductKey` and `DeviceName` to identity a device. `ProductKey` is the identifier that IoT Platform issues for a product when it is created, and `DeviceName` is the device name that either you specify or the system randomly generates when the device is registered. The priority of `IotId` is higher than the combination of `ProductKey` and `DeviceName` .

- If you want to register multiple devices for a product at a time and have the device names randomly generated by the system, you can call the `BatchRegisterDevice` operation. See [BatchRegisterDevice](#).
- If you want to register multiple devices with specified names, firstly, call `BatchCheckDeviceNames` to register names for the devices that you want to register and generate an application ID (`ApplyId`), and then call `BatchRegisterDeviceWithApplyId` to register devices. See [BatchCheckDeviceNames](#) and [BatchRegisterDeviceWithApplyId](#).

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>RegisterDevice</code> .
ProductKey	String	Yes	The identifier of the product to which the device to be registered belongs.

Parameter	Type	Required	Description
DeviceName	String	No	The name of the device that you want to register. The device name must consist of 4 to 32 characters, including English letters, digits, and special characters, for example, hyphens (-), underscores (_), at signs (@), periods (.) , and colons (:). DeviceName is used with ProductKey to identify a specified device.  Note: If you do not specify this parameter, the system will generate a name for the device.
Nickname	String	No	Add a nickname for the device. A nickname can be 4-32 characters in length, and can contain Chinese characters, English letters, numbers and underscores (_). A Chinese character counts as two characters.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The device information returned when the call is successful. For more information, see the following table DeviceInfo.

Table 2-15: DeviceInfo

Parameter	Type	Description
ProductKey	String	The identifier of the product that the device belongs to.
DeviceName	String	The device name.  Note: Keep this information confidential.
DeviceSecret	String	The device secret.  Note: Keep this information confidential.
Id	String	The device ID issued by IoT Platform for the device as a unique identifier.  Note: Keep this information confidential.
Nickname	String	The nickname of the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
RegisterDevice
&ProductKey=a1rYuVF****
&DeviceName=device1
&Nickname=detectors_in_beijing
&CommonRequestParameters
```

Response example

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "DeviceName": "device1",
    "ProductKey": "a1rYuVF****",
    "DeviceSecret": "tXHf4ezGEHcwdyMwoCDHGBmk9avi****",
    "Id": "CqXL5h5ysRTA4NxjABjj0010fa****",
    "Nickname": "detectors_in_beijing"
  }
}
```

```
}
```

• XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< RegisterDeviceResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < DeviceName > device1 </ DeviceName >
    < ProductKey > alrYuVF ****</ ProductKey >
    < DeviceSecret > tXHf4ezGEH cwyMwoCDH GBmk9avi ****</
DeviceSecret >
    < IotId > CqXL5h5ysR TA4NxjABjj 0010fa ****</ IotId >
    < Nickname > detectors_ in_beijing </ Nickname >
  </ Data >
</ RegisterDeviceResponse >
```

2.7.2 QueryDeviceDetail

Call this operation to query the details of a specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to QueryDeviceDetail.
IotId	String	No	The unique identifier of the device that you want to query.  Note: If you use this parameter, ProductKey and DeviceName are not required. IotId is a globally unique identifier (GUID) of a device, and corresponds to a combination of ProductKey and DeviceName. If you specify both IotId and the combination of ProductKey and DeviceName, the system follows IotId.
ProductKey	String	No	The ProductKey of the device.  Note: If you use this parameter, DeviceName is required.

Parameter	Type	Required	Description
DeviceName	String	No	The name of the device that you want to query.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The device details returned when the call is successful. See the following table Data.

Table 2-16: Data

Parameter	Type	Description
ProductKey	String	The ProductKey of the device.
ProductName	String	The product name of the device.
DeviceName	String	The device name.
Nickname	String	The nickname of the device.
DeviceSecret	String	The device key.

Parameter	Type	Description
IotId	String	The GUID issued by IoT Platform to the device.
UtcCreate	String	The time when the device was created, in UTC.
GmtCreate	String	The time when the device was created, in GMT.
UtcActive	String	The time when the device was activated, in UTC.
GmtActive	String	The time when the device was activated, in GMT.
UtcOnline	String	The last time when the device went online, in UTC.
GmtOnline	String	The last time when the device went online, in GMT.
Status	String	Device status. Values: ONLINE : The device is online. OFFLINE : The device is offline. UNACTIVE : The device is not activated. DISABLE : The device is disabled.
FirmwareVersion	String	The firmware version number of the device.
IpAddress	String	The IP address of the device.
NodeType	Integer	The node type of the device. Values include: 0 : Device. A device cannot be mounted with sub-devices. It can connect to IoT Platform either directly or as a sub-device of a gateway. 1 : Gateway. A gateway can be mounted with sub-devices. It can manage sub-devices, maintain the topological relationships with sub-devices, and synchronize the topological relationships to IoT Platform.
Region	String	The region ID of the device (corresponding to the region in the IoT Platform console).

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=QueryDeviceDetail  
&ProductKey=a1rYuV*****  
&DeviceName=SR8FiTu1R9_t1UR2V1bmi
```

& Public Request Parameters

Response example

• JSON format

```
{
  "RequestId ":" 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 ",
  "Success ": true ,
  "Data ": {
    "DeviceName ": " SR8FiTu1R9 tLUR2V1bmi ",
    "GmtActive ": " 2018 - 08 - 06 10 : 48 : 41 ",
    "UtcActive ": " 2018 - 08 - 06T02 : 48 : 41 . 000Z ",
    "ProductKey ": " alrYuV *****",
    "DeviceSecret ": " CPwUjMUgzd vaZv56TMy6 773V3v3 *****",
    "GmtCreate ": " 2018 - 08 - 06 10 : 47 : 50 ",
    "UtcCreate ": " 2018 - 08 - 06T02 : 47 : 50 . 000Z ",
    "IotId ": " SR8FiTu1R9 tLUR2V1bmi 0010 *****",
    "Status ": " ONLINE ",
    "Region ": " cn - shanghai ",
    "NodeType ": 0 ,
    "GmtOnline ": " 2018 - 08 - 06 13 : 43 : 12 ",
    "UtcOnline ": " 2018 - 08 - 06T05 : 43 : 12 . 000Z ",
    "ProductName ": " test ",
    "IpAddress ":" 10 . 0 . 0 . 1 ",
    "FirmwareVersion ":" V1 . 0 "
  },
}
```

• XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 '? >
< QueryDeviceDetailResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < DeviceName > SR8FiTu1R9 tLUR2V1bmi </ DeviceName >
    < GmtActive > 2018 - 08 - 06 10 : 48 : 41 </ GmtActive >
  < UtcActive > 2018 - 08 - 06T02 : 48 : 41 . 000Z </ UtcActive >
    < ProductKey > alrYuVF *****</ ProductKey >
    < DeviceSecret > CPwUjMUgzd vaZv56TMy6 773V3v3W *****</
DeviceSecret >
    < GmtCreate > 2018 - 08 - 06 10 : 47 : 50 </ GmCreate >
  < UtcCreate > 2018 - 08 - 06T02 : 47 : 50 . 000Z </ UtcCreate >
    < IotId > SR8FiTu1R9 tLUR2V1bmi 0010a5 *****</ IotId >
    < Status > ONLINE </ Status >
    < Region > cn - shanghai </ Region >
    < NodeType > 0 </ NodeType >
    < GmtOnline > 2018 - 08 - 06 13 : 43 : 2 </ GmtOnline >
  < UtcOnline > 2018 - 08 - 06T05 : 43 : 12 . 000Z </ UtcOnline >
    < ProductName > test </ ProductName >
    < IpAddress > 10 . 0 . 0 . 1 </ IpAddress >
    < FirmwareVersion > V1 . 0 </ FirmwareVersion >
  </ Data >
</ QueryDeviceDetailResponse >
```

```
</ QueryDeviceDetailResponse >
```

2.7.3 QueryDevice

You can call this operation to query all the devices of a specified product.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDevice</code> .
ProductKey	String	Yes	The unique identifier of the product.
PageSize	Integer	No	The number of devices per page in the response. The maximum limit is 50. The default value is 10.
CurrentPage	Integer	No	Specify which page of the returned results you want the system to display. The default value is 1.
Common request parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
PageCount	Integer	The total page number.
PageSize	Integer	The number of devices displayed per page.
Page	Integer	The current page number.

Parameter	Type	Description
Total	Integer	The total number of devices.
Data	Data	The list of device information returned when the call is successful. See the following table DeviceInfo.  Note: The device information is listed in reverse chronological order.

Table 2-17: DeviceInfo

Parameter	Type	Description
DeviceId	String	The device ID (only available for the old edition of IoT Platform).  Note: This parameter is deprecated. Do not use this to identify a device. Currently, the valid device identifiers are <code>IoId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> .
DeviceName	String	The device name.
ProductKey	String	The unique identifier of the product.
DeviceSecret	String	The device key.
GmtCreate	String	The GMT time when the device was created.
GmtModified	String	The GMT time when the device information was modified.
UtcCreate	String	The UTC time when the device was created.
UtcModified	String	The UTC time when the device information was modified.
DeviceStatus	String	Device status.
IoId	String	The unique identifier issued by IoT Platform to the device.
Nickname	String	The nickname of the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDevice
&ProductKey=aldafD****
&PageSize=10
&CurrentPage=1
&Common request parameters
```

Response example

· JSON format

```
{
  "PageCount": 1,
  "Data": {
    "DeviceInfo": [
      {
        "DeviceId": "Av8NGHGtwP rH9BYG ****",
        "DeviceName": "Av8NGHGtwP rH9BYGLMBi",
        "ProductKey": "aldafDE ****",
        "DeviceSecret": "d7GYhf5hfc PHDe1bXSd3 n9Mj01G3 ****",
        "UtcModified": "2019-02-20T02:16:09.000Z",
        "GmtCreate": "Wed, 20-Feb-2019 02:16:09 GMT",
        "UtcCreate": "2019-02-20T02:16:09.000Z",
        "GmtModified": "Wed, 20-Feb-2019 02:16:09 GMT",
        "IotId": "Av8NGHGtwP rH9BYGLMBi 00 ****",
        "DeviceStatus": "UNACTIVE",
        "Nickname": "SensorInShanghai"
      },
      {
        "DeviceId": "zNlcSmWQ9B PJlmkj ****",
        "DeviceName": "zNlcSmWQ9B PJlmkjn3H1",
        "ProductKey": "aldafDE ****",
        "DeviceSecret": "C27XXmC18y LIEDXvUj6F Slvg07ag ****",
        "UtcModified": "2019-02-20T02:16:09.000Z",
        "GmtCreate": "Wed, 20-Feb-2019 02:16:09 GMT",
        "UtcCreate": "2019-02-20T02:16:09.000Z",
        "GmtModified": "Wed, 20-Feb-2019 02:16:09 GMT",
        "IotId": "zNlcSmWQ9B PJlmkjn3H1 00 ****",
        "DeviceStatus": "UNACTIVE",
        "Nickname": "DriverInShanghai"
      }
    ]
  },
  "Page": 1,
  "PageSize": 10,
  "RequestId": "CD9E5F99-A095-4A05-9256-D924EA3075E8",
  "Success": true,
  "Total": 2
}
```

```
}
```

• XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ?>
< QueryDeviceResponse >
  < PageCount > 1 </ PageCount >
  < Data >
    < DeviceInfo >
      < DeviceId > VIjUsKaJsd Wqt6nl ****</ DeviceId >
      < DeviceName > led_device </ DeviceName >
      < ProductKey > aldafDE ****</ ProductKey >
      < DeviceSecret > qQP6xARs7k y1HuM2reh7 y6M4BTdfe
****</ DeviceSecret >
      < UtcModified > 2019 - 02 - 19T10 : 20 : 14 . 000Z </
UtcModified >
      < GmtCreate > Wed , 30 - Jan - 2019 11 : 32 : 39
GMT </ GmtCreate >
      < UtcCreate > 2019 - 01 - 30T11 : 32 : 39 . 000Z </
UtcCreate >
      < GmtModified > Tue , 19 - Feb - 2019 10 : 20 : 14
GMT </ GmtModified >
      < DeviceStatus > OFFLINE </ DeviceStatus >
      < IotId > nadRfljdEn dlfadgadfs e ****</ IotId >
      < Nickname > SensorInSh anghai </ Nickname >
    </ DeviceInfo >
    < DeviceInfo >
      < DeviceId > QwTxRbhFwc aJBad ****</ DeviceId >
      < DeviceName > led_driver </ DeviceName >
      < ProductKey > aldafDE ****</ ProductKey >
      < DeviceSecret > 6ahkx2cOd0 kVPsxnVmxY aGEhmfdf
****</ DeviceSecret >
      < UtcModified > 2019 - 01 - 30T11 : 10 : 10 . 000Z </
UtcModified >
      < GmtCreate > Wed , 30 - Jan - 2019 11 : 10 : 10
GMT </ GmtCreate >
      < UtcCreate > 2019 - 01 - 30T11 : 10 : 10 . 000Z </
UtcCreate >
      < GmtModified > Wed , 30 - Jan - 2019 11 : 10 : 10
GMT </ GmtModified >
      < DeviceStatus > UNACTIVE </ DeviceStatus >
      < IotId > nadddfRddf aEEadfed ****</ IotId >
      < Nickname > DriverInSh anghai </ Nickname >
    </ DeviceInfo >
  </ Data >
  < PageSize > 10 </ PageSize >
  < RequestId > A4F5820D - E2B3 - 48D4 - AAF8 - 53FF6A319E 27 </
RequestId >
  < Success > true </ Success >
  < Total > 2 </ Total >
```

```
</ QueryDeviceResponse >
```

2.7.4 DeleteDevice

Call this operation to delete a specified device.

Description

If a device is no longer needed, you can delete it. After a device is deleted, the device ID (`IotId`) will be invalid, and any information associated with the device will be deleted. You cannot perform any action on the device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteDevice</code> .
IotId	String	No	The unique identifier of the device that you want to delete.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> .
ProductKey	String	No	The product key of the device that you want to delete.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device that you want to delete.  Note: If you use this parameter, <code>ProductKey</code> is required.

Parameter	Type	Required	Description
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteDevice
&IotId=MpEKNuEUJzIORNANAWJX0010929900*****
&PublicRequestParameters
```

Response example

- JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true
}
```

- XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<DeleteDeviceResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
</DeleteDeviceResponse>
```



```
</ DeleteDeviceResponse >
```

2.7.5 GetDeviceStatus

Call this operation to view the status of a specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>GetDeviceStatus</code> .
IotId	String	No	The unique identifier of the device whose status you want to query.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> .
ProductKey	String	No	The unique identifier of the product to which the device you want to query belongs.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The device status returned when the call is successful. For more information, see the following table DeviceStatusInfo.

Table 2-18: DeviceStatusInfo

Parameter	Type	Description
Status	String	Device status. Values: ONLINE : The device is online. OFFLINE : The device is offline. UNACTIVE : The device is not activated. DISABLE : The device is disabled.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=GetDeviceStatus
&IotId=MpEKNuEUJz_IORNANAWJX_0010929900_*****
&PublicRequestParameters
```

Response example

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true
  "Data": {
    "Status": "UNACTIVE"
  }
}
```

```
}
```

- XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< GetDeviceStatusResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
  RequestId >
  < Success > true </ Success >
  < Data >
    < Status > UNACTIVE </ Status >
  </ Data >
</ GetDeviceStatusResponse >
```

2.7.6 BatchGetDeviceState

Call this operation to query the status of multiple specified devices in a product.

Limits

You can query the status of up to 50 specified devices in a single call.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>BatchGetDeviceState</code> .
ProductKey	String	No	The ProductKey of the devices whose status you want to query.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	List<String>	No	The names of the devices whose status you want to query.  Note: • If you specify this parameter, you must also specify <code>ProductKey</code>. • You can enter up to 50 device names.

Parameter	Type	Required	Description
IotIds	List	No	The unique identifiers of the devices whose status you want to query.  Note: If you specify this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
Common request parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
DeviceStatusList	List	The status of the specified devices returned when the call is successful. For more information, see the following table DeviceStatus.

Table 2-19: DeviceStatus

Parameter	Type	Description
DeviceName	String	Device name.
Status	String	Device status. Values include: ONLINE OFFLINE UNACTIVE DISABLE
DeviceId	String	The device ID (only available for the old edition of IoT Platform).  Note: This parameter is deprecated. Do not use this to identify a device. Currently, the valid device identifiers are IotId and the combination of ProductKey and DeviceName .
IotId	String	The unique identifiers of the device issued by IoT Platform.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
BatchGetDeviceState
&productKey=al*****
&DeviceName.1=device1
&DeviceName.2=device2
&Common request parameters
```

Response example

· JSON format

```
{
  "DeviceStatusList": {
    "DeviceStatus": [
      {
        "Status": "UNACTIVE",
        "DeviceId": "xHkR9exGva rIjZ *****",
        "DeviceName": "device1",
        "IotId": "xHkR9exGva rIjZzpZ0H *****"
      },
      {
        "Status": "UNACTIVE",
        "DeviceId": "YXm137sPvA BrJy *****",
        "DeviceName": "device2",
        "IotId": "YXm137sPvA BrJyqoKP *****"
      }
    ]
  }
}
```

```

    }
  ]
},
"RequestId ": " D9E3DADE - 5B9D - 4594 - AE0E - 8090C16B48 5D ",
" Success ": true
}

```

- XML format

```

<? xml version=" 1 . 0 " encoding=" UTF - 8 " ? >
< BatchGetDeviceStateResponse >
  < DeviceStatusList >
    < DeviceStatus >
      < Status > UNACTIVE </ Status >
      < DeviceId > xHkR9exGva rIjZz *****</ DeviceId >
      < DeviceName > device1 </ DeviceName >
      < IotId > xHkR9exGva rIjZzpZ0HW *****</ IotId >
    </ DeviceStatus >
    < DeviceStatus >
      < Status > UNACTIVE </ Status >
      < DeviceId > YXML37sPvA BrJy *****</ DeviceId >
      < DeviceName > device2 </ DeviceName >
      < IotId > YXML37sPvA BrJyqoKP2o *****</ IotId >
    </ DeviceStatus >
  </ DeviceStatusList >
  < RequestId > D9E3DADE - 5B9D - 4594 - AE0E - 8090C16B48 5D </
RequestId >
  < Success > true </ Success >
</ BatchGetDeviceStateResponse >

```

2.7.7 DisableThing

Call this operation to disable a specified device.

Description

Once a device has been disabled, it cannot connect to IoT Platform, and you cannot perform operations on this device. However, the information about this device is still available in the IoT Platform system. You can use the EnableThing API operation to enable a disabled device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DisableThing.

Parameter	Type	Required	Description
IotId	String	No	The identifier of the device that you want to disable.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The <code>ProductKey</code> of the device that you want to disable.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device that you want to disable.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common Request Parameters	-	Yes	For more information about common request parameters, see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
DisableThing
&IotId=MpEKNuEUJzIORNANAWJX0010929900*****
&PublicRequestParameters
```

Response example

- JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true
}
```

- XML format

```
<?xml version='1.0' encoding='utf-8'?>
<DisableThingResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</
RequestId>
  <Success>true</Success>
</DisableThingResponse>
```

2.7.8 EnableThing

Call this operation to enable a device that has been disabled.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation you want to perform. Set the value to <code>EnableThing</code> .

Parameter	Type	Required	Description
IotId	String	No	The identifier of the device that you want to disable.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The <code>ProductKey</code> of the device that you want to disable.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device that you want to disable.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
EnableThin_g
&IotId=SR8FiTu1R9_tLUR2V1bmi_0010a5_****
&PublicRequestParameters
```

Response example

- JSON format

```
{
  "RequestId": "57b144cf - 09fc - 4916 - a272 - a62902d5b2 07",
  "Success": true
}
```

- XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 '? >
< EnableThin_gResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
  RequestId >
  < Success > true </ Success >
</ EnableThin_gResponse >
```

2.7.9 BatchCheckDeviceNames

Call this operation to customize multiple device names under the specified product.

IoT Platform will check the validity of these names.

Restrictions and guidelines

- You can specify up to 1,000 device names in a single call.
- You must use this operation with the `BatchRegisterDeviceWithApplyId` operation to register multiple devices with unique names under a product.

Use the following registration procedure:

1. Call this operation to specify the names of the devices to be registered. IoT Platform returns the application ID (`ApplyId`). A successful result is returned, indicating that the application for device name verification has been submitted.

The actual verification is performed asynchronously and takes a small period of time.

2. Call [QueryBatchRegisterDeviceStatus](#) to query the name setting result.
3. Call [BatchRegisterDeviceWithApplyId](#) to register multiple devices.
4. (Optional.) Call [QueryBatchRegisterDeviceStatus](#) to query the device registration result.
5. Call [QueryPageByApplyId](#) to query the information about the registered devices.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation you want to perform. Set the value to <code>BatchCheck</code> <code>DeviceNames</code> .
ProductKey	String	Yes	The identifier of the product under which the devices are registered.
DeviceName	List<String>	Yes	The name list of the devices to be registered. Each device name must be 4 to 32 characters in length and can contain letters, numbers, and special characters. The special characters include hyphens (-), underscores (_), at signs (@), periods (.), and colons (:).  Note: You can specify up to 1,000 device names in a single call.
Common request parameters	N/A	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. For more information, see the following table: Parameters in Data.

Table 2-20: Parameters in Data

Parameter	Type	Description
ApplyId	Long	The application ID (ApplyId) returned for the request when the call is successful. When you call BatchRegisterDeviceWithApplyId to register the devices, the ApplyId is required.

Examples

Sample requests

```
https://iot.cn-shanghai.aliyuncs.com/?Action=BatchCheckDeviceNames
&productKey=a1*****
&DeviceName.1=device1
&DeviceName.3=device2
&DeviceName.2=device3
&DeviceName.4=device4
&Common request parameters
```

Sample responses

• JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "ApplyId": 4399
  }
}
```

• XML format

```
<?xml version='1.0' encoding='utf-8'?>
<BatchCheckDeviceNamesResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
```

```
< Success > true </ Success >
< Data >
  < ApplyId > 4401 </ ApplyId >
</ Data >
</ BatchCheck DeviceName sResponse >
```

2.7.10 BatchRegisterDeviceWithApplyId

Call this operation to register multiple devices by using an application ID (ApplyId).

Restrictions and guidelines

You must use this operation with the [BatchCheckDeviceNames](#) operation to register multiple devices with specified names.

Use the following registration procedure:

1. Call [BatchCheckDeviceNames](#) to set the names of devices that you want to register. IoT Platform verifies the device names that you submitted and returns an application ID (ApplyId).
2. Call [QueryBatchRegisterDeviceStatus](#) to query the setting result of the device names.
3. Call [BatchRegisterDeviceWithApplyId](#) to register multiple devices. The success result returned by this operation only indicates that the registration application has been submitted. The actual registration process takes a small period of time.
4. (Optional.) Call [QueryBatchRegisterDeviceStatus](#) to query the device registration result.
5. Call [QueryPageByApplyId](#) to query information about the registered devices.



Note:

Call [BatchRegisterDevice](#) if you want to register multiple devices without naming them. The system automatically generates the names.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>BatchRegisterDeviceWithApplyId</code> .
ProductKey	String	Yes	The identifier of the product under which the devices are registered.

Parameter	Type	Required	Description
ApplyId	Long	Yes	The application ID for the devices to be registered. The application ID is returned by calling the <code>BatchCheckDeviceNames</code> operation.
Common request parameters	N/A	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. For more information, see the following table: Parameters in Data .

Table 2-21: Parameters in Data

Parameter	Type	Description
ApplyId	Long	The application ID for this registration request.

Examples

Sample requests

```
https://iot.cn-shanghai.aliyuncs.com/?Action=BatchRegisterDeviceWithApplyId
&ProductKey=al*****
&ApplyId=4416
```

& Common request parameters

Sample responses

- JSON format

```
{
  "RequestId ":" 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 ",
  "Success ": true ,
  "Data ": {
    "ApplyId ": 4416
  }
}
```

- XML format

```
<? xml version =' 1 . 0 ' encoding =' utf - 8 '? >
< BatchRegis terDeviceW ithApplyId >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < ApplyId > 4416 </ ApplyId >
  </ Data >
</ BatchRegis terDeviceW ithApplyId >
```

2.7.11 BatchRegisterDevice

Call this operation to register multiple devices in a specified product with device names randomly generated by the system.

Limits

The names of the devices that you registered using this API are generated by the system, and you cannot specify names for the devices. You can register up to 1,000 devices in a single call.

If you want to register one device individually, you can call the RegisterDevice operation.

If you want to register multiple devices in a product at a time, and specify the name for each device, call BatchCheckDeviceNames to specify device names, and then call BatchRegisterDeviceWithApplyId to register the devices.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to RegisterDe vice .

Parameter	Type	Required	Description
ProductKey	String	Yes	The key of the product in which you want to register devices.
Count	Integer	Yes	The number of devices that you want to register, which cannot exceed 1,000.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. For more information, see the following table Data.

Table 2-22: Data

Parameter	Type	Description
ApplyId	Long	The application ID (ApplyId) returned when the call is successful.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=BatchRegisterDevice
&ProductKey=al*****
&Count=10
```


& Public Request Parameters**Response example**• **JSON format**

```
{
  "RequestId ":" 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 ",
  "Success ": true ,
  "Data ": {
    "ApplyId ": 4415
  }
}
```

• **XML format**

```
<? xml version =' 1 . 0 ' encoding =' utf - 8 '? >
< BatchRegis terDeviceR esponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < ApplyId > 4415 </ ApplyId >
  </ Data >
</ BatchRegis terDeviceR esponse >
```

2.7.12 BatchUpdateDeviceNickname

You can call this operation to modify the aliases of multiple devices.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to BatchUpdat eDeviceNic kname .

Parameter	Type	Required	Description
DeviceNicknameInfo	String	Yes	Includes the device identifier parameters and the Nickname parameter. The device identifier parameters include the combination of ProductKey and DeviceName and the IotId parameter.  Note: • The device identifier parameters are required to identify a device. • The Nickname parameter is optional. If you do not provide this parameter, the original alias of the specified device will be deleted. For more information, see the following table: Parameters in DeviceNicknameInfo.
Common request parameters	N/A	Yes	See Common parameters .

Table 2-23: Parameters in DeviceNicknameInfo

Parameter	Type	Required	Description
IotId	String	No	The identifier of the device of which the alias to be modified.  Note: If you provide this parameter, you do not need to provide the <code>ProductKey</code> or <code>DeviceName</code> parameters. As the GUID of the device, <code>IotId</code> corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code>. If you provide both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, <code>IotId</code> takes precedence.
ProductKey	String	No	The key of the product to which the device belongs.  Note: If you provide this parameter, you must also provide <code>DeviceName</code>.
DeviceName	String	No	The name of the device to be queried.  Note: If you provide this parameter, you must also provide <code>ProductKey</code>.
Nickname	String	No	The new alias for the device. An alias must be 4 to 32 characters in length and can contain Chinese characters, letters, numbers, and underscores (_). One Chinese character is counted as two characters.  Note: If you do not provide this parameter, the original alias of the device will be deleted.

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/?Action=BatchUpdateDeviceNickname
&DeviceNicknameInfo.1.ProductKey=a1rYuVF****
&DeviceNicknameInfo.1.DeviceName=SR8FiTu1R9_tLUR2V1bmi
&DeviceNicknameInfo.1.Nickname=airconditioning_type_1
&DeviceNicknameInfo.2.ProductKey=a1rZMH****
&DeviceNicknameInfo.2.DeviceName=RkQ8CFtNpD_0k4BEunymt
&DeviceNicknameInfo.2.Nickname=airconditioning_type_2
&Common request parameters
```

Sample responses

• JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b2-07",
  "Success": true
}
```

• XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<BatchUpdateDeviceNicknameResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b2-07</RequestId>
  <Success>true</Success>
```

```
</ BatchUpdateDeviceNickNameResponse >
```

2.7.13 QueryBatchRegisterDeviceStatus

Call this operation to query the processing status and results of registration of multiple devices.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryBatchRegisterDeviceStatus</code> .
ProductKey	String	Yes	The key of the product that the devices belongs to.
ApplyId	Long	Yes	The application ID of device registration. Application IDs are in the responses of <code>BatchRegisterDeviceWithApplyId</code> or <code>BatchRegisterDevice</code> requests.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	DeviceApplyStatusInfo	The device registration status and results returned when the call is successful. See the following table <code>DeviceApplyStatusInfo</code> .

Table 2-24: DeviceApplyStatusInfo

Parameter	Type	Description
Status	String	The processing status and result. Values include: CHECK : Verifying the information . CHECK_SUCC ESS : The information has been verified. CHECK_FAIL ED : The formation verification has failed. CREATE : Creating devices. CREATE_SUC CESS : Device registration is successful. CREATE_FAI LED : Failed to register any device.
ValidList	List	A collection of devices that have been successfully registered. The DeviceName of the devices are listed.
InvalidList	List	A collection of devices that were failed to be registered.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryBatchRegisterDeviceStatus
&ProductKey=al*****
&ApplyId=4416
&PublicRequestParameters
```

Response sample

· JSON format

```
{
  "RequestId ":" 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 ",
  "Success ": true ,
  "Data ": {
    "Status ": " CREATE_SUC CESS ",
    "ValidList ": {
      "Name ": [

    ]
    },
    "InvalidList ": {
      "Name ": [

    ]
    }
  }
}
```

```
}

```

- XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< QueryBatch CheckDevic eNamesStat usResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
  RequestId >
  < Success > true </ Success >
  < Data >
    < Status > CREATE_SUC CESS </ Status >
    < ValidList />
    < InvalidLis t />
  </ Data >
</ QueryBatch CheckDevic eNamesStat usResponse >
```

2.7.14 QueryPageByApplyId

Call this operation to query the information of the devices that you have registered in a batch.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to QueryPageByApplyId.
ApplyId	Long	Yes	The application ID of the request for registering devices. You obtain the application ID in the returned results of BatchRegisterDeviceWithApplyId and BatchRegisterDevice.
PageSize	Integer	Yes	The number of devices per page in the response. The maximum limit is 50.
CurrentPage	Integer	Yes	Specify from which page the returned results is to be displayed.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.

Parameter	Type	Description
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
PageCount	Integer	The total number of pages.
PageSize	Integer	The number of devices displayed per page.
Page	Integer	The current page number.
Total	Integer	The total number of devices.
ApplyDeviceList	ApplyDeviceInfo	The list of device information. For more information, see the following table.

Table 2-25: ApplyDeviceInfo

Parameter	Type	Description
DeviceId	String	The device ID (only available for the old edition of IoT Platform).  Note: This is a legacy parameter that cannot be used to identify a device now. If you want to query the <code>IoId</code> (the GUID of the device), call <code>QueryDeviceDetail</code> and specify <code>ProductKey</code> and <code>DeviceName</code> to view <code>IoId</code> in the results. The <code>DeviceName</code> value can be viewed in the response of this API and in the IoT Platform console.
DeviceName	String	The device name.
DeviceSecret	String	The device key.  Note: Keep this information confidential.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryPageByApplyId
&ApplyId=4416
&PageSize=10
&CurrentPage=1
&<PublicRequestParameters>
```

Response sample

```
{
  "RequestId":"BB71E443-4447-4024-A000-EDE09922891E",
  "Success":true,
  "Page":1,
  "PageSize":10,
  "PageCount":1,
  "Total":4,
  "ApplyDeviceList":{
    "ApplyDeviceInfo":[
      {DeviceId:abcdef1234*****,DeviceName:
device1,DeviceSecret:abcdefsddd},
      {DeviceId:edcba4321*****,DeviceName:
device2,DeviceSecret:daffdfdeaa}
    ]
  }
}
```

2.7.15 QueryDeviceEventData

Use this operation to query the event records of a specified device.

Limits

You can query event data that was generated within the last 30 days.



Note:

The data of an event is stored from the day the event data was generated. Data that was generated more than 30 days ago is no longer stored.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceEventData</code> .

Parameter	Type	Required	Description
IotId	String	No	The identifier of the device whose event records you want to query.  Note: If you specify this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is the globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> .
ProductKey	String	No	The product key of the device whose event records you want to query.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device whose service records you want to query.  Note: If you specify this parameter, you must also specify <code>ProductKey</code> .
EventType	String	No	The type of the event that you want to query. Options: <code>info</code> : Information. <code>alert</code> : Alert. <code>error</code> : Error.
Identifier	String	Yes	The identifier of the event. You can view the <code>Identifier</code> values of events in the TSL of the product on the Define Feature page in the IoT Platform console.

Parameter	Type	Required	Description
StartTime	Long	Yes	The start time of event records that you want to query. The value is a 13 digit timestamp.  Note: You can query event data that was generated within the last 30 days.
EndTime	Long	Yes	The end time of event records that you want to query. The value is a 13 digit timestamp.
PageSize	Integer	No	The number of records per page in the response. The maximum limit is 50.
Asc	Integer	No	The sorting order of the property records in returned results. Value options: 0 : In reverse chronological order. 1 : In chronological order. The default value is 1.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Parameter	Type	Description
Data	Data	The device event record returned when the call is successful. See the following table Data .

Table 2-26: Data

Parameter	Type	Description
List	List<EventInfo>	The collection of events. Each element represents an event. See EventInfo for element descriptions.
NextValid	Boolean	Indicates whether there is a next page of records. A value of <code>true</code> indicates there is a next page of event records, and you can call this operation again using the value of NextTime as the StartTime to query the records. A value of <code>false</code> indicates there is not a next page.
NextTime	Long	The start time of event records on the next page.

Table 2-27: EventInfo

Parameter	Type	Description
Name	String	Event name.
Time	Long	The time when the event occurred.
OutputData	String	The output parameters of the event. For more information about the data elements, see OutputData .
EventType	String	The event type.
Identifier	String	The event identifier.

Table 2-28: OutputData

Parameter	Type	Description
Key	String	Identifier of a output parameter.
Value	Long	Value of a output parameter.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceEventData
&IotId=abcdef1234567*****
&ProductKey=a1*****
&DeviceName=device1
&EventType=info
&Identifier=lightLevel
&StartTime=1516538300303L
&EndTime=1516541900303L
&PageSize=10
&Asc=1
&Common request parameters
```

Response example

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "NextValid": false,
    "NextTime": 1516449221253,
    "List": {
      "EventInfo": [
        {
          "Name": "testEventInfoName",
          "Time": 1516517974638,
          "OutputData": "{\"structArgs\":{\"structchil
dFLOATf71c20e\":1.23,\"structchil dINT6b6b626\":3,\"
structchil dDATE663436a\":1516517966152,\"structchil
dDOUBLE08d0f74\":1.23,\"structchil dTEXTdc764f9\":0,\"
07b68264b0ba42c18e5f\", \"structchil dB00Ld260729\":0,\"
structchil dENUMbe62590\":1},\"enumArgs\":0,\"boolArgs
\":0,\"floatArgs\":2.3,\"dateArgs\":1516517966152
\", \"intArgs\":1,\"doubleArgs\":2.3,\"textArgs\":0,\"
dV56zbkzjBjw1Ti1dA52\"}",
          "EventType": "info",
          "Identifier": "testEventInfoName"
        },
        {
          "Name": "testEventInfoName",
          "Time": 1516449221254,
          "OutputData": "{\"structArgs\":{\"structchil
dFLOATf71c20e\":1.23,\"structchil dINT6b6b626\":3,\"
structchil dDATE663436a\":1516449212507,\"structchil
dDOUBLE08d0f74\":1.23,\"structchil dTEXTdc764f9\":0,\"
a1f3583dde3944289639\", \"structchil dB00Ld260729\":0,\"
structchil dENUMbe62590\":1},\"enumArgs\":0,\"boolArgs
\":0,\"floatArgs\":2.3,\"dateArgs\":1516449212507
\", \"intArgs\":1,\"doubleArgs\":2.3,\"textArgs\":0,\"
1z4XNBvvA7eZw8XViaJp\"}",
          "EventType": "info",
          "Identifier": "testEventInfoName"
        }
      ]
    }
  }
}
```

```
}
}
```

- XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 '? >
< QueryDevice eEventData Response >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < NextValid > false </ NextValid >
    < NextTime > 1516449221 253 </ NextTime >
    < List >
      < EventInfo >
        < Name > testEventI nfoName </ Name >
        < Time > 1516517974 638 </ Time >
        < OutputData >{" structArgs ": {" structchil
dFLOATf71c 20e ": 1 . 23 , " structchil dINT6b6b62 6 ": 3 , "
structchil dDATE66343 6a ": " 1516517966 152 ", " structchil
dDOUBLE08d 0f74 ": 1 . 23 , " structchil dTEXTdc764 f9 ": "
07b68264b0 ba42c18e5f ", " structchil dB00Ld2607 29 ": 0 , "
structchil dENUMbe625 90 ": 1 }, " enumArgs ": 0 , " boolArgs ": 0
, " floatArgs ": 2 . 3 , " dateArgs ": " 1516517966 152 ", " intArgs
": 1 , " doubleArgs ": 2 . 3 , " textArgs ": " dV56zbkzjB jw1TiIdA52
"}</ OutputData >
        < EventType > info </ EventType >
        < Identifier > testEventI nfo </ Identifier >
      </ EventInfo >
      < EventInfo >
        < Name > testEventI nfoName </ Name >
        < Time > 1516449221 254 </ Time >
        < OutputData >{" structArgs ": {" structchil
dFLOATf71c 20e ": 1 . 23 , " structchil dINT6b6b62 6 ": 3 , "
structchil dDATE66343 6a ": " 1516449212 507 ", " structchil
dDOUBLE08d 0f74 ": 1 . 23 , " structchil dTEXTdc764 f9 ": "
a1f3583dde 3944289639 ", " structchil dB00Ld2607 29 ": 0 , "
structchil dENUMbe625 90 ": 1 }, " enumArgs ": 0 , " boolArgs ": 0
, " floatArgs ": 2 . 3 , " dateArgs ": " 1516449212 507 ", " intArgs
": 1 , " doubleArgs ": 2 . 3 , " textArgs ": " 1z4XNBvvA7 eZw8XViaJp
"}</ OutputData >
        < EventType > info </ EventType >
        < Identifier > testEventI nfo </ Identifier >
      </ EventInfo >
    </ List >
  </ Data >
</ QueryDevice eEventData Response >
```

2.7.16 QueryDevicePropertyData

Call this operation to query the property records of a specified device.

Limits

You can query property data that was generated within the last 30 days.



Note:

The data of a property is stored from the day the property data was generated. Data that was generated more than 30 days ago is no longer stored.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to run. Set the value to <code>QueryDevicePropertyData</code> .
IotId	String	No	Device ID, which is the unique identifier of a device.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is the globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The product key of the device whose property records you want to query.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The device name.  Note: If you use this parameter, <code>ProductKey</code> is required.

Parameter	Type	Required	Description
Identifier	String	Yes	The identifier of the property that you want to query. You can view the <code>Identifier</code> values of properties in the TSL of the product on the Define Feature page in the IoT Platform console. You only can query the records of one property in a request.
StartTime	Long	Yes	The start time of property records that you want to query. The value is a 13 digit timestamp.
EndTime	Long	Yes	The end time of property records that you want to query. The value is a 13 digit timestamp.
PageSize	Integer	Yes	The number of records per page in the response. The maximum limit is 50.
Asc	Integer	Yes	The sorting order of the property records in returned results. Value options: 0 : In reverse chronological order. 1 : In chronological order.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Parameter	Type	Description
Data	Data	The device property record returned when the call is successful. For more information, see the following table.

Table 2-29: Data

Parameter	Type	Description
List	List<PropertyList>	The collection of properties. Each element represents a property. See PropertyInfo for element descriptions.
NextValid	Boolean	Indicates whether there is a next page of records. A value of <code>true</code> indicates available, and a value of <code>false</code> indicates unavailable.
NextTime	Long	The start time of property records on the next page.

Table 2-30: PropertyInfo

Parameter	Type	Description
Value	String	The property value.
Time	Long	The time when the property was modified.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDevicePropertyData
&IotId=SR8FiTu1R9-tlUR2V1bmi-0010-*****
&ProductKey=a1-*****
&DeviceName=device1
&Identifier=lightLevel
&StartTime=1516538300-303L
&EndTime=1516541900-303L
&PageSize=10
&Asc=1
&<PublicRequestParameters>
```

Response parameter

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b2-07",
  "Success": true,
```

```

" Data ": {
  " NextValid ": true ,
  " NextTime ": 1516541821 599 ,
  " List ": {
    " PropertyIn fo ": [
      {
        " Value ": " 32 ",
        " Time ": 1516541894 876
      },
      {
        " Value ": " 2 ",
        " Time ": 1516541885 630
      },
      {
        " Value ": " 95 ",
        " Time ": 1516541875 947
      },
      {
        " Value ": " 14 ",
        " Time ": 1516541830 905
      },
      {
        " Value ": " 78 ",
        " Time ": 1516541821 600
      }
    ]
  }
}

```

• XML format

```

<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< QueryDevic ePropertyD ataRespons e >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < NextValid > true </ NextValid >
    < NextTime > 1516541821 599 </ NextTime >
    < List >
      < PropertyIn fo >
        < Value > 32 </ Value >
        < Time > 1516541894 876 </ Time >
      </ PropertyIn fo >
      < PropertyIn fo >
        < Value > 2 </ Value >
        < Time > 1516541885 630 </ Time >
      </ PropertyIn fo >
      < PropertyIn fo >
        < Value > 95 </ Value >
        < Time > 1516541875 947 </ Time >
      </ PropertyIn fo >
      < PropertyIn fo >
        < Value > 14 </ Value >
        < Time > 1516541830 905 </ Time >
      </ PropertyIn fo >
      < PropertyIn fo >
        < Value > 78 </ Value >
        < Time > 1516541821 600 </ Time >
      </ PropertyIn fo >
    </ List >
  </ Data >

```

```
</ QueryDevice ePropertyDataResponse >
```

2.7.17 QueryDevicePropertiesData

Call this operation to query the historical data of multiple properties of a device.

Limits

- Up to 10 properties can be queried at a time.
- Up to 100 data records of each property can be queried at a time.
- You can query property data that was generated or modified within the last 30 days.



Note:

The data of a property is stored from the day the property was generated or modified. Data that was generated more than 30 days ago is no longer stored.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation to be performed. Set the value to <code>QueryDevice ePropertyData</code> .
ProductKey	String	Yes	The unique identifier of the product to which the device belongs.
DeviceName	String	Yes	The device name.
Identifiers	List	Yes	The identifiers of the properties that you want to query. In the IoT Platform console, you can see your defined property identifiers on the Define Feature page of the product. You cannot enter duplicate property identifiers.
StartTime	Long	Yes	The start time of the property record that you want to query. The value is a 13-bit timestamp.
EndTime	Long	Yes	The end time of the property record. The value is a 13-bit timestamp.

Parameter	Type	Required	Description
PageSize	Integer	Yes	Specify the number of data records of each property that will be returned. The maximum value is 100. The record number of any property returned does not exceed this value.
Asc	Integer	Yes	The ordering method for property data in the response. The property data records are sorted by time. Value options: 0 : In reverse chronological order. The value of StartTime must be later than that of EndTime. 1 : In chronological order. The value of StartTime must be earlier than that of EndTime.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
NextValid	Boolean	Indicates whether there is another page of property records. <code>true</code> : Yes. <code>false</code> : No. If the returned value of <code>NextValid</code> is <code>true</code> , you can use the value of <code>NextTime</code> as the <code>StartTime</code> value for another call to query the property records that have not been displayed in this query.

Parameter	Type	Description
NextTime	Long	The start time of the property record on the next page. You can use the value of <code>NextTime</code> as the <code>StartTime</code> value for another call to query the property records that have not been displayed in this query.
Code	String	The error code returned when the call fails. See Error codes .
PropertyDataInfos	List	A collection of property records returned when the call is successful. For more information, see the following <code>PropertyDataInfo</code> table.

Table 2-31: PropertyDataInfo

Parameter	Type	Description
Identifier	String	The identifier of the property.
List	List	The property records. For more information, see the following <code>PropertyInfo</code> table.

Table 2-32: PropertyInfo

Parameter	Type	Description
Time	Long	The time when the property is reported.
Value	String	The value of the property.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDevicePropertiesData
&Asc=0
&DeviceName=water
&EndTime=1540115948152
&Identifier.1=Weight
&Identifier.2=Circle
&PageSize=100
&ProductKey=a1bd0xkDbGC
&StartTime=1540116010723
&Commonrequestparameters
```

Response example

· JSON format

```
{
  " NextValid ": true ,
  " NextTime ": 1540115949 818 ,
  " RequestId ": " 75649FF8 - 36CD - 421B - 96C6 - 35B725FE82 3B ",
  " Success ": true
  " PropertyDataInfos ": {
    " PropertyData taInfo ": [{
      " List ":{
        " PropertyInfo ": [{
          " Value ": " 166 . 0 ",
          " Time ": 1540116010 518
        },
        {
          " Value ": " 166 . 0 ",
          " Time ": 1540116009 906
        },
        {
          " Value ": " 134 . 0 ",
          " Time ": 1540115951 051
        },
        {
          " Value ": " 133 . 0 ",
          " Time ": 1540115950 431
        },
        {
          " Value ": " 133 . 0 ",
          " Time ": 1540115949 819
        }
      ]
    },
    " Identifier ":" Circle "
  },
  {
    " List ": {
      " PropertyInfo ": [{
        " Value ": " 99 . 0 ",
        " Time ": 1540116010 314
      },
      {
        " Value ": " 99 . 0 ",
        " Time ": 1540116009 702
      },
      {
        " Value ": " 98 . 0 ",
        " Time ": 1540116009 090
      },
      {
        " Value ": " 51 . 0 ",
        " Time ": 1540115950 844
      },
      {
        " Value ": " 50 . 0 ",
        " Time ": 1540115952 28
      }
    ]
  },
  " Identifier ": " Weight "
}
],
}
```

```
}

```

• XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< QueryDevic ePropertie sData >
  < NextValid > true </ NextValid >
  < NextTime > 1540115949 818 </ NextTime >
  < RequestId > 75649FF8 - 36CD - 421B - 96C6 - 35B725FE82 3B </
RequestId >
  < PropertyDa taInfos >
    < PropertyDa taInfo >
      < List >
        < PropertyIn fo >
          < Value > 166 . 0 </ Value >
          < Time > 1540116010 518 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 166 . 0 </ Value >
          < Time > 1540116009 906 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 134 . 0 </ Value >
          < Time > 1540115951 051 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 133 . 0 </ Value >
          < Time > 1540115950 431 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 133 . 0 </ Value >
          < Time > 1540115949 819 </ Time >
        </ PropertyIn fo >
      </ List >
      < Identifier > Circle </ Identifier >
    </ PropertyDa taInfo >
    < PropertyDa taInfo >
      < List >
        < PropertyIn fo >
          < Value > 99 . 0 </ Value >
          < Time > 1540116010 314 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 99 . 0 </ Value >
          < Time > 1540116009 702 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 98 . 0 </ Value >
          < Time > 1540116009 090 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 51 . 0 </ Value >
          < Time > 1540115950 844 </ Time >
        </ PropertyIn fo >
        < PropertyIn fo >
          < Value > 50 . 0 </ Value >
          < Time > 1540115950 228 </ Time >
        </ PropertyIn fo >
      </ List >
      < Identifier > Weight </ Identifier >
    </ PropertyDa taInfo >
  </ PropertyDa taInfos >
  < Success > true </ Success >

```

```
</ QueryDevice ePropertie sData >
```

2.7.18 QueryDeviceServiceData

Use this operation to query service records of a specified device.

Limits

You can query service data that was generated within the last 30 days.



Note:

The data of a service is stored from the day the service data was generated. Data that was generated more than 30 days ago is no longer stored.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceServiceData</code> .
IotId	String	No	The identifier of the device whose service records you want to query.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The product key of the device whose service records you want to query.  Note: If you use this parameter, <code>DeviceName</code> is required.

Parameter	Type	Required	Description
DeviceName	String	No	The name of the device whose service records you want to query.  Note: If you use this parameter, <code>ProductKey</code> is required.
Identifier	String	Yes	The identifier of the service. You can view the <code>Identifier</code> values of services in the TSL of the product on the Define Feature page in the IoT Platform console.
StartTime	Long	Yes	The start time of service records that you want to query. The value is a 13 digit timestamp.
EndTime	Long	Yes	The end time of service records that you want to query. The value is a 13 digit timestamp.
PageSize	Integer	No	The number of records per page in the response. The maximum limit is 50.
Asc	Integer	No	The sorting order of service records in returned results. Value options: 0 : In reverse chronological order. 1 : In chronological order. The default value is 1.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The device service records returned when the call is successful. See the following table Data .

Table 2-33: Data

Parameter	Type	Description
List	List<ServiceInfo>	The collection of service records. Each ServiceInfo represents a service record. For elements in a ServiceInfo, see ServiceInfo .
NextValid	Boolean	Indicates whether there is a next page of records. A value of <code>true</code> indicates there is a next page, and a value of <code>false</code> indicates there is not a next page.
NextTime	Long	The start time of service record on the next page.

Table 2-34: ServiceInfo

Parameter	Type	Description
Name	String	The service name.
Time	Long	The time when the service was executed.
OutputData	String	The output parameters of the service in key:value pattern.
InputData	String	The input parameters of the service in key:value pattern.
Identifier	String	The identifier of the service.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceServiceData
&IotId=SR8FiTu1R9_tLUR2V1bmi_0010_*****
&ProductKey=al_*****
```

```
& DeviceName = device1
& Identifier = set
& StartTime = 1516538300 303L
& EndTime = 1516541900 303L
& PageSize = 10
& Asc = 1
&< Public Request Parameters >
```

Response parameter

• JSON format

```
{
  " RequestId ":" 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 ",
  " Success ": true ,
  " Data ": {
    " NextValid ": true ,
    " NextTime ": 1517315865 197 ,
    " List ": {
      " ServiceInf o ": [
        {
          " Name ": " set ",
          " Time ": 1517315865 198 ,
          " OutputData ": "{\" code \": 200 ,\" data \":{ },\" id
\":\" 100686 \",\" message \":\" success \",\" version \":\" 1 . 0
\" }",
          " InputData ": "{\" LightAdjus tLevel \": 123 }",
          " Identifier ": " set "
        }
      ]
    }
  }
}
```

• XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< QueryDeviceServiceDataResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < NextValid > true </ NextValid >
    < NextTime > 1517315865 197 </ NextTime >
    < List >
      < ServiceInf o >
        < Name > set </ Name >
        < Time > 1517315865 198 </ Time >
        < OutputData >{" code ": 200 , " data ":{ }, " id
":" 100686 ", " message ":" success ", " version ":" 1 . 0 ">
OutputData >
        < InputData >{" LightAdjus tLevel ": 123 }</
InputData >
        < Identifier > set </ Identifier >
      </ ServiceInf o >
    </ List >
  </ Data >
```

```
</ QueryDeviceServiceDataResponse >
```

2.7.19 InvokeThingService

Call this operation to run a specified service on a specified device.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>InvokeThingService</code> .
IotId	String	No	Device ID. The unique identifier of a device.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID), and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> . Empty parameters are not allowed in requests.
ProductKey	String	No	The ProductKey of the device.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device.  Note: If you use this parameter, <code>ProductKey</code> is required.

Parameter	Type	Required	Description
Identifier	String	Yes	The identifier of the service that you want to call. You can view the <code>Identifier</code> of a service in the TSL of the product on the Define Feature page of the product in the IoT Platform console.
Args	String	Yes	The input parameter data of the service . The data format is JSON string, for example, <code>Args={"param1":1}</code> . If the service has not any input parameter, you must pass in this parameter as <code>Args={}</code> . For information about Args, see the following table Args.
Common Request Parameters	-	Yes	See Common parameters .

Table 2-35: Args

Parameter	Type	Description
key	String	The identifier of an input parameter, which you defined when you were defining the service. On the Define Feature page of a product in the IoT Platform console, you can view all the input parameters of services in the TSL of the product, or click the Edit button of a service to view the defined input parameters of this service.
value	Object	Specify a value. This specified value must be in the defined value range of the input parameter.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. For more information, see the following table Data.

Table 2-36: Data

Parameter	Type	Description
Result	String	The result of a synchronous call.
MessageId	String	The ID of the message which IoT Platform sends to the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
InvokeThin_gService
&ProductKey=al*****
&DeviceName=device1
&Identifier=service
&Args=%7B%22param1%22%3A1%7D
&PublicRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "Result": "....",
    "MessageId": "abcabc123"
  }
}
```

• XML format

```
<?xml version='1.0' encoding='utf-8'?>
<InvokeThin_gServiceResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
  <Data>
```

```

    < Result >... </ Result >
      < MessageId > abcabc123 </ MessageId >
    </ Data >
  </ InvokeThin gServiceRe sponse >

```

2.7.20 InvokeThingsService

Call this operation to run a service on multiple devices.

Limits

- The maximum number of requests per second for a tenant is 50 QPS.
- Currently, only asynchronous calls to the API are supported.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>InvokeThin gService</code> .
ProductKey	String	Yes	The ProductKey of the specified devices.
DeviceNames	List<String>	Yes	The names of the devices on which you want to run the service. Supports up to 500 devices.
Identifier	String	Yes	The identifier of the service. To view the service identifier of the devices, go to the Define Feature page of the product that the devices belong to in the console.
Args	String	Yes	Specify input parameter values of the service. The value of this parameter is a JSON string. Example: <code>Args={"param1": 1}</code> . If you do not want to specify any input parameter, pass in this parameter as <code>Args={}</code> . For more information about arguments, see the following table Args.
Common request parameters	-	Yes	See Common parameters .

Table 2-37: Args

Parameter	Type	Description
key	String	The input parameter identifier that you set when you created the service. You can find the identifier in the Thing Specification Language (TSL) on the Define Feature page of the product in the console. Alternatively, you can click Edit corresponding to the service, and view the input parameters that you have specified.
value	Object	The value of the parameter. The value must be within the valid range you have set.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/&Action=
InvokeThinGsService
&Args=%7B%20%20%20%20%20%20%20%22walk%22%3A%22a~z%
22%2C%20%20%20%20%20%20%22city%22%3A%22shanghai%2
%20%7D
&DeviceName.1=1102andrio d02
&DeviceName.2=1102androi d01
&Identifier=TimeReset
&ProductKey=a1hWjHDWUb F
&Common request parameters
```

Response example

JSON format

```
{
  "RequestId ": " 059C3274 - 6197 - 4BEC - 95E4 - 49A076330E 57 ",
  "Success ": true
}
```

XML format

```
<? xml version =' 1 . 0 ' encoding =' utf - 8 '? >
< InvokeThin gsServiceR esponse >
  < RequestId >" 059C3274 - 6197 - 4BEC - 95E4 - 49A076330E 57 </
  RequestId >
  < Success > true </ Success >
</ InvokeThin gsServiceR esponse >
```

2.7.21 GetGatewayBySubDevice

Call this API to query the gateway device information using sub-device information.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to: <code>GetGatewayBySubDevice</code> .
IotId	String	No	The ID of the sub-device.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is the globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The product key of the sub-device.  Note: If you use this parameter, <code>DeviceName</code> is required.

Parameter	Type	Required	Description
DeviceName	String	No	The name of the sub-device.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The information of the gateway device. See DeviceDetailInfo .

Table 2-38: DeviceDetailInfo

Parameter	Type	Description
ProductKey	String	The product key of the gateway device.
ProductName	String	The product name of the gateway device.
DeviceName	String	The name of the gateway device.
DeviceSecret	String	The device secret of the gateway device.
IotId	String	The globally unique ID of the gateway device.

Parameter	Type	Description
GmtCreate	String	The time when the gateway device was created, in GMT.
GmtActive	String	The time when the gateway device was activated, in GMT.
GmtOnline	String	The last time when the gateway device went online, in GMT.
UtcCreate	String	The time when the gateway device was created, in UTC.
UtcActive	String	The time when the gateway device was activated, in UTC.
UtcOnline	String	The last time when the gateway device went online, in UTC.
Status	String	The status of the gateway device. Value options: ONLINE OFFLINE UNACTIVE DISABLE
FirmwareVersion	String	The firmware version number of the gateway device.
IpAddress	String	The IP address of the gateway device.
NodeType	Integer	The node type of the device, which is a value of 1 indicating that it is a gateway.
Region	String	The region of the gateway device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
GetGatewayBySubDevice
&ProductKey=al*****S
&DeviceName=XTzosqEOgx_FXKPRgd8zl
&<PublicRequestParameters>
```

Response example

- JSON format

```
{
  "RequestId": "F227A41E-8A0F-4829-A1B1-727619DB58A3",
  "Data":
```

```
{
  " Status ": " UNACTIVE ",
  " ProductName ": " TEST ",
  " DeviceSecret ": " nIC0JkFJnG ***** TWnvXHydEj X
",
  " UtcOnline ": "",
  " IotId ": " 9a1MTdk9br qQ2bhdG40Y 001094fd00 ",
  " GmtCreate ": " 2018 - 08 - 07 15 : 54 : 15 ",
  " UtcCreate ": " 2018 - 08 - 07T07 : 54 : 15 . 000Z ",
  " UtcActive ": "",
  " GmtActive ": "",
  " NodeType ": 1 ,
  " Region ": " cn - shanghai ",
  " GmtOnline ": "",
  " ProductKey ": " a15tzTmkWZ 2 ",
  " DeviceName ": " d896e0ff00 0105bb "
  " IpAddress ": " 10 . 0 . 0 . 1 "
  " FirmwareVersion ": " 1 . 2 . 3 "
},
" Success ": true
}
```

• XML format

```
<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< GetGatewayBySubDeviceResponse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < Status > UNACTIVE </ Status >
    < ProductName > TEST </ ProductName >
    < DeviceSecret > nIC0JkFJnG ***** TWnvXHydEj X </
DeviceSecret >
    < UtcOnline ></ UtcOnline >
    < IotId > SR8FiTu1R9 tLUR2V1bmi 0010 *****</ IotId >
    < GmtCreate > 2018 - 08 - 07 15 : 54 : 15 </ GmtCreate >
    < UtcCreate > 2018 - 08 - 07T07 : 54 : 15 . 000Z </
GmtOnline >
    < UtcActive ></ UtcActive >
    < GmtActive ></ GmtActive >
    < NodeType > 1 </ NodeType >
    < Region > cn - shanghai </ Region >
    < GmtOnline ></ GmtOnline >
    < ProductKey > a15tzTmkWZ 2 </ ProductKey >
    < DeviceName > TEST </ DeviceName >
    < IpAddress > 10 . 0 . 0 . 1 </ IpAddress >
    < FirmwareVersion > 1 . 2 . 3 </ FirmwareVersion >
  </ Data >
</ GetGatewayBySubDeviceResponse >
```

```
</ GetGateway BySubDevic eResponse >
```

2.7.22 QueryDevicePropertyStatus

Call this API to query the property snapshots of a device.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDevicePropertyStatus</code> .
IotId	String	No	The ID of the device.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> .
ProductKey	String	No	The ProductKey of the device.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common Request Parameters		Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The property data returned when the call is successful. See the following table.

Table 2-39: Data

Parameter	Type	Description
List	List	The collection of property information. For detailed information, see the following table PropertyStatusInfo .

Table 2-40: PropertyStatusInfo

Parameter	Type	Description
Identifier	String	Identifier of a property.
Name	String	Name of a property.
DataType	String	Property data type. Values: <code>int</code> : Integer. <code>float</code> : Float. <code>double</code> : Double. <code>enum</code> : Enumeration. <code>bool</code> : Boolean. <code>text</code> : Text. <code>date</code> : Time (string-type UTC timestamp in milliseconds). <code>array</code> : Array. <code>struct</code> : Structure.

Parameter	Type	Description
Time	String	The time when the property was modified.
Value	String	The value of the property.
Unit	String	The unit of the property value.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDevicePropertyStatus
&IotId=SR8FiTu1R9_tLUR2V1bmi_0010_*****
&PublicRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "57b144cf - 09fc - 4916 - a272 - a62902d5b2_07",
  "Success": true,
  "Data": {
    "List": [
      {
        "PropertyStatusInfo": [
          {
            "Name": "doubleProperty",
            "Value": "50.0",
            "Time": "1517553572362",
            "DataType": "double",
            "Identifier": "doubleProperty",
            "Unit": "C"
          }
        ]
      }
    ]
  }
}
```

• XML format

```
<?xml version='1.0' encoding='utf-8'?>
<QueryDevicePropertyStatusResponse>
  <RequestId>57b144cf - 09fc - 4916 - a272 - a62902d5b2_07</RequestId>
  <Success>true</Success>
  <Data>
    <List>
      <PropertyStatusInfo>
        <Time>1517553572362</Time>
        <Name>doubleProperty</Name>
        <DataType>double</DataType>
        <Identifier>doubleProperty</Identifier>
        <Value>50.0</Value>
        <Unit>C</Unit>
      </PropertyStatusInfo>
    </List>
  </Data>
</QueryDevicePropertyStatusResponse>
```

```
</ QueryDevicePropertyStatusResponse >
```

2.7.23 SetDeviceProperty

You can call this operation to set properties for a specified device. A successful result of calling this API only indicates that IoT Platform has successfully sent a property setting request to the device, but does not indicate that the device SDK has successfully received the request and performed the operation. Only if the device SDK responds to the request and sets the required property, you have successfully set the property for the device.

Request parameters

Name	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>SetDeviceProperty</code> .
IotId	string	No	The device ID.  Note: If you specify this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is the GUID. Each <code>IotId</code> corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> & <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The product key of the device.  Note: If you specify this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The device name.  Note: If you specify this parameter, you must also specify <code>ProductKey</code>.

Name	Type	Required	Description
Items	String	Yes	For more information about the properties that you can set, see Items .

Table 2-41: Item

Name	Type	Description
key	String	The identifier of the property that you want to set. To view the property <code>identifier</code> of the device, go to the Define Feature page of the product that the device belongs to in the console.  Note: You must specify a read-write property. This setting fails if you specify a read-only property.
value	Object	The property value. The property value, which must be within the data type and range of the property that you want to set.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. See the following table Data.

Table 2-42: Data

Name	Type	Description
MessageId	String	The ID of the message that IoT Platform sends to the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
setDeviceProperty
&ProductKey=al*****
&DeviceName=device1
&Items=%7B%22LightAdjustLevel%22%3A1%7D
&CommonRequestParameters
```

Response example

- JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "MessageId": "abcabc123"
  }
}
```

- XML format

```
<?xml version='1.0' encoding='utf-8'?>
<SetDevicePropertyResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</
RequestId>
  <Success>true</Success>
  <Data>
    <MessageId>abcabc123</MessageId>
  </Data>
</SetDevicePropertyResponse>
```

2.7.24 SetDevicesProperty

Call this operation to set properties for multiple devices.

Limits

The maximum number of requests per second for a tenant is 50 QPS.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to SetDeviceProperty.
ProductKey	String	Yes	The ProductKey of the specified devices.

Parameter	Type	Required	Description
DeviceNames	List<String>	Yes	List of devices for which you want to set properties. Currently, up to 500 devices are supported.
Items	String	Yes	The properties to be set. The value of this parameter is a JSON string with key-value pairs (key: value). If the arguments are not specified, you must pass in this parameter as Items={}. For more information about Items, see the following table Items.
Common request parameters	-	Yes	See Common parameters .

Table 2-43: Items

Parameter	Type	Description
Key	String	The identifier of the property that you have set. To view the property identifier of the devices, go to the Define Feature page of the product to which the devices belongs in the console.  Note: You must specify a read-write property. If you specify a read-only property, the setting fails.
value	Object	The property value. The value must match the data type and fall in the range that you have set for the property.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/&Action=
SetDevicesProperty
&DeviceName.1=1102andrio d02
&DeviceName.2=1102androi d01
&Items=%7B%20%20%20%20%20%20%20%22Data%22%3A%
2213720609%20%22%2C%20%20%20%20%20%20%22Status%22%
3A1%20%7D
&ProductKey=a1hwjHDWub F
&Common request parameters
```

Response example

JSON format

```
{
  "RequestId": "2E19BDAF-0FD0-4608-9F41-82D230CFEE 38",
  "Success": true
}
```

XML format

```
<?xml version='1.0' encoding='utf-8'?>
<SetDevicesPropertyResponse>
  <RequestId>"2E19BDAF-0FD0-4608-9F41-82D230CFEE 38"</RequestId>
  <Success>true</Success>
</SetDevicesPropertyResponse>
```

2.7.25 QueryDeviceProp

Call this operation to query the tags of a device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceProp</code> .

Parameter	Type	Required	Description
IotId	String	No	The globally unique ID issued by IoT Platform to the device.  Note: If you specify this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is the globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The <code>ProductKey</code> of the device whose tags you want to query.  Note: If you specify this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device whose tags you want to query.  Note: If you use this parameter, <code>ProductKey</code> is required.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Props	String	The information of device tags returned when the call is successful.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=QueryDeviceProp
&ProductKey=al*****
&DeviceName=device1
&Common request parameters
```

Response example

• JSON format

```
{
  "RequestId": "D8CEF5E7-1484-4164-A242-C06BA3A54E0F",
  "Props": "{\"coordinate\":\"104.07086:30.549169\"}",
  "Success": true
}
```

• XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<QueryDevicePropResponse>
  <RequestId>D8CEF5E7-1484-4164-A242-C06BA3A54E0F</RequestId>
  <Props>
    <coordinate>104.07086:30.549169</coordinate>
  </Props>
  <Success>true</Success>
</QueryDevicePropResponse>
```

2.7.26 SaveDeviceProp

Call this operation to create tags for a specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>SaveDeviceProp</code> .

Parameter	Type	Required	Description
ProductKey	String	No	The product key of the device for which you want to create tags.  Note: If you use this parameter, DeviceName is required.
DeviceName	String	No	The name of the device for which you want to create tags.  Note: If you specify this parameter, you must also specify ProductKey .
IotId	String	No	The unique identifier of the device for which you want to create tags.  Note: If you use this parameter, ProductKey and DeviceName are not required. IotId is a globally unique identifier of a device, and corresponds to a combination of ProductKey and DeviceName . If you specify both IotId and the combination of ProductKey and DeviceName , the system follows IotId .

Parameter	Type	Required	Description
Props	String	Yes	Tags to be created. For more information about the structure of a device tag, see the following table Prop.  Note: - Device tag data is a JSON string. A tag consists of a tag key and a tag value, neither of which can be empty. For example, Props = {"color": "red"}. - The size of Props cannot exceed 5 KB. - Each device can have up to 100 tags. - You can create or update up to 100 tags each time.
Common request parameters	-	Yes	See Common parameters .

Table 2-44: Props

Parameter	Type	Required	Description
key	String	Yes	Tag key, which can contain English letters, numbers and dots (.) and must be 2 to 32 characters in length. If the specified tag key is the key of an existing tag of the device, the new tag value overwrites the existing value. If the specified tag key is a new tag key, a new tag will be created.
value	Object	Yes	Tag value, which can contain Chinese characters, English letters, numbers, hyphens (-), underscores (_), and dots (.), and cannot exceed 128 characters. A Chinese character is counted as two characters.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information on error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
SaveDeviceProp
&ProductKey=al*****
&DeviceName=device1
&Props=%7B%22color%22%3A%22red%22%7D
&Commonrequestparameters
```

Response example

• JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true
}
```

• XML format

```
<?xml version='1.0' encoding='utf-8'?>
<SaveDevicePropResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
</SaveDevicePropResponse>
```

```
</ SaveDevice PropResponse >
```

2.7.27 DeleteDeviceProp

Call this operation to delete a specified tag of a device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteDeviceProp</code> .
IotId	String	No	The unique identifier of the device whose tag you want to delete.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> .
ProductKey	String	No	The product key of the device whose tag you want to delete.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device whose tag you want to delete.  Note: If you use this parameter, <code>ProductKey</code> is required.

Parameter	Type	Required	Description
PropKey	String	Yes	The key of the tag that you want to delete.  Note: IoT Platform will search for the specified key in the tags of the device, and will delete the tag with the key. If the specified key is not found in the tags of the device, no action will be performed.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information on error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteDeviceProp
&ProductKey=al*****
&DeviceName=device1
&PropKey=temperature
&PublicRequestParameters
```

Response example

· JSON format

```
{
```

```

    " RequestId ":" 57b144cf - 09fc - 4916 - a272 - a62902d5b2  07
  ",
  " Success ":  true
}

```

- XML format

```

<? xml version = ' 1 . 0 ' encoding = ' utf - 8 '? >
< DeleteDevi cePropResp onse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2  07 </
  RequestId >
  < Success > true </ Success >
</ DeleteDevi cePropResp onse >

```

2.7.28 QueryDeviceByTags

You can call this operation to query devices by tags.

Limits

Up to ten tags can be used at one time.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceByTags</code> .
PageSize	Integer	No	The number of devices per page in the response. The maximum limit is 50. The default value is 10.
CurrentPage	Integer	No	The number of the page to be displayed. The default value is 1.
Tag	List<Tag>	Yes	The device tags. Quantity limit: up to 10 tags can be entered. Tag includes TagKey and TagValue, which correspond to the key and value of a tag respectively. You can specify a TagKey without a TagValue. For more information about tags, see the following table Tag.
Common request parameters	-	Yes	For more information about common request parameters, see Common parameters .

Table 2-45: Tag

Parameter	Type	Required	Description
TagKey	String	Yes	The key of the device tag.
TagValue	String	No	The value of the device tag.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
PageCount	Integer	The total number of pages.
PageSize	Integer	The number of devices displayed per page.
Page	Integer	The current page number.
Total	Integer	The total number of devices.
Data	Data	The list of device information returned when the call is successful. For more information, see the following SimpleDeviceInfo table.

Table 2-46: SimpleDeviceInfo

Parameter	Type	Description
ProductName	String	The name of the product which the device belongs to.
ProductKey	String	The unique identifier of the product which the device belongs to.
DeviceName	String	The device name.

Parameter	Type	Description
IotId	String	The globally unique ID issued by IoT Platform to the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceByTags
&CurrentPage=1
&PageSize=10
&Tag.1.TagKey=dfdfd
&Tag.1.TagValue=dfdfd
&Tag.2.TagKey=dddfd
&Tag.2.TagValue=dfdfd
&Common request parameters
```

Response example

· JSON format

```
{
  "PageCount": 1,
  "Data": {
    "SimpleDeviceInfo": [
      {
        "DeviceName": "1102jichu02",
        "ProductKey": "a1SM5S1shy1",
        "IotId": "GookTiUcwqRbHosp9Ta10017d3a00",
        "ProductName": "TEST"
      }
    ]
  },
  "PageSize": 10,
  "Page": 1,
  "RequestId": "2B5091E4-32D5-4884-A5B2-2E8E713D84-AF",
  "Success": true,
  "Total": 1
}
```

· XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<QueryDeviceByTags>
  <PageCount>1</PageCount>
  <Data>
    <SimpleDeviceInfo>
      <DeviceName>1102jichu02</DeviceName>
      <ProductKey>a1SM5S1shy1</ProductKey>
      <IotId>GookTiUcwqRbHosp9Ta10017d3a00</IotId>
      <ProductName>TEST</ProductName>
    </SimpleDeviceInfo>
  </Data>
  <PageSize>10</PageSize>
  <Page>1</Page>
```

```
< RequestId > 2B5091E4 - 32D5 - 4884 - A5B2 - 2E8E713D84 AF </
RequestId >
< Success > true </ Success >
< Total > 1 </ Total >
</ QueryDevice eByTags >
```

2.7.29 GetThingTopo

Call this operation to query the topological relationships of a specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>GetThingTopo</code> .
IotId	String	No	A unique identifier of the device whose topological relationships you want to query.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier (GUID) of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The <code>ProductKey</code> of the device whose topological relationships you want to query.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device whose topological relationships you want to query.  Note: If you use this parameter, <code>ProductKey</code> is required.

Parameter	Type	Required	Description
PageSize	Integer	Yes	The number of devices which have topological relationships with this device displayed on each page. Limit : A maximum of 50 devices can be displayed on one page.
PageNo	Integer	Yes	The page of returned results to be displayed.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The information of devices which have topological relationships with this specified device. For more information, see the following table DeviceDataInfo.

Table 2-47: DeviceDataInfo

Parameter	Type	Description
PageCount	Integer	The total page number.
PageSize	Integer	The number of devices displayed on each page.
List	List	A collection of device information. For more information , see DeviceInfo .

Parameter	Type	Description
CurrentPage	Integer	The current page number.
Total	Integer	The total number of devices which have topological relationships with this device.

Table 2-48: DeviceInfo

Parameter	Type	Description
IotId	String	The device ID which is a unique identifier of the device.
ProductKey	String	The unique identifier of the product that the device belongs to.
DeviceName	String	The device name.
DeviceSecret	String	The device secret.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
GetThingToPo
&ProductKey=al*****
&DeviceName=device1
&PageSize=10
&PageNo=1
&PublicRequestParameters
```

Response example

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true
  "Data": {
    "PageCount": 1,
    "PageSize": 10,
    "List": {
      "deviceInfo": [
        {
          "DeviceName": "device1",
          "ProductKey": "al*****",
          "DeviceSecret": "abc*****",
          "IotId": "SR8FiTu1R9-tlUR2V1bmi-0010*****"
        }
      ]
    }
  },
}
```

```

        " CurrentPage " : 1 ,
        " Total " : 1
    },
}

```

- XML format

```

<? xml version = ' 1 . 0 ' encoding = ' UTF - 8 ' ? >
< GetThingTo poResponse >
    < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
    < Success > true </ Success >
    < Data >
        < PageCount > 1 </ PageCount >
        < PageSize > 10 </ PageSize >
        < List >
            < DeviceInfo >
                < DeviceName > device1 </ DeviceName >
                < ProductKey > al ***** </ ProductKey >
                < DeviceSecret > abc ***** </ DeviceSecret >
                < IotId > SR8FiTu1R9 tLUR2V1bmi 0010 ***** </ IotId
            >
            </ DeviceInfo >
        </ List >
        < CurrentPage > 1 </ CurrentPage >
        < Total > 1 </ Total >
    </ Data >
</ GetThingTo poResponse >

```

2.7.30 NotifyAddThingTopo

Call this operation to notify a specified gateway to build topological relationships with sub-devices.

Limits

The successful result returned only indicates that the request to build topological relationships was successfully sent to the gateway, however, it does not mean that the gateway has successfully built the topological relationships.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>NotifyAddThingTopo</code> .

Parameter	Type	Required	Description
GwIotId	String	No	The identifier (IotId) of the gateway device that you want to notify.  Note: If you use this parameter, GwProductKey and GwDeviceName are not required. GwIotId is the globally unique identifier (GUID) of a gateway device, and corresponds to a combination of GwProductKey and GwDeviceName. If you specify both GwIotId and the combination of GwProductKey and GwDeviceName, the system follows GwIotId.
GwProductKey	String	No	The unique identifier of the product which the gateway device belongs to.  Note: If you use this parameter, GwDeviceName is required.
GwDeviceName	String	No	The name of the gateway device.  Note: If you use this parameter, GwProductKey is required.
DeviceListStr	List	Yes	The sub-devices that you want to mount to the specified gateway. The value of DeviceListStr is a JSON string. For more information, see the following table DeviceList.
Common Request Parameters	-	Yes	See Common parameters.

Table 2-49: DeviceList

Parameter	Type	Required	Description
ProductKey	String	No	The ProductKey of a sub-device.  Note: If you use this parameter, DeviceName is required.
DeviceName	String	No	The name of a sub-device.  Note: If you specify this parameter, you must also specify ProductKey .
IotId	String	No	The identifier of a sub-device.  Note: If you specify this parameter, ProductKey and DeviceName are not required. IotId is the globally unique identifier (GUID) of a device, and corresponds to the combination of ProductKey and DeviceName . If you specify both IotId and the combination of ProductKey and DeviceName , the system follows IotId .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. For more information, see the following table Data.

Table 2-50: Data

Parameter	Type	Description
MessageId	String	The ID of the message which IoT Platform sends to the gateway device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
NotifyAddThingTopo
&GwProductKey=al34634xvd
&GwDeviceName=test
&DeviceListStr=[{"productKey":"al3452slje","deviceName":"
test1"}, {"productKey":"al123dfadd","deviceName":"test2"}]
&PublicKeyRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "419A3FC1 - B517 - 4958 - 9414 - 5546765FA5 1F",
  "Success": true,
  "Data": {
    "MessageId": "abcabc123"
  }
}
```

• XML format

```
<?xml version='1.0' encoding='UTF-8'?>
<NotifyAddThingTopoResponse>
  <RequestId>419A3FC1 - B517 - 4958 - 9414 - 5546765FA5 1F</
RequestId>
  <Success>true</Success>
  <Data>
    <MessageId>abcabc123</MessageId>
  </Data>
```

```
</ NotifyAddThingTopoResponse >
```

2.7.31 RemoveThingTopo

Call this operation to remove the topological relationships of a device. If the specified device is a sub-device, the topological relationship between this device and the gateway device will be deleted. If the specified device is a gateway, all the topological relationships of this gateway device will be deleted.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>RemoveThingTopo</code> .
IotId	String	No	A unique identifier of the device.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. As the unique identifier of a device, <code>IotId</code> corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code> . If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , the system follows <code>IotId</code> .
ProductKey	String	No	The <code>ProductKey</code> of the device whose topological relationships you want to delete.  Note: If you use this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device whose topological relationships you want to delete.  Note: If you use this parameter, <code>ProductKey</code> is required.

Parameter	Type	Required	Description
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Boolean	The result of the action of removing topological relationship. A value of <code>true</code> indicates that the topological relationships of the device have been successfully deleted, and a value of <code>false</code> indicates that the topological relationships have not been deleted.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=RemoveThingTopo
&IotId=CqXL5h5ysRTA4NxjABjj0010fa****
&PublicRequestParameters
```

Response example

· JSON format

```
{
  "Data": true,
  "RequestId": "098BEEF4-58F4-4181-A891-5D37DB6C4C3B",
  "Success": true
}
```

```
}
```

- XML format

```
<? xml version = ' 1 . 0 ' encoding = ' UTF - 8 ' ? >
< RemoveThin_gTopoResponse >
  < RequestId > 098BEEF4 - 58F4 - 4181 - A891 - 5D37DB6C4C </
RequestId >
  < Success > true </ Success >
  < Data > true </ Data >
</ RemoveThin_gTopoResponse >
```

2.7.32 QueryDeviceStatistics

Call this operation to query device statistics of a specified product.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceStatistics</code> .
ProductKey	String	No	The unique identifier of the product. • If you specify this parameter, IoT platform will return the device statistics of the specified product. • If you do not specify this parameter, IoT Platform will return the device statistics of this account.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The device statistics of the specified product returned when the call is successful. For more information, see the following table StatisticsInfo .

Table 2-51: StatisticsInfo

Parameter	Type	Description
DeviceCount	Integer	The total number of devices.
OnlineCount	Integer	The number of online devices.
ActiveCount	Integer	The number of activated devices.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceStatistics
&ProductKey=al*****
&PublicRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "DeviceCount": 100,
    "OnlineCount": 10,
    "ActiveCount": 50
  }
}
```

• XML format

```
<?xml version='1.0' encoding='utf-8'?>
<QueryDeviceStatisticsResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</RequestId>
  <Success>true</Success>
```

```

    < Data >
      < DeviceCoun t > 100 </ DeviceCoun t >
      < OnlineCoun t > 10 </ OnlineCoun t >
      < ActiveCoun t > 50 </ ActiveCoun t >
    </ Data >
  </ QueryDevic eStatistic sResponse >

```

2.7.33 SetDeviceDesiredProperty

Call this operation to set desired property values for a device.

Limits

- You cannot set desired properties for read-only properties.
- You can set desired values for up to ten properties at a time.
- After a device has been created, the desired property version number is 0.

Therefore, when you set desired value for a property for the first time, specify the value of the parameter Version to 0.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>SetDeviceDesiredProperty</code> .
IotId	String	No	The unique identifier of the device for which you want to set desired property values.  Note: If you specify this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is the globally unique identifier (GUID) of a device, and corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.

Parameter	Type	Required	Description
ProductKey	String	No	The ProductKey of the device for which you want to set desired property values.  Note: If you use this parameter, DeviceName is required.
DeviceName	String	No	The name of the device for which you want to set desired property values.  Note: If you specify this parameter, you must also specify ProductKey .
Items	String	Yes	The desired values of properties to be set. The value of this parameter is a JSON string with key:value pairs. For more information, see the following Items table.  Note: You can set desired values for up to 10 properties in a call.
Versions	String	No	The current versions of desired properties. The value of this parameter is a JSON string with key:value pairs. For more information, see the following Versions table.  Note: If the version you specified in this parameter is not the current version, the system will deny the request. If you are not sure about the current version number, do not specify this parameter.
Common request parameters	-	No	See Common parameters .

Table 2-52: Items

Parameter	Type	Description
key	String	The identifier of the property. You can view identifiers of properties on the Define Feature page of the product to which the device belongs in the IoT Platform console.  Note: • The specified property must be read/write type. If you specify a read-only property, the setting will fail. • You cannot specify duplicate property identifiers in a call.
value	Object	The value that you want to set. The value must be in the value range that you have defined for the property.  Note: If you set the value to null, the desired value of this property will be cleared.

Table 2-53: Versions

Parameter	Type	Description
key	String	The identifier of the property. On the Define Feature page of the product to which the device belongs in the IoT Platform console, you can view identifiers of properties.  Note: You cannot specify duplicate property identifiers in a call.

Parameter	Type	Description
value	Long	The current version of the desired property value. When you set desired value for a device property for the first time, set this value to 0. After you successfully set a desired value for a property for the first time, the desired property value version number automatically changes to 1. When you set a desired value for the property for the second time, specify this value to 1. And then, the version number automatically changes to 2. When you set for the third time, set this value to 2, and so on .  Note: If the version you specified in this parameter is not the current version, the system will deny the request.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The data returned when the call is successful. See the following Data table.

Table 2-54: Data

Parameter	Type	Description
MessageId	String	The ID of the desired property value setting message that IoT Platform sends to the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
SetDeviceDesiredProperty
&ProductKey=al*****
&DeviceName=device1
&Items=%7B%22LightAdjustLevel%22%3A1%7D
&Versions=%7B%22LightAdjustLevel%22%3A10%7D
&CommonRequestParameters
```

Response example

- JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "MessageId": "abccabc123"
  }
}
```

- XML format

```
<?xml version='1.0' encoding='utf-8'?>
<SetDeviceDesiredPropertyResponse>
  <RequestId>57b144cf-09fc-4916-a272-a62902d5b207</
RequestId>
  <Success>true</Success>
  <Data>
    <MessageId>abccabc123</MessageId>
  </Data>
</SetDeviceDesiredPropertyResponse>
```

2.7.34 QueryDeviceDesiredProperty

Call this operation to query the desired property values of a specified device.

Limits

Up to 10 properties can be queried at a time.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value as <code>QueryDeviceDesiredProperty</code> .

Parameter	Type	Required	Description
IotId	String	No	The unique identifier of the device whose desired property values you want to query.  Note: If you use this parameter, <code>ProductKey</code> and <code>DeviceName</code> are not required. <code>IotId</code> is a globally unique identifier of a device, and corresponds to a combination of <code>ProductKey</code> and <code>DeviceName</code>. If you specify both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code>, the system follows <code>IotId</code>.
ProductKey	String	No	The <code>ProductKey</code> of the device whose desired property values you want to query.  Note: If you specify this parameter, <code>DeviceName</code> is required.
DeviceName	String	No	The name of the device whose desired property values you want to query.  Note: If you specify this parameter, you must also specify <code>ProductKey</code>.

Parameter	Type	Required	Description
Identifiers	List	No	The identifiers of the properties whose desired values you want to query. In the IoT Platform console, you can see identifiers of properties on the Define Feature page of the product to which the device belongs.  Note: • You can specify up to 10 property identifiers in a call. • You cannot enter duplicate property identifiers. • If you do not specify this parameter, values of all properties are returned.
Common request parameters	-	No	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The property data returned when the call is successful. See the following table.

Table 2-55: Data

Parameter	Type	Description
List	List<DesiredPropertyInfo>	The collection of property information. See the following DesiredPropertyInfo table.

Table 2-56: DesiredPropertyInfo

Parameter	Type	Description
Identifier	String	The identifier of the property.
Name	String	The name of the property.
DataType	String	The data type of the property.
Time	String	The time when the desired value was modified last time, in milliseconds.
Value	String	The current desired value of the property.
Unit	String	The unit of the property value.
Version	Long	The current version number of the desired property value.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceDesiredProperty
&IotId=SR8FiTu1R9_tLUR2V1bmi_0010_*****
&Identifier.1=Weight
&Identifier.2=Circle
&Common request parameters
```

Response example

· JSON format

```
{
  "RequestId": "57b144cf-09fc-4916-a272-a62902d5b207",
  "Success": true,
  "Data": {
    "List": [
      {
        "DesiredPropertyInfo": {
          "Name": "WeightName",
          "Value": "50.0",
          "Time": "1517553572362",
          "DataType": "double",
          "Unit": "g",
          "Version": 1
        }
      }
    ]
  }
}
```

```

        " Identifier ": " Weight ",
        " Unit ": " C ",
        " Version ": 10
    },
    {
        " Name ": " CircleName ",
        " Value ": " 50 . 0 ",
        " Time ": " 1517553572 362 ",
        " DataType ": " double ",
        " Identifier ": " Circle ",
        " Unit ": " C ",
        " Version ": 10
    }
]
}
}

```

- XML format

```

<? xml version = ' 1 . 0 ' encoding = ' utf - 8 ' ? >
< QueryDevic eDesiredPr opertyResp onse >
  < RequestId > 57b144cf - 09fc - 4916 - a272 - a62902d5b2 07 </
RequestId >
  < Success > true </ Success >
  < Data >
    < List >
      < DesiredPro pertyInfo >
        < Time > 1517553572 362 </ Time >
        < Name > doubleProp ertyName </ Name >
        < DataType > double </ DataType >
        < Identifier > doubleProp erty </ Identifier >
        < Value > 50 . 0 </ Value >
        < Unit > C </ Unit >
        < Version > 10 </ Version >
      </ DesiredPro pertyInfo >
      < DesiredPro pertyInfo >
        < Time > 1517553572 362 </ Time >
        < Name > CircleName </ Name >
        < DataType > double </ DataType >
        < Identifier > Circle </ Identifier >
        < Value > 50 . 0 </ Value >
        < Unit > C </ Unit >
        < Version > 10 </ Version >
      </ DesiredPro pertyInfo >
    </ List >
  </ Data >
</ QueryDevic eDesiredPr opertyResp onse >

```

2.7.35 QueryDeviceFileList

You can call this operation to query information about all files that are uploaded to IoT Platform from the specified device.

Restrictions and guidelines

The returned file information for this operation call does not contain download URLs.

To obtain the download URL of a file, call [QueryDeviceFile](#).

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceFileList</code> .
IotId	String	No	The unique identifier of the device.  Note: If you provide this parameter, you do not need to provide the ProductKey or DeviceName parameters. As the GUID of the device, IotId corresponds to the combination of ProductKey and DeviceName. If you provide both IotId and the combination of ProductKey and DeviceName, IotId takes precedence. This parameter cannot be left empty.
ProductKey	String	No	The key of the product to which the device belongs.  Note: If you provide this parameter, you must also provide the DeviceName parameter.
DeviceName	String	No	The device name.  Note: If you provide this parameter, you must also provide the ProductKey parameter.
PageSize	Integer	No	The number of items per page displayed in the returned results. Maximum value: 200. Default value: 10.
CurrentPage	Integer	No	The page of returned results to be displayed. Minimum value: 1. Default value: 1.
Common request parameters	N/A	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	List<FileStoreSummary>	The list of file information returned when the call is successful. For more information, see the following table: Parameters in FileStoreSummary .

Table 2-57: Parameters in FileStoreSummary

Parameter	Type	Description
FileId	String	The file identifier.
Name	String	The file name.
Size	String	The file size.
UtcCreatedOn	String	The time when the file was created.

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceFileList
&ProductKey=al*****
&DeviceName=deviceName_1
&PageSize=10
&CurrentPage=1
&CommonRequestParameters
```

Sample responses

· JSON format

```
{
  " PageCount ": 1 ,
  " Data ": {
    " FileStores ummary ": [
      {
        " Name ": " testFile2 . txt ",
        " FileId ": " xL0G67MBLB DtkR7GCfT *****",
        " UtcCreated On ": " 2019 - 03 - 21T08 : 45 : 42 . 000Z ",
        " Size ": " 102400 "
      },
      {
        " Name ": " testFile3 . txt ",
        " FileId ": " 6UCo1Sqbqn QEoh9aKqD *****",
        " UtcCreated On ": " 2019 - 03 - 21T08 : 45 : 42 . 000Z ",
        " Size ": " 102400 "
      },
      {
        " Name ": " testFile1 . txt ",
        " FileId ": " IhXXww3Eeu 6uzS0SCyu *****",
        " UtcCreated On ": " 2019 - 03 - 21T08 : 45 : 40 . 000Z ",
        " Size ": " 102400 "
      }
    ]
  },
  " PageSize ": 10 ,
  " RequestId ": " 7C7BA526 - 826D - 46AA - A45E - 55D21E6D15 83 ",
  " CurrentPage ": 1 ,
  " Success ": true ,
  " Total ": 3
}
```

· XML format

```
<? xml version=" 1 . 0 " encoding =" utf - 8 "? >
< QueryDeviceFileListResponse >
  < PageCount > 1 </ PageCount >
  < Data >
    < FileStores ummary >
      < Name > testFile2 . txt </ Name >
      < FileId > xL0G67MBLB DtkR7GCfT *****</ FileId >
      < UtcCreated On > 2019 - 03 - 21T08 : 45 : 42 . 000Z </
    UtcCreated On >
      < Size > 102400 </ Size >
    </ FileStores ummary >
    < FileStores ummary >
      < Name > testFile3 . txt </ Name >
      < FileId > 6UCo1Sqbqn QEoh9aKqD *****</ FileId >
      < UtcCreated On > 2019 - 03 - 21T08 : 45 : 42 . 000Z </
    UtcCreated On >
      < Size > 102400 </ Size >
    </ FileStores ummary >
    < FileStores ummary >
      < Name > testFile1 . txt </ Name >
      < FileId > IhXXww3Eeu 6uzS0SCyu *****</ FileId >
      < UtcCreated On > 2019 - 03 - 21T08 : 45 : 40 . 000Z </
    UtcCreated On >
      < Size > 102400 </ Size >
    </ FileStores ummary >
  </ Data >
```

```
< PageSize > 10 </ PageSize >
< RequestId > BF06F7FD - B199 - 4B90 - 9128 - 8416F97513 5E </
RequestId >
< CurrentPage > 1 </ CurrentPage >
< Success > true </ Success >
< Total > 3 </ Total >
</ QueryDeviceFileResponse >
```

2.7.36 QueryDeviceFile

You can call this operation to query the information about a file that is uploaded to IoT Platform from the specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceFile</code> .
IotId	String	No	The unique identifier of the device.  Note: If you provide this parameter, you do not need to provide the <code>ProductKey</code> or <code>DeviceName</code> parameters. As the GUID of the device, <code>IotId</code> corresponds to the combination of <code>ProductKey</code> and <code>DeviceName</code> . If you provide both <code>IotId</code> and the combination of <code>ProductKey</code> and <code>DeviceName</code> , <code>IotId</code> takes precedence. This parameter cannot be left empty.
ProductKey	String	No	The key of the product to which the device belongs.  Note: If you provide this parameter, you must also provide the <code>DeviceName</code> parameter.
DeviceName	String	No	The device name.  Note: If you provide this parameter, you must also provide the <code>ProductKey</code> parameter.
FileId	String	Yes	The file identifier.

Parameter	Type	Required	Description
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	Data	The file information returned when the call is successful. For more information, see the following table: Parameters in Data .

Table 2-58: Parameters in Data

Parameter	Type	Description
FileId	String	The file identifier.
Name	String	The file name.
Size	String	The file size.
UtcCreatedOn	String	The time when the file was created.
DownloadUrl	String	The URL from which the file can be downloaded.

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceFile
&ProductKey=al*****
&DeviceName=deviceName_1
&FileId=6UCo1Sqbqn_QEoh9aKqD*****
&Common request parameters
```

Sample responses

- JSON format

```
{
  "RequestId": "93C5276D - 5C8A - 40D9 - BFD6 - 4BD5B8C1A0 8F",
  "Data": {
    "Name": "testFile3.txt",
    "DownloadUrl": "http://iotx-file-store.oss-cn-shanghai.aliyuncs.com/device_file/A849E4E5CF_F64804A18D9384AC9D****/aGEKIpp5NA_GxdP2oo900_00****/testFile3.txt?Expires=1553162075&OSSAccessKeyId=LTAIYLScbH_iV****&Signature=%2F88xdEFPu_kJ****%2F8****%2Bdv3io%3D",
    "FileId": "6UCo1Sqbqn_QEoh9aKqDQ_01****",
    "UtcCreatedOn": "2019 - 03 - 21T08 : 45 : 42 . 000Z",
    "Size": "102400"
  },
  "Success": true
}
```

- XML format

```
<? xml version="1.0" encoding="UTF-8"? >
<RequestId>93C5276D - 5C8A - 40D9 - BFD6 - 4BD5B8C1A0 8F</RequestId>
<Data>
  <Name>testFile3.txt</Name>
  <DownloadUrl>http://iotx-file-store.oss-cn-shanghai.aliyuncs.com/device_file/A849E4E5CF_F64804A18D9384AC9D****/aGEKIpp5NA_GxdP2oo900_00****/testFile3.txt?Expires=1553162075&OSSAccessKeyId=LTAIYLScbH_iV****&Signature=%2F88xdEFPu_kJ****%2F8****%2Bdv3io%3D</DownloadUrl>
  <FileId>6UCo1Sqbqn_QEoh9aKqDQ_01****</FileId>
  <UtcCreatedOn>2019 - 03 - 21T08 : 45 : 42 . 000Z</UtcCreatedOn>
  <Size>102400</Size>
</Data>
```



```
< Success > true </ Success >
```

2.7.37 DeleteDeviceFile

You can call this operation to delete a file that is uploaded to IoT Platform from the specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteDeviceFile</code> .
IoId	String	No	The unique identifier of the device to which the file belongs.  Note: If you provide this parameter, you do not need to provide the ProductKey or DeviceName parameters. As the GUID of the device, IoId corresponds to the combination of ProductKey and DeviceName. If you provide both IoId and the combination of ProductKey and DeviceName, IoId takes precedence.
ProductKey	String	No	The key of the product to which the device belongs.  Note: If you provide this parameter, you must also provide the DeviceName parameter.
DeviceName	String	No	The name of the device to which the file belongs.  Note: If you provide this parameter, you must also provide the ProductKey parameter.
FileId	String	Yes	The file identifier.
Common request parameters	N/A	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Sample request

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteDeviceFile
&ProductKey=al*****
&DeviceName=deviceName_1
&FileId=6UCo1SqbqnQEoh9aK*****
&CommonRequestParameters
```

Sample responses

• JSON format

```
{
  "RequestId": "C25255EA-9F6E-4E04-85FE-AC1E9C136E-BB",
  "Success": true
}
```

• XML format

```
<?xml version="1.0" encoding="utf-8"?>
<DeleteDeviceFileResponse>
  <RequestId>C25255EA-9F6E-4E04-85FE-AC1E9C136E-BB</RequestId>
  <Success>true</Success>
</DeleteDeviceFileResponse>
```

```
</ DeleteDeviceFileResponse >
```

2.8 Manage device groups

2.8.1 CreateDeviceGroup

Call this operation to create a device group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>CreateDeviceGroup</code> .
SuperGroupId	String	No	The ID of the parent group. If you want to create a first-level group, do not enter this parameter.
GroupName	String	Yes	The name of the group. The name can contain Chinese characters, English letters, digits, and underscores (_). The length must be 4 to 30 characters (a Chinese character counts as two characters).
GroupDesc	String	No	The description of the group. You can enter a description with up to 100 characters.
Common request parameters	-	Yes	see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .
Data	Data	See the following table Group.

Table 2-59: Group

Parameter	Type	Description
GroupName	String	The name of the group.
UtcCreate	Date	The time when the group is created.
GroupDesc	String	The description of the group.
GroupId	String	The group ID generated by the IoT platform. It is the unique identifier of the group.

Example

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=CreateDeviceGroup
&GroupDesc=Group test
&GroupName=grouptest
&Common request parameters
```

Response example

```
{
  "Data": {
    "GroupDesc": "Group test",
    "GroupName": "grouptest",
    "UtcCreate": "2018-10-17T11:19:31.000Z",
    "GroupId": "HtMLECKbdJQLIcbY"
  },
  "RequestId": "4D6D7F71-1C94-4160-8511-EFF4B8F0634D",
  "Success": true
}
```

2.8.2 UpdateDeviceGroup

Call this operation to update the information of a group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>UpdateDeviceGroup</code> .
GroupId	String	Yes	The Group ID. It is the globally unique identifier of the group.
GroupDesc	String	No	The description of the group. The maximum length is 100 characters. (Each Chinese character counts as one character.)

Parameter	Type	Required	Description
Common request parameters	-	Yes	see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=UpdateDeviceGroup
&GroupId=W16X8Tvdos_ecZu91
&GroupDesc=test2
&Common request parameters
```

Response example

```
{
  "RequestId": "B78B4FD1-AE89-417B-AD55-367EBB0C6759",
  "Success": true
}
```

2.8.3 DeleteDeviceGroup

Call this operation to delete a specified group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>DeleteDeviceGroup</code> .
GroupId	String	Yes	The Group ID. It is the unique identifier of the group.

Parameter	Type	Required	Description
Common request parameters	-	Yes	see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=DeleteDeviceGroup
&GroupId=tDQvBJqbUyHskDse
&Commonrequestparameters
```

Response example

```
{
  "RequestId": "B78B4FD1-AE89-417B-AD55-367EBB0C6759",
  "Success": true
}
```

2.8.4 BatchAddDeviceGroupRelations

Call this operation to add devices to a group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to BatchAddDeviceGroupRelations.
GroupId	String	Yes	The group ID that is the unique identifier of the group.

Parameter	Type	Required	Description
Devices	List<Device>	Yes	The devices that you want to add to the group. See the following table for device parameters.
Common request parameters	-	Yes	see Common parameters .

Table 2-60: Device

Parameter	Type	Required	Description
ProductKey	String	Yes	The product key of the device.
DeviceName	String	Yes	The name of the device.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The result message.
Code	String	For error codes, see Error codes .
ValidDeviceCount	Integer	The number of valid devices that are listed in the request.
SuccessAddedDeviceCount	Integer	The number of devices that have been added to the group by this operation.
ExceedMaxGroupDeviceCount	Integer	The number of devices that have been added to ten or more groups. (Currently, a device can be added to up to ten groups.)
AlreadyRelatedGroupDeviceCount	Integer	The number of devices in the group before this operation.

Example

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=BatchAddDeviceGroupRelations
```

```
& Device . 1 . DeviceName = ZHuPo6sZzv 7p0zYhv31y
& Device . 1 . ProductKey = alkORrKiwQ j
& Device . 2 . DeviceName = rB4V9PDW2F CPmwuf2N3Y
& Device . 2 . ProductKey = alkORrKiwQ j
& GroupId = 6VfhebLg5i UerXep
& Common request parameters
```

Response example

```
{
  " SuccessAdd edDeviceCo unt ": 2 ,
  " ExceedTenG roupDevice Count ": 0 ,
  " ErrorMessa ge ":" 2 devices have been added , and 0
devices failed to be added .",
  " ValidDevic eCount ": 2 ,
  " AlreadyRel atedGroupD eviceCount ": 0 ,
  " RequestId ":" 671D0F8F - FDC7 - 4B12 - 93FA - 336C079C96 5A ",
  " Success ": true
}
```

2.8.5 BatchDeleteDeviceGroupRelations

Call this operation to delete devices from a group (only to delete the relationship between devices and groups, not to delete devices from IoT Platform).

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set this value to BatchDeleteDeviceGroupRelations.
Group ID	String	Yes	The group ID that is the unique identifier of the group.
Devices	List<Device>	Yes	The devices that you want to delete from the group. See the following table Device.
Common request parameters	-	Yes	see Common parameters .

Table 2-61: Device

Parameter	Type	Required	Description
ProductKey	String	Yes	The ProductKey of the device.
DeviceName	String	Yes	The DeviceName of the device.

Response parameters

Parameter	Type	Description
ValidDeviceCount	Integer	The number of valid devices that are listed in the request (the number of devices that can be deleted).
SuccessDeviceCount	Integer	The number of devices that have been deleted from the group.
AlreadyRelatedGroupDeviceCount	Integer	The number of devices that are in the group before this deletion.
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .

Example

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=BatchDeleteDeviceGroupRelations
&Device.1.DeviceName=ZHuPo6sZzv7p0zYhv31y
&Device.1.ProductKey=a1kORrKiwQj
&Device.2.DeviceName=rB4V9PDW2FCPmwuf2N3Y
&Device.2.ProductKey=a1kORrKiwQj
&GroupId=W16X8Tvdos ecZu91
&Common request parameters
```

Response example

```
{
  "SuccessDeviceCount": 2,
  "ValidDeviceCount": 2,
  "AlreadyRelatedGroupDeviceCount": 2,
  "RequestId": "8739385E-143F-4389-B900-B7DF9174CE0D",
  "Success": true
}
```

```
}
```

2.8.6 QueryDeviceGroupInfo

Call this operation to query the details of a group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>QueryDeviceGroupInfo</code> .
GroupId	String	Yes	Group ID. It is the unique identifier of the group.
Common request parameters	-	Yes	see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .
Data	Data	The group details returned when the call is successful. See the following table <code>GroupInfo</code> .

Table 2-62: GroupInfo

Parameter	Type	Description
GroupName	String	The name of the group.
UtcCreate	String	The time when the group was created.
DeviceOnline	Integer	The number of online devices in the group.
DeviceActive	Integer	The number of activated devices in the group.
DeviceCount	Integer	The total number of devices in the group.
GroupId	String	The ID of the group.

Parameter	Type	Description
GroupDesc	String	The description of the group.

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=QueryDeviceGroupInfo
&GroupId=tDQvBJqbUyHskDse
&Common request parameters
```

Response example

```
{
  "Data": {
    "DeviceOnline": 0,
    "DeviceActive": 1,
    "GroupName": "yanglv",
    "DeviceCount": 10,
    "UtcCreate": "2018-09-14T14:35:51.000Z",
    "GroupId": "tDQvBJqbUyHskDse"
  },
  "RequestId": "7411716B-A488-4EEB-9AA0-6DB05AD2491F",
  "Success": true
}
```

2.8.7 QueryDeviceGroupList

Call this operation to query groups.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>QueryDeviceGroupList</code> .
GroupName	String	No	Group name. - If you specify a group name, the group that you specified will be queried. - If you do not specify any group name, all the groups will be queried.
SuperGroupId	String	No	The ID of the parent group. If you want to query the sub-groups of a parent group, specify the parent group ID.
PageSize	Integer	No	The number of groups per page. The maximum value is 200.

Parameter	Type	Required	Description
CurrentPage	Integer	No	Specifies the page of returned results to be displayed. The default value is 1.
Common request parameters	-	Yes	see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .
PageCount	Integer	The total number of pages.
PageSize	Integer	The number of groups on each page.
CurrentPage	Integer	The current page number.
Total	Integer	The total number of groups.
Data	Data	The group information returned when the call is successful. See the following table GroupInfo.  Note: The group information is listed in reverse chronological order.

Table 2-63: GroupInfo

Parameter	Type	Description
GroupName	String	The name of the group.
UtcCreate	Date	The time when the group was created.
GroupDesc	String	The description of the group.
GroupId	String	Group ID.

Example

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=QueryDeviceGroupList
&PageSize=10
&CurrentPage=1
&Common request parameters
```

Response example

```
{
  "PageCount": 3,
  "Data": {
    "GroupInfo": [
      {
        "GroupName": "test1",
        "UtcCreate": "2018-10-09T02:58:34.000Z",
        "GroupId": "Kzt9FD8wje8oW64y"
      },
      {
        "GroupName": "test2",
        "UtcCreate": "2018-10-09T02:56:40.000Z",
        "GroupId": "0ayrSQ3DSd7uXXXC"
      },
      {
        "GroupDesc": "Test",
        "GroupName": "test3",
        "UtcCreate": "2018-09-16T05:38:27.000Z",
        "GroupId": "oWXlIQeFZtZCNsAV"
      },
      {
        "GroupName": "ylv0915",
        "UtcCreate": "2018-09-15T04:51:56.000Z",
        "GroupId": "SfEiVapLPUjBVvSq"
      },
      {
        "GroupName": "ydlv",
        "UtcCreate": "2018-09-14T14:35:51.000Z",
        "GroupId": "z2S2h9NsDTZmH8MR"
      },
      {
        "GroupName": "ldh_group_3",
        "UtcCreate": "2018-09-14T12:26:20.000Z",
        "GroupId": "chn5fkjinXGc7pGl"
      },
      {
        "GroupDesc": "ddd",
        "GroupName": "ylvgisbim",
        "UtcCreate": "2018-09-14T11:41:20.000Z",
        "GroupId": "ncUZ8DjWYaB9Rx10"
      },
      {
        "GroupName": "abc",
        "UtcCreate": "2018-09-14T09:14:30.000Z",
        "GroupId": "zpdvwxyzBdt4FljYf"
      },
      {
        "GroupName": "test11",
        "UtcCreate": "2018-09-14T07:22:39.000Z",
        "GroupId": "BTaudF16X2xKQBNa"
      }
    ]
  }
}
```

```

    },
    {
        " GroupName ":" testy ",
        " UtcCreate ":" 2018 - 09 - 14T01 : 58 : 06 . 000Z ",
        " GroupId ":" PrTm3V0egg PwRUKQ "
    }
]
},
" PageSize ": 10 ,
" RequestId ":" BEFCA316 - D6C7 - 470C - 81ED - 1FF4FFD4AA 0D ",
" CurrentPage ": 1 ,
" Success ": true ,
" Total ": 24
}

```

2.8.8 SetDeviceGroupTags

Call this operation to create, update, or delete tags of a group.

Limits

You can create up to 100 tags for a group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>SetDeviceGroupTags</code> .
GroupId	String	Yes	The unique identifier of a group.
TagString	String	Yes	Data of tags in JSON format. TagString consists of tag keys and tag values. Separate tags with commas, for example, <code>TagString = "[{" tagKey ":" hh ", " tagValue ":" rr "}]"</code> . See the following table TagString . If you want to update a tag, enter the target tag key and specify a new tag value. The new tag value will overwrite the previous tag value. If you want to delete a tag, do not enter the target tag key or tag value in the request.
Common request parameters	-	Yes	See Common parameters .

Table 2-64: TagString

Parameter	Type	Required	Description
tagKey	String	Yes	The key of the tag. It can contain English letters, numbers, and dots (.) and be 2-30 characters in length.
tagValue	String	Yes	The value of the tag. It can contain Chinese characters, English letters, numbers, underscores (_), and hyphens (-), and cannot exceed 128 characters . A Chinese character is counted as 2 characters.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=SetDeviceGroupTags
&GroupId=W16X8Tvdos_ecZu91
&TagString=%5B%7B%22tagKey%22%3A%22sdfsdf%22%2C%22tagValue%22%3A%22%E6%98%AF%E9%9D%9E%E5%BE%97%E5%A4%B1%22%7D%5D
&Common request parameters
```

Response example

· JSON format

```
{
  "RequestId": "12CFDAF1-99D9-42E0-8C2F-F281DA5E8953",
  "Success": true
}
```

```
}
```

- XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< SetDeviceGroupTagsResponse >
  < RequestId > 12CFDAF1 - 99D9 - 42E0 - 8C2F - F281DA5E89 53 </
  RequestId >
  < Success > true </ Success >
</ SetDeviceGroupTagsResponse >
```

2.8.9 QueryDeviceGroupTagList

Call this operation to query the tags of a group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>QueryDeviceGroupTagList</code> .
GroupId	String	Yes	Group ID, that is the unique identifier of the group.
Common request parameters	-	Yes	see Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	For error codes, see Error codes .
Data	Data	The list of group tags returned when the call is successful. For more information, see the following table <code>GroupTagInfo</code> .

Table 2-65: GroupTagInfo

Parameter	Type	Description
TagKey	String	The key of the tag.
TagValue	String	The value of the tag.

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=QueryDeviceGroupTagList
&GroupId=W16X8Tvdos-ecZu91
&CommonRequestParameters
```

Response example

```
{
  "Data": {
    "GroupTagInfo": [
      {
        "TagValue": "bulb",
        "TagKey": "room1"
      }
    ]
  },
  "RequestId": "214154FF-9D47-4E3F-AAAD-F4CE67F41060",
  "Success": true
}
```

2.8.10 QueryDeviceGroupByDevice

Call this operation to query the groups that a device is in.

Limit

Currently, a device can be included in up to ten groups.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to QueryDeviceGroupByDevice.
ProductKey	String	Yes	The unique identifier of the product that the device belongs to.
DeviceName	String	Yes	The device name.

Parameter	Type	Required	Description
Common request parameters	-	Yes	See Common parameters

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
Code	String	The error code returned when the call fails. See Error codes .
ErrorMessage	String	The error message returned when the call fails.
GroupInfos	List<GroupInfo>	The group information returned when the call is successful. See the following table GroupInfo.

Table 2-66: GroupInfo

Parameter	Type	Description
GroupId	String	The group ID.
GroupName	String	The group name.
UtcCreate	String	The time when the group was created.
GroupDesc	String	The description of the group.

Examples

Request example

```
http://iot.cn-shanghai.aliyuncs.com/?Action=QueryDeviceGroupByDeviceName&DeviceName=test456&ProductKey=a1SKk9K****
```

& Public Request Parameters

Response example

• JSON format

```
{
  "RequestId": "7941C8CD - 7764 - 4A94 - 8CD9 - E2762D4A73 AC ",
  "GroupInfos": {
    "GroupInfo": [
      {
        "GroupDesc": "father desc ",
        "GroupName": "father1543 152336554 ",
        "UtcCreate": "2018 - 11 - 25T13 : 25 : 37 . 000Z ",
        "GroupId": "6a3FF2XE2B KayWsM "
      }
    ]
  },
  "Success": true
}
```

• XML format

```
<? xml version="1.0" encoding="UTF-8" ? >
< QueryDevic eGroupByDe vice >
  < RequestId > 7941C8CD - 7764 - 4A94 - 8CD9 - E2762D4A73 AC </
  RequestId >
  < GroupInfos >
    < GroupInfo >
      < GroupDesc > father desc </ GroupDesc >
      < GroupName > father1543 152336554 </ GroupName >
      < UtcCreate > 2018 - 11 - 25T13 : 25 : 37 . 000Z </ UtcCreate >
      < GroupId > 6a3FF2XE2B KayWsM </ GroupId >
    </ GroupInfo >
  </ GroupInfos >
  < Success > true </ Success >
</ QueryDevic eGroupByDe vice >
```

2.8.11 QuerySuperDeviceGroup

Call this operation to query the parent group of a subgroup.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that is to be performed. Set the value to <code>QuerySuperDeviceGroup</code> .
GroupId	String	Yes	The unique identifier of the subgroup.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	See Error Codes .
Data	Data	The parent group information returned when the call is successful. For more information, see the following table GroupInfo.

Table 2-67: GroupInfo

Parameter	Type	Description
GroupName	String	The parent group name.
GroupId	String	The unique identifier of the parent group.
GroupDesc	String	The description of the parent group.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QuerySuperDeviceGroup
&GroupId=DMoI2Kby5m62Sirz
&Common request parameters
```

Response example

· JSON format

```
{
  "Data": {
    "GroupName": "IOTTEST",
    "GroupId": "tDQvBJqbUyHskDse",
    "GroupDesc": "A test."
  },
  "RequestId": "7411716B-A488-4EEB-9AA0-6DB05AD2491F",
  "Success": true
}
```

```
}
```

- XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< QuerySuper DeviceGroup pResponse >
  < Data >
    < GroupName > IOTTEST </ GroupName >
    < GroupId > tDQvBJqbUy HskDse </ GroupId >
    < GroupDesc > A test . </ GroupDesc >
  </ Data >
  < RequestId > 7411716B - A488 - 4EEB - 9AA0 - 6DB05AD249 1F </
  RequestId >
  < Success > true </ Success >
</ QuerySuper DeviceGroup pResponse >
```

2.8.12 QueryDeviceListByDeviceGroup

Call this operation to query all the devices in a device group.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that is to be performed. Set the value to <code>QueryDeviceListByDeviceGroup</code> .
GroupId	String	Yes	The unique identifier of a group.
CurrentPage	Integer	No	The page of returned results to be displayed. The default value is 1.
PageSize	Integer	No	The number of devices displayed per page in the response. The default value is 10.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of true indicates that the call is successful. A value of false indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.

Parameter	Type	Description
Code	String	For information about error codes, see Error codes .
Page	Integer	The current page number.
PageSize	Integer	The number of devices displayed per page.
PageCount	Integer	The total number of pages.
Total	Integer	The total number of devices.
Data	List	The information of devices returned when the call is successful. For more information, see the following table.

Table 2-68: SimpleDeviceInfo

Parameter	Type	Description
ProductName	String	The name of the product to which the device belongs.
ProductKey	String	The unique identifier of the product.
DeviceName	String	The device name.
IoId	String	The globally unique ID issued by IoT Platform to the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryDeviceListByDeviceGroup
&GroupId=7DIgqIlIjnhBsrA
&PublicRequestParameters
```

Response example

· JSON format

```
{
  "PageCount": 1,
  "Data": {
    "SimpleDeviceInfo": [
      {
        "DeviceName": "ios_1207_08",
        "ProductKey": "a1hWjHDWubF",
        "ProductName": "WIFIdevice",
        "IoId": "TfmUAeJjQQhCPH84UVNn0010c66100"
      },
      {
        "DeviceName": "ios_1207_07",
        "ProductKey": "a1hWjHDWubF",

```

```

        " ProductName ": " WIFIgateway ",
        " IotId ": " wVPeAksabo XBIRgvZNHQ 0010310800 "
    },
    {
        " DeviceName ": " E1IPK25iL4 CTOwnuI2yt ",
        " ProductKey ": " almV8bKjeP 6 ",
        " ProductName ": " yanlv ",
        " IotId ": " E1IPK25iL4 CTOwnuI2yt 0010598d00 "
    }
]
},
" PageSize ": 10 ,
" Page ": 1 ,
" RequestId ": " B1A921D9 - 1061 - 4D45 - 9F12 - EA6B0FDEDE 30 ",
" Success ": true ,
" Total ": 3
}

```

• XML format

```

<? xml version=" 1 . 0 " encoding =" UTF - 8 " ? >
< QueryDeviceListByDeviceGroup >
  < PageCount > 1 </ PageCount >
  < Data >
    < SimpleDeviceInfo >
      < DeviceName > ios_1207_0 8 </ DeviceName >
      < ProductKey > alhWjHDWUb F </ ProductKey >
      < ProductName > WIFIdevice </ ProductName >
      < IotId > TfmUAeJjQQ hCPH84UVNn 0010c66100 </ IotId >
    </ SimpleDeviceInfo >
    < SimpleDeviceInfo >
      < DeviceName > ios_1207_0 7 </ DeviceName >
      < ProductKey > alhWjHDWUb F </ ProductKey >
      < ProductName > WIFIgateway </ ProductName >
      < IotId > wVPeAksabo XBIRgvZNHQ 0010310800 </ IotId >
    </ SimpleDeviceInfo >
    < SimpleDeviceInfo >
      < DeviceName > E1IPK25iL4 CTOwnuI2yt </ DeviceName >
      < ProductKey > almV8bKjeP 6 </ ProductKey >
      < ProductName > yanlv </ ProductName >
      < IotId > E1IPK25iL4 CTOwnuI2yt 0010598d00 </ IotId >
    </ SimpleDeviceInfo >
  </ Data >
  < PageSize > 10 </ PageSize >
  < Page > 1 </ Page >
  < RequestId > B1A921D9 - 1061 - 4D45 - 9F12 - EA6B0FDEDE 30 </
RequestId >
  < Success > true </ Success >
  < Total > 3 </ Total >

```

```
</ QueryDeviceListByDeviceGroup >
```

2.8.13 QueryDeviceGroupByTags

You can call this operation to query device groups by tags.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryDeviceGroupByTags</code> .
Tags	List	Yes	The list of tags. A tag consists of a TagKey and a TagValue. For more information about tags, see the table Tag. - You can enter both TagKey and TagValue. - You can enter TagKey only.
CurrentPage	Integer	No	The page of returned results to be displayed. Default value: 1.
PageSize	Integer	No	The number of device groups displayed per page. Default value: 10.
Common request parameters	-	Yes	See Common parameters .

Table 2-69: Tag

Parameter	Type	Required	Description
TagKey	String	Yes	The key of a tag.
TagValue	String	No	The value of a tag.

Response parameters

Name	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Name	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
PageCount	Integer	The total number of pages.
PageSize	Integer	The number of device groups displayed per page.
Page	Integer	The current page number.
Total	Integer	The total number of device groups.
Data	Data	The device groups returned when the call is successful. For more information, see the table DeviceGroup.

Table 2-70: DeviceGroup

Parameter	Type	Description
GroupName	String	The name of a device group.
GroupID	String	The ID of a device group.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?& Action =
QueryDeviceGroupByTags
& Tag . 1 . TagKey = group
& Tag . 1 . TagValue = tag
& CurrentPage = 1
& PageSize = 10
& Common request parameters
```

Response example

JSON format

```
{
  "PageCount": 1,
  "Data": {
    "DeviceGroup": [
      {
        "GroupName": "test11",
        "GroupId": "Z0ElGF5aqc0thBtW"
      }
    ]
  },
  "Page": 1,
  "PageSize": 10,
```

```
{
  "RequestId": "9599EE98 - 1642 - 4FCD - BFC4 - 039E458A46 93",
  "Success": true,
  "Total": 1
}
```

XML format

```
<? xml version="1.0" encoding="utf-8"? >
< QueryDeviceGroupByTags >
  < PageCount > 1 </ PageCount >
  < Data >
    < DeviceGroup >
      < GroupName > test11 </ GroupName >
      < GroupId > Z0ElGF5aqc 0thBtW </ GroupId >
    </ DeviceGroup >
  </ Data >
  < Page > 1 </ Page >
  < PageSize > 10 </ PageSize >
  < RequestId > 9599EE98 - 1642 - 4FCD - BFC4 - 039E458A46 93 </
RequestId >
  < Success > true </ Success >
  < Total > 1 </ Total >
</ QueryDeviceGroupByTags >
```

2.9 Manage Topics

2.9.1 CreateProductTopic

Call this operation to create a topic category for a specified product.

Limits

A product can have up to 50 custom topic categories.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to CreateProductTopic.
ProductKey	String	Yes	The unique identifier of the product for which you want to create a topic category.

Parameter	Type	Required	Description
TopicShortName	String	Yes	The custom category hierarchy in the topic category. By default, a topic category contains two system defined category hierarchies: <i>productKey</i> and <i>\${deviceName}</i>. Forward slashes (/) are used to delimit the topic hierarchies. The format of a topic category is <i>productKey/\${deviceName}/topicShortName</i>.  Note: The name of each category hierarchy can contain English letters, digits, and underscores (_), and cannot be empty.
Operation	String	Yes	Operation permissions of devices on the topic category. Value options: SUB : Subscribe. Devices can subscribe to the topics of this category. PUB : Publish. Devices can publish messages using the topics of this category. ALL : Subscribe and publish. Devices can subscribe to and publish messages to the topics of this category.
Desc	String	No	The description of the topic category. You can enter a description with up to 100 characters.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.

Parameter	Type	Description
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
TopicId	Long	The topic identifier that is generated by IoT Platform for the created topic category when the call is successful.  Note: Save the information for future reference. You need to provide the topic identifier when calling the operation related to the topic category.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
CreateProductTopic
&ProductKey=al*****
&TopicShortName=submit
&Operation=PUB
&Desc=submit a test topic
&PublicRequestParameters
```

Response example

```
{
  "RequestId": "FCC27691 - 9151 - 4B93 - 9622 - 9C90F30542 EC ",
  "Success": true,
  "TopicId": 10000
}
```

2.9.2 UpdateProductTopic

Call this operation to update a specified topic category.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to UpdateProductTopic.

Parameter	Type	Required	Description
TopicId	Long	Yes	The ID of the topic category that you want to update.
TopicShortName	String	No	The custom hierarchy in the topic category. The format of a topic category is <i>productKey/ \${deviceName} / topicShortName</i>. By default, a topic category contains two system-defined category hierarchies: <i>productKey</i> and <i>\${deviceName}</i> . Forward slashes (/) are used to delimit the topic hierarchies.  Note: Each category hierarchy can contain English letters, digits, and underscores (_), and cannot be empty.
Operation	String	No	The operation that devices can perform on the topics of this category. Value options: SUB : Subscribe. Devices can subscribe to the topics of this category. PUB : Publish. Devices can publish messages using the topics of this category. ALL : Subscribe and publish. Devices can subscribe to and publish messages to the topics of this category.
Desc	String	No	The description of the topic category. You can enter a description with up to 100 characters.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.

Parameter	Type	Description
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
UpdateProductTopic
&ProductKey=al*****
&TopicId=10000
&TopicShortName=resubmit
&Operation=PUB
&Desc=resubmit a test topic
&PublicRequestParameters
```

Response example

```
{
  "RequestId":"FCC27691-9151-4B93-9622-9C90F30542-EC",
  "Success":true
}
```

2.9.3 QueryProductTopic

Call this operation to query the topic categories of a specified product.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryProductTopic</code> .
ProductKey	String	Yes	The key of the product whose topic categories you want to query.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
Data	ProductTopicInfo	The list of topic categories returned when the call is successful. For more information, see ProductTopicInfo .

Table 2-71: ProductTopicInfo

Parameter	Type	Description
ProductKey	String	The product key, which is the unique identifier of the product
Id	String	The ID of the topic category.
TopicShortName	String	The topic category name except for the topic hierarchies of <i>productKey</i> and <i>\${deviceName}</i> .
Operation	String	The operation that devices of the product can perform on this topic category. Values include: 0 : Publish. Devices can publish messages using the topics of this category. 1 : Subscribe. Devices can subscribe to the topics of this category. 2 : Publish and subscribe. Devices can publish messages to and subscribe to the topics of this category.
Desc	String	The description of the topic category.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryProductTopic
&ProductKey=HMyB*****
&PublicRequestParameters
```

Response example

```
{
  "Data": [{
    "Id": "10000",
    "Operation": "0",
    "ProductKey": "HMyB***",
    "TopicShortName": "/HMyB***/${deviceName}/update"
  },
  {
    "Id": "10001",
    "Operation": "2",
    "ProductKey": "HMyB***",
    "TopicShortName": "/HMyB***/${deviceName}/update/"
  },
  {
    "Id": "10002",
    "Operation": "1",
    "ProductKey": "HMyB***",
    "TopicShortName": "/HMyB***/${deviceName}/get"
  }
],
  "RequestId": "B953EAFF-CFF6-4FF8-BC94-8B89F018E4DD",
  "Success": true
}
```

2.9.4 DeleteProductTopic

Call this operation to delete a specified topic category.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to DeleteProductTopic.
TopicId	Long	Yes	The ID of the topic category that you want to delete.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteProductTopic
&TopicId=10000
&PublicRequestParameters
```

Response example

```
{
  "RequestId": "FCC27691 - 9151 - 4B93 - 9622 - 9C90F30542 EC ",
  "Success": true
}
```

2.9.5 CreateTopicRouteTable

Call this operation to create message routing relationships between topics.

Limits

- A source topic can have a maximum of 100 target topics.
- The device to which the source topic belongs must be an activated device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>CreateTopicRouteTable</code> .

Parameter	Type	Required	Description
SrcTopic	String	Yes	The message source topic. For example, <code>SrcTopic = / x7aWKW9 ****/ testDataTo DataHub / update .</code>  Note: System topics (beginning with sys) are not supported.
DstTopic	List	Yes	The list of target topics that subscribe to SrcTopic for messages. The value of this parameter must be in array format, even if there is only one target topic. For example, <code>DstTopic . 1 = / x7aWKW9 ****/ deviceName Test1 / add , DstTopic . 2 = / x7aWKW9 ****/ deviceName Test2 / delete .</code>  Note: System topics (beginning with sys) are not supported.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Parameter	Type	Description
FailureTopics	List	The list of failed topics. The routing relationships between these topics and the source topic have not been built.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=CreateTopicRouteTable
&SrcTopic=%2F%2Fx7aWKW9****%2FtestDataToDataHub%2Fupdate
&DstTopic.1=%2F%2Fx7aWKW9****%2FdeviceNameTest1%2Fadd
&DstTopic.2=%2F%2Fx7aWKW9****%2FdeviceNameTest2%2Fdelete
&PublicRequestParameters
```

Response example

```
{
  "RequestId ":" FCC27691 - 9151 - 4B93 - 9622 - 9C90F30542  EC ",
  "Success ": true ,
  "FailureTopics ":[]
}
```

2.9.6 DeleteTopicRouteTable

Call this operation to delete message routing relationships between topics.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteTopicRouteTable</code> .
SrcTopic	String	Yes	The message source topic. For example, <code>SrcTopic . 1 =/ x7aWKW9 ****/ testDataTo DataHub / update</code> .
DstTopic	List	Yes	The target topics that you want to delete. Target topics are topics that subscribe to the <code>SrcTopic</code> for messages. For example, <code>DstTopic . 1 =/ x7aWKW9 ****/ deviceName Test1 / add</code> , <code>DstTopic . 2 =/ x7aWKW9 ****/ deviceName Test2 / delete</code> .

Parameter	Type	Required	Description
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
FailureTopics	List	The failed topics whose message routing relationships with the source topic have not been deleted.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteTopicRouteTable
&SrcTopic=%2F7aWkW94bb8%2FtestDataToDataHub%2Fupdate
&DstTopic.1=%2F7aWkW94bb8%2FdeviceNameTest1%2Fadd
&DstTopic.2=%2F7aWkW94bb8%2FdeviceNameTest2%2Fdelete
&PublicRequestParameters
```

Response example

```
{
  "RequestId": "FCC27691-9151-4B93-9622-9C90F30542-EC",
  "Success": true,
  "FailureTopics": []
}
```

```
}
```

2.9.7 QueryTopicReverseRouteTable

Call this operation to query the message source topics that are subscribed to by a specified target topic.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryTopicReverseRouteTable</code> .
Topic	String	Yes	The target topic, which receives messages from the source topics.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
SrcTopics	List	The list of source topics returned when the call is successful.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
QueryTopicReverseRouteTable
&Topic=%2F7aWKW94-bb8%2FtestDataToDataHub%2Fupdate
```

& Public Request Parameters

Response example

```
{
  "RequestId ":" FCC27691 - 9151 - 4B93 - 9622 - 9C90F30542  EC ",
  "Success ": true ,
  "SrcTopics ":["/ CXi4 ***/ device1 / get ","/ CXi4 ***/ device4 /
get "]
}
```

2.9.8 QueryTopicRouteTable

Call this operation to query the target topics that subscribe to a specified source topic. This process is known as querying the route table for the specified source topic. The operation is only used to query user topics.

Request Parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>QueryTopicRouteTable</code> .
Topic	String	Yes	The source topic, which publishes messages.
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Parameter	Type	Description
DstTopics	List	The list of target topics returned when the call is successful.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=QueryTopicRouteTable&Topic=%2F%7Bx7aWKW94bb8%2FtestDataToDataHub%2Fupdate&PublicRequestParameters
```

Response example

```
{
    " RequestId ":" FCC27691 - 9151 - 4B93 - 9622 - 9C90F30542  EC ",
    " Success ": true ,
    " DstTopics ":["/ CXi4 ***/ device2 / get ","/ CXi4 ***/ device3 /
get "]
}
```

2.10 Rules engine

2.10.1 CreateRule

Call this operation to create a rule for a specified topic.

Request parameters



Note:

If you want to start a rule, you are required to provide the following three parameters: ProductKey , ShortTopic ,and Select .

Parameter	Type	Required?	Description
Action	String	Yes	The operation that you want to perform. Value: CreateRule
Name	String	Yes	The rule name. The name can be 4 to 30 characters in length and can contain English letters, digits, and underscores (_).
ProductKey	String	No	The unique identifier of the product that uses this rule.

Parameter	Type	Required?	Description
ShortTopic	String	No	The topic (does not contain the ProductKey hierarchy) to which this rule applies. A ShortTopic is in the following format: <code>\${ deviceName } / topicShort Name . \${deviceName}</code> is the name of the specified device, and <code>topicShortName</code> is the custom hierarchy of the topic. You can call QueryDevice to query the devices of a product and view the DeviceName values. You can call QueryProductTopic to query all the topic categories of a product and view the TopicShort Name values. Example: <code>\${ deviceName } / thing / event / property / post</code> is the ShortTopic of a system topic. For the <code>\${ deviceName }</code> hierarchy, you can use the <code>+</code> symbol to include all the device names under the specified product. <code>\${ deviceName } / user / get</code> is the ShortTopic of a custom topic. Wildcards <code>+</code> and <code>#</code> are supported when you specify custom topics. - For the <code>\${ deviceName }</code> hierarchy, you can use the <code>+</code> symbol to include all the device names under the specified product. - Then for the following hierarchies, you can specify <code>/ user / #</code>. <code>#</code> includes all the hierarchies following <code>/ user</code>. For information about to use wildcards in topics, see Wildcards in topics. <code>\${ deviceName }</code> is the ShortTopic

Parameter	Type	Required?	Description
Select	String	No	The SQL SELECT statement. For more information, see SQL syntax.  Note: The value is the value of <code>SELECT</code> in the SQL statements. For example, if the <code>SELECT</code> statement is <code>Select a , b , c</code> , set the parameter value to <code>a , b , c</code> .
RuleDesc	String	No	The description of the rule. You can enter a description with up to 100 characters.
DataType	String	No	The format of the data to be processed by the rule. This data type must be the same as that of the device data to be processed . Options: • JSON • BINARY  Note: If you select <code>BINARY</code> , you cannot set the parameter <code>TopicType</code> to 0 (indicating system topics), and cannot set Table Store or ApsaraDB for RDS as the data forwarding destination. Default data type: JSON
Where	String	No	The trigger of the rule. For more information, see the SQL syntax.  Note: The value is the value of <code>WHERE</code> in the SQL statements. For example, if the <code>WHERE</code> clause is <code>Where a > 10</code> , set the parameter value to <code>a > 10</code> .

Parameter	Type	Required?	Description
TopicType	Integer	Yes	0 : Indicates system topics, including: / thing / event / property / post This category of topics contain property messages reported by devices. / thing / event / \${ tsl . event . identifier } / post Values of the variable \${ tsl . event . identifier } are the identifiers of events in TSL. This category of topics contain event messages reported by devices. - thing / lifecycle This category of topics contain device lifecycle change messages. / thing / downlink / reply / message This category of topics contain messages that devices send to IoT Platform as responses to commands from IoT Platform. / thing / list / found This category of topics contain sub-device information reported by gateways. - thing / topo / lifecycle This category of topics contain device topological relationship change messages. 1 : Indicates custom topics. 2 : Indicates the topic for device status change messages. Topic format: / as / mqtt / status / \${ productKey } / \${ deviceName }.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
RuleId	Long	The rule ID that is the unique identifier of the rule generated by the rules engine when the call is successful.  Note: Keep this information confidential. You are required to provide the rule ID when you call operations related to this rule.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=CreateRule
&Name=iot_test1
&ProductKey=al*****
&ShortTopic=open_api_d ev / get
&Select=a,b,c
&RuleDesc=rule test
&DataType=JSON
&Where=a>10
&TopicType=1
&Common request parameters
```

Response example

· JSON format

```
{
  "RequestId": "E4C0FF92 - 2A86 - 41DB - 92D3 - 73B60310D2 5E",
  "RuleId": 1000,
  "Success": true
}
```

```
}
```

- XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ? >
< CreateRule Response >
  < RequestId > E4C0FF92 - 2A86 - 41DB - 92D3 - 73B60310D2 5E </
  RequestId >
  < RuleId > 1000 </ RuleId >
  < Success > true </ Success >
</ CreateRule Response >
```

2.10.2 CreateRuleAction

Call this operation to create a rule action for a specified rule to forward processed topic data to another topic or to another supported Alibaba Cloud services.

Limits

For information about the regions and supported target products, see [Regions and zones](#).

After you call the `CreateRule` interface to create a rule, you can call this interface to create specific rule actions for the rule and define message forwarding targets.

You can create up to ten rule actions for a rule.

Using this API, you can define actions to forward topic messages to Message Service, Function Compute, and Table Store.



Note:

If you want to forward messages to ApsaraDB for RDS, you define the rule actions in the IoT Platform console.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The action that you want to perform. Set the value to <code>CreateRule Action</code> .
RuleId	Long	Yes	The ID of the rule for which you want to create an action.

Parameter	Type	Required	Description
Type	String	Yes	The rule action type indicates the target to which data will be forwarded. Value options: MNS : Forwards data to a theme of Message Service (MNS) for message transmission. FC : Forwards data to a function of Function Compute for event computing. OTS : Forwards data to a Table Store instance for NoSQL data storage. REPUBLISH : Forwards data to another topic.
Configuration	String	Yes	The configurations of the rule action. The configurations for different rule action types are different. The following section describes their respective configurations.
Common Request Parameters	-	Yes	See Common parameters .

Configuration of the REPUBLISH type

Table 2-72: REPUBLISH Configuration

Parameter	Description
topic	The target topic (a system-defined topic or a custom topic). Supported system-defined topics for Pro Edition devices are as follows: <code>/sys/\${YourProductKey}/\${YourDeviceName}/thing/service/property/set</code> <code>/sys/\${YourProductKey}/\${YourDeviceName}/thing/service/\${tsl.service.identifier}</code>. the variable value of <code>\${tsl.service.identifier}</code> is from the TSL of the device product.

Parameter	Description
topicType	The topic type. 0 : Indicates the topic is a system-defined topic of a Pro Edition product. 1 : Indicates the topic is a custom topic.

Configuration example of the REPUBLISH type

```
A system - defined topic : {" topic":"/ sys / a1TXXXXXWS N /
xxx_cache001 / thing / service / property / set "," topicType ": 0
}
A custom topic : {" topic":"/ a1TXXXXXWS N / xxx_cache001 /
user / update "," topicType ": 1 }
```

Configuration of the OTS type

Table 2-73: OTS Configuration

Parameter	Description
instanceName	The name of the Table Store instance that is used to receive data from IoT Platform.
tableName	The name of the data table that is used to receive data from IoT Platform.
regionName	The region ID where the target instance is located. See Regions and zones for region IDs.
role	The information of the role to be authorized to IoT Platform. You assign a system service role to IoT Platform to authorize its access to your Table Store instance. An example of the authorized role information is as follows: <pre>{ " roleArn ": " acs : ram :: 6541 ***: role / aliyuniota ccessingot srole ", " roleName ": " AliyunIOTA ccessingOT SRole " }</pre> Replace <code>6541 ***</code> with your account ID. Log on to the console, and you can see your account ID on the Security Settings page. <code>AliyunIOTA ccessingOT SRole</code> is a service role specified in RAM. The role is assigned to IoT Platform for Table Store access. Log on to the RAM console, and on the page of Role Management, you can manage your roles.

Parameter	Description
primaryKey s	Primary keys in the target table. For more information, see PrimaryKeys .

Table 2-74: PrimaryKeys

Parameter	Description
columnType	The type of the primary key. Value options: INTEGER : Integer. STRING : String. BINARY : Binary.
columnName	The name of the primary key.
columnValue	The primary key value.
option	Whether the primary key is an automatically incrementing column or not. The value can be AUTO_INCREMENT or empty. When the columnType is INTEGER and the value of option is AUTO_INCREMENT , The primary key is an auto-incrementing column.

Configuration example of the OTS type

```
{
  "instanceName": "testaaa",
  "tableName": "tt",
  "primaryKeys": [
    {
      "columnType": "STRING",
      "columnName": "ttt",
      "columnValue": "${tt}",
      "option": ""
    },
    {
      "columnType": "INTEGER",
      "columnName": "id",
      "columnValue": "",
      "option": "AUTO_INCREMENT"
    }
  ],
  "regionName": "cn-shanghai",
  "role": {
    "roleArn": "acs:ram::5645:***:role/aliyuniotacccessingotsrole",
    "roleName": "AliyunIOTACccessingOTSRole"
  }
}
```

```
}

```

Configuration of the MNS type

Table 2-75: MNS Configuration

Parameter	Description
themeName	The name of the target Message Service theme that is used to receive data from IoT Platform.
regionName	The region ID where the target Message Service theme is located. See Regions and zones for region IDs.
role	The information of the role to be authorized to IoT Platform. You assign a system service role to IoT Platform to authorize its access to your Message Service. An example of the authorized role information is as follows: <pre>{ "roleArn": "acs:ram::6541***:role/aliyuniota_cccessingmn_srole", "roleName": "AliyunIOTA_cccessingMN_SRole" }</pre> Replace <code>6541 ***</code> with your account ID. Log on to the console, and you can see your account ID on the Security Settings page. <code>AliyunIOTA_cccessingMN_SRole</code> is a service role specified in RAM. The role is assigned to IoT Platform for Message Service access. Log on to the RAM console, and on the page of Role Management, you can manage your roles.

Configuration example of the MNS type

```
{
  "themeName": "mns - test - topic1",
  "regionName": "cn - shanghai",
  "role": {
    "roleArn": "acs:ram::5645***:role/aliyuniota_cccessingmn_srole",
    "roleName": "AliyunIOTA_cccessingMN_SRole"
  }
}
```



```
}

```

Configuration of the FC type

Table 2-76: FC Configuration

Parameter	Description
functionName	The name of the target function in Function Compute that is used to receive data from IoT Platform.
serviceName	The name of the service in Function Compute.
regionName	The region ID where the target function of Function Compute is located. See Regions and zones for region IDs.
role	The information of the role to be authorized to IoT Platform. You assign a system service role to IoT Platform to authorize its access to your Function Compute. An example of the authorized role information is as follows: <pre>{ "roleArn": "acs:ram::6541***:role/aliyuniota_cccessingfc_role", "roleName": "AliyunIOTA_cccessingFC_Role" }</pre> Replace <code>6541 ***</code> with your account ID. Log on to the console, and you can see your account ID on the Security Settings page. <code>AliyunIOTA_cccessingFC_Role</code> is a service role specified in RAM. The role is assigned to IoT Platform for Function Compute access. Log on to the RAM console, and on the page of Role Management, you can manage your roles.

Configuration example of the FC type

```
{
  "regionName": "cn-shanghai",
  "role": {
    "roleArn": "acs:ram::5645***:role/aliyuniota_cccessingfc_role",
    "roleName": "AliyunIOTA_cccessingFC_Role"
  },
  "functionName": "weatherForecast",
  "serviceName": "weather"
}
```

```
}
```

Response Parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
ActionId	Long	Rule action ID generated by Rules Engine for an action when the call succeeds. It is the identifier of the action.  Note: Save the action ID for future reference. When you call APIs related to this rule action, you are required to provide the ID.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=CreateRuleAction&RuleId=1000&Type=REPUBLISH&Configuration={"topic":"/a1-*****/device1/get","topicType":1}&PublicRequestParameters
```

Response example

```
{
  "RequestId": "21D327AF-A7DE-4E59-B5D1-ACAC8C024555",
  "ActionId": 10003,
  "Success": true
}
```

```
}
```

2.10.3 DeleteRule

Call this operation to delete a specified rule.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteRule</code> .
RuleId	Long	Yes	The ID of the rule that you want to delete.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteRule
&RuleId=1000
&PublicRequestParameters
```

Response example

```
{
  "RequestId": "A8F48485-44B9-40D8-A56D-F716F384F387",
  "Success": true
}
```

```
}
```

2.10.4 DeleteRuleAction

Call this operation to delete a specified rule action.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>DeleteRule Action</code> .
ActionId	Long	Yes	The ID of the rule action that you want to delete.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=DeleteRuleAction&ActionId=10001&PublicRequestParameters
```

Response example

```
{  "RequestId": "8FC9E36B-E0DC-4802-84EE-184E255B4E95",  "Success": true}
```

```
}
```

2.10.5 GetRule

Call this operation to query details about a specified rule.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>GetRule</code> .
RuleId	Long	Yes	The ID of the rule that you want to query.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
RuleInfo	RuleInfo	The rule details returned when the call is successful. For more information, see the following table RuleInfo.

Table 2-77: RuleInfo

Parameter	Type	Description
CreateUserId	Long	The ID of the user who created this rule.
Created	String	The CST time when the rule was created.

Parameter	Type	Description
DataType	String	The type of data that this rule processes. Values include: <code>JSON</code> and <code>BINARY</code> .
Id	Long	The rule ID.
Modified	String	The most recent time when the rule was updated.
Name	String	The rule name.
ProductKey	String	The unique identifier of the product that uses this rule.
RuleDesc	String	The description of the rule.
Select	String	The value of <code>SELECT</code> in the SQL statements of the rule.
ShortTopic	String	The topic (does not contain the <code>ProductKey</code> hierarchy) to which this rule applies. A <code>ShortTopic</code> is in the following format: <code>\${deviceName }/ topicShort Name</code> . <code>\${deviceName}</code> is the name of the specified device, and <code>topicShortName</code> is the custom hierarchy of the topic.
Status	String	The running status of this rule. Values: <code>RUNNING</code> : The rule is running. <code>STOP</code> : The rule is disabled.
Topic	String	The full name of the topic to which this rule applies. The topic name is in the format of <code>\${ productKey }/\${ deviceName }/ topicShort Name</code> .
Where	String	The value of <code>WHERE</code> in the SQL statements of this rule.

Parameter	Type	Description
topicType	Integer	If you have completed the SQL statements for the rule, the returned values are: · 0 : Indicates the topic is an upstream topic of a Pro Edition product. · 1 : Indicates the topic is a custom topic. · 2 : Indicates the topic of device status change information. If you have not set SQL statements for the rule, the returned value is - 1 .
UtcCreated	String	The UTC time when the rule was created.
UtcModified	String	The most recent time when the rule was updated.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=GetRule
&RuleId=1000
&PublicRequestParameters
```

Response example

· JSON format

```
{
  "RequestId": "58D4CEC0-3E95-4DBE-AFC1-809D1400E52F",
  "Success": true,
  "RuleInfo": {
    "DataType": "JSON",
    "ShortTopic": "+/#",
    "ProductKey": "a1KiV*****",
    "UtcModified": "2019-02-28T06:20:58.000Z",
    "CreateUserId": "12*****85529123",
    "UtcCreated": "2019-02-28T06:14:33.000Z",
    "Name": "iotrules",
    "Status": "STOP",
    "Select": "deviceName() as deviceName",
    "Created": "Thu Feb 28 14:14:33 CST 2019",
    "Modified": "Thu Feb 28 14:20:58 CST 2019",
    "TopicType": 1,
    "Topic": "/a1KiV*****/+/#",
    "Id": 100000
  }
}
```

```
}
```

• XML format

```
<? xml version =" 1 . 0 " encoding =" UTF - 8 " ?>
< GetRuleRes ponse >
  < RequestId > 58D4CEC0 - 3E95 - 4DBE - AFC1 - 809D1400E5 2F </
  RequestId >
  < Success > true </ Success >
  < RuleInfo >
    < DataType > JSON </ DataType >
    < ShortTopic >+/#</ ShortTopic >
    < ProductKey > a1KiV *****</ ProductKey >
    < UtcModifie d > 2019 - 02 - 28T06 : 20 : 58 . 000Z </
    UtcModifie d >
    < CreateUser Id > 1231579085 *****</ CreateUser Id >
    < UtcCreated > 2019 - 02 - 28T06 : 14 : 33 . 000Z </ UtcCreated >
    < Name > iotrules </ Name >
    < Status > STOP </ Status >
    < Select > deviceName () as deviceName </ Select >
    < Created > Thu Feb 28 14 : 14 : 33 CST 2019 </ Created
    >
    < Modified > Thu Feb 28 14 : 20 : 58 CST 2019 </
    Modified >
    < TopicType > 1 </ TopicType >
    < Topic >/ a1KiV *****/+/#</ Topic >
    < Id > 100000 </ Id >
  </ RuleInfo >
</ GetRuleRes ponse >
```

2.10.6 GetRuleAction

Call this operation to query the information of a specified rule action.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>GetRuleAct ion</code> .
ActionId	Long	Yes	The ID of the rule action that you want to query.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.

Parameter	Type	Description
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
RuleActionInfo	RuleActionInfo	The details of the rule action returned when the call is successful. See the following table RuleActionInfo .

Table 2-78: RuleActionInfo

Parameter	Type	Description
Id	Long	The ID of the rule action.
RuleId	Long	The ID of the rule that this rule action belongs to.
Type	String	The rule action type which indicates the data forwarding target of this rule action. Values include: REUBLISH : Forwards data to another topic. OTS : Forwards data to a Table Store instance. MNS : Forwards data to a theme of Message Service (MNS). FC : Forwards data to a function of Function Compute. RDS : Forwards data to an instance of ApsaraDB for RDS.
Configuration	String	The configurations of this rule action.

Parameter	Type	Description
ErrorActionFlag	String	Indicates whether this rule action is used to forward messages of errors that the data was not successfully forwarded to the specified destinations. · true : This rule action is used to forward error messages. · false : This rule action is not used to forward error messages, but to forward device related data.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=GetRuleAction
&ActionId=10001
&Common request parameters
```

Response example

· JSON format

```
{
  "RuleActionInfo": {
    "Type": "REUBLISH",
    "RuleId": 152323,
    "Id": 100001,
    "Configuration": "{\"topic\":\"/sys/alzSA28HUy/device/thing/service/property/set\", \"topicType\": 0, \"uid\":\"1231579*****\"}",
    "ErrorActionFlag": false
  },
  "RequestId": "F2D0755D-F350-40FE-9A6D-491859DB5E5F",
  "Success": true
}
```

· XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<GetRuleActionResponse>
  <RuleActionInfo>
    <Type>REUBLISH</Type>
    <RuleId>152323</RuleId>
    <Id>100001</Id>
    <Configuration>
      <topic>/sys/alzSA28HUy/device/thing/service/property/set</topic>
      <topicType>0</topicType>
      <uid>1231579*****</uid>
    </Configuration>
    <ErrorActionFlag>>false</ErrorActionFlag>
  </RuleActionInfo>
</GetRuleActionResponse>
```

```
</ RuleAction Info >
< RequestId > F2D0755D - F350 - 40FE - 9A6D - 491859DB5E 5F </
RequestId >
< Success > true </ Success >
</ GetRuleActionResponse >
```

2.10.7 ListRule

Call this operation to query the list of rules by page.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>ListRule</code> .
PageSize	Integer	Yes	The number of rules per page displayed in the response. The maximum value is 100. The default value is 10.
CurrentPage	Integer	Yes	The page number of returned results to be displayed. The maximum value is 1000. The default value is 1.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Parameter	Type	Description
Data	RuleInfo	The rule information returned when the call is successful. See the following table RuleInfo.  Note: The rules are listed in reverse chronological order.
PageSize	Integer	The number of rules displayed per page.
Page	Integer	The current page number.
Total	Integer	The total number of pages.

Table 2-79: RuleInfo

Parameter	Type	Description
CreateUserId	Long	The ID of the user who created this rule.
Created	String	The CST time when the rule was created.
DataType	String	The data type of the rule. Values include: <code>JSON</code> and <code>BINARY</code> .
Id	Long	The rule ID.
Modified	String	The last time when this rule was updated.
Name	String	The rule name.
ProductKey	String	The unique identifier of the product that uses this rule.
RuleDesc	String	The description of this rule.
Select	String	The value of <code>SELECT</code> field in the SQL statement of the rule.
ShortTopic	String	The specific topic (does not contain the ProductKey hierarchy) to which this rule applies. A ShortTopic is in the following format: <code>\${ deviceName }/ topicShort Name</code>. <code>\${deviceName}</code> is the name of the specified device. <code>topicShortName</code> is the custom topic category hierarchy of the device.

Parameter	Type	Description
Status	String	The running status of this rule. Values: RUNNING : The rule is running. STOP : The rule is disabled.
Topic	String	The full name of the topic to which this rule is applied. The topic name is in the format of <code>\${ productKey }/\${ deviceName }/topicShort Name</code> .
UtcModified	String	The last time when this rule was updated.
UtcCreated	String	The CST time when the rule was created.
Where	String	The value of WHERE that is specified in the SQL statement of this rule.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=ListRule
&PageSize=10
&CurrentPage=1
&PublicRequestParameters
```

Response example

• JSON format

```
{
  "Data": {
    "RuleInfo": [
      {
        "DataType": "JSON",
        "ShortTopic": "+/#",
        "ProductKey": "a1KiV *****",
        "CreateUserId": "1231579085 *****",
        "UtcModified": "2019-02-28T06:20:58.000Z",
        "UtcCreated": "2019-02-28T06:14:33.000Z",
        "Name": "iotrules",
        "Status": "STOP",
        "Select": "deviceName() as deviceName",
        "Created": "Thu Feb 28 14:14:33 CST 2019",
        "Modified": "Thu Feb 28 14:20:58 CST 2019",
        "Topic": "/a1KiV *****/+#",
        "Id": 152323
      },
      {
        "Name": "test123",
        "Status": "STOP"
      }
    ]
  }
}
```

```

    " Created ": " Wed   Feb   27   20 : 45 : 43   CST   2019
",
    " DataType ": " JSON ",
    " Modified ": " Wed   Feb   27   20 : 45 : 43   CST   2019
",
    " UtcModifie d ": " 2019 - 02 - 27T12 : 45 : 43 . 000Z ",
    " CreateUser Id ": " 1231579085 *****",
    " Id ": 151454 ,
    " UtcCreated ": " 2019 - 02 - 27T12 : 45 : 43 . 000Z "
  }
]
},
" PageSize ": 2 ,
" Page ": 1 ,
" RequestId ": " 1564B626 - DE97 - 452D - 9E9B - 305888AC61 05
",
" Success ": true ,
" Total ": 25
}

```

• XML format

```

<? xml version =" 1 . 0 " encoding =" UTF - 8 " ?>
< ListRuleRe sponse >
  < Data >
    < RuleInfo >
      < DataType > JSON </ DataType >
      < ShortTopic >+/#</ ShortTopic >
      < ProductKey > a1KiV *****</ ProductKey >
      < CreateUser Id > 1231579085 *****</ CreateUser Id >
      < UtcModifie d > 2019 - 02 - 28T06 : 20 : 58 . 000Z </
UtcModifie d >
      < UtcCreated > 2019 - 02 - 28T06 : 14 : 33 . 000Z </
UtcCreated >
      < Name > iotrules </ Name >
      < Status > STOP </ Status >
      < Select > deviceName () as deviceName </ Select >
      < Created > Thu   Feb   28   14 : 14 : 33   CST   2019
</ Created >
      < Modified > Thu   Feb   28   14 : 20 : 58   CST   2019
</ Modified >
      < Topic >/ a1KiV *****+/#</ Topic >
      < Id > 152323 </ Id >
    </ RuleInfo >
    < RuleInfo >
      < Name > test123 </ Name >
      < Status > STOP </ Status >
      < Created > Wed   Feb   27   20 : 45 : 43   CST   2019
</ Created >
      < DataType > JSON </ DataType >
      < Modified > Wed   Feb   27   20 : 45 : 43   CST   2019
</ Modified >
      < UtcModifie d > 2019 - 02 - 27T12 : 45 : 43 . 000Z </
UtcModifie d >
      < CreateUser Id > 1231579085 *****</ CreateUser Id >
      < Id > 151454 </ Id >
      < UtcCreated > 2019 - 02 - 27T12 : 45 : 43 . 000Z </
UtcCreated >
    </ RuleInfo >
  </ Data >
  < PageSize > 2 </ PageSize >
  < Page > 1 </ Page >

```

```
< RequestId > 87B1B7C3 - FD90 - 4B80 - 93BC - A52F7996A9 03 </
RequestId >
  < Success > true </ Success >
  < Total > 25 </ Total >
</ ListRuleResponse >
```

2.10.8 ListRuleActions

Call this operation to query all the rule actions of a specified rule.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>ListRuleActions</code> .
RuleId	String	Yes	The ID of the rule that you want to query.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
RuleActionList	List<RuleActionInfo>	The rule action information returned when the call is successful. See the following table RuleActionInfo.

Table 2-80: RuleActionInfo

Parameter	Type	Description
Id	Long	The ID of the rule action.

Parameter	Type	Description
RuleId	Long	The ID of the rule that the rule action belongs to.
Type	String	The rule action type which indicates the data forwarding target of this rule action. Values: REUBLISH : Forwards data to another topic. OTS : Forwards data to a Table Store instance. MNS : Forwards data to a theme of Message Service (MNS). FC : Forwards data to a function of Function Compute. RDS : Forwards data to an instance of ApsaraDB for RDS.
Configuration	String	The configurations of this rule action.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=ListRuleActions
&RuleId=10000
&PublicRequestParameters
```

Response example

```
{
  "RequestId": "21D327AF-A7DE-4E59-B5D1-ACAC8C024555",
  "RuleActionList": [
    {
      "Configuration": "{\"topic\":\"alGM-*/bike/get\", \"uid\":\"3216-***\"}",
      "Id": 10001,
      "RuleId": 1000,
      "Type": "REUBLISH"
    },
    {
      "Configuration": "{\"endpoint\":\"http://ons.aliyun.com:8080/rocketmq/nsaddr4cli\", \"regionName\":\"cn-shanghai\", \"topic\":\"test-ons\", \"uid\":\"3216-***\"}",
      "Id": 10002,
      "RuleId": 1000,
      "Type": "ONS"
    }
  ],
  "Success": true
}
```



```
}
```

2.10.9 StartRule

Call this operation to start a specified rule.

Request parameters



Note:

Before you start a rule, make sure that you have written SQL statements for this rule. To configure SQL statements, see [CreateRule](#).

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>StartRule</code> .
RuleId	Long	Yes	The ID of the rule that you want to start.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=StartRule&RuleId=1000
```

& Public Request Parameters**Response example**

```
{
  "RequestId ":" 9A2F243E - 17FE - 4846 - BAB5 - D02A25155A C4 ",
  "Success ": true
}
```

2.10.10 StopRule

Call this operation to stop a specified rule.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>StopRule</code> .
RuleId	Long	Yes	The ID of the rule that you want to stop.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples**Request example**

```
https://iot.cn-shanghai.aliyuncs.com/?Action=StopRule
&RuleId=10000
```

& Public Request Parameters**Response example**

```
{
  "RequestId ":" 9A2F243E - 17FE - 4846 - BAB5 - D02A25155A  C4 ",
  "Success ": true
}
```

2.10.11 UpdateRule

Call this operation to update a specified rule.

Request parameters

Parameter	Type	Required?	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>UpdateRule</code> .
RuleId	Long	Yes	The ID of the rule that you want to update.
Name	String	Yes	The rule name. The name can be 4 to 30 characters in length and can contain English letters, digits, and underscores (_).
ProductKey	String	No	The unique identifier of the product that uses this rule.

Parameter	Type	Required?	Description
ShortTopic	String	No	The topic (does not contain the ProductKey hierarchy) to which this rule applies. A ShortTopic is in the following format: <code>\${ deviceName }/ topicShort Name .\${deviceName}</code> is the name of the specified device, and <code>topicShortName</code> is the custom hierarchy of the topic. You can call QueryDevice to query the devices of a product and view the DeviceName values. You can call QueryProductTopic to query all the topic categories of a product and view the TopicShort Name values. Example: <code>\${ deviceName }/ thing / event / property / post</code> is the ShortTopic of a system topic. For the <code>\${ deviceName }</code> hierarchy, you can use the <code>+</code> symbol to include all the device names under the specified product. <code>\${ deviceName }/ user / get</code> is the ShortTopic of a custom topic. Wildcards <code>+</code> and <code>#</code> are supported when you specify custom topics. - For the <code>\${ deviceName }</code> hierarchy, you can use the <code>+</code> symbol to include all the device names under the specified product. - Then for the following hierarchies, you can specify <code>/ user / #</code>. <code>#</code> includes all the hierarchies following <code>/ user</code>.

Parameter	Type	Required?	Description
Select	String	No	The SQL SELECT statement. For more information, see the SQL syntax.  Note: The value is the value of <code>SELECT</code> in the SQL statements. For example, if the <code>SELECT</code> statement is <code>Select a , b , c</code> , set the parameter value to <code>a , b , c</code> .
RuleDesc	String	No	The description of the rule. You can enter a description with up to 100 characters.
Where	String	No	The trigger of the rule. For more information, see the SQL syntax.  Note: The value is the value of <code>WHERE</code> in the SQL statements. For example, if the <code>WHERE</code> clause is <code>Where a > 10</code> , set the parameter value to <code>a > 10</code> .

Parameter	Type	Required?	Description
TopicType	Integer	No	0 : Indicates system topics, including: / thing / event / property / post This category of topics contain property messages reported by devices. / thing / event / \${ tsl . event . identifier } / post Values of the variable \${ tsl . event . identifier } are the identifiers of events in TSL. This category of topics contain event messages reported by devices. - thing / lifecycle This category of topics contain device lifecycle change messages. / thing / downlink / reply / message This category of topics contain messages that devices send to IoT Platform as responses to commands from IoT Platform. / thing / list / found This category of topics contain sub-device information reported by gateways. - thing / topo / lifecycle This category of topics contain device topological relationship change messages. 1 : Indicates custom topics. 2 : Indicates the topic for device status change messages. Topic format: / as / mqtt / status / \${ productKey } / \${ deviceName }.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information on error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=UpdateRule
&RuleId=1000
&Name=test_2
&ProductKey=al*****
&ShortTopic=+/get
&Select=a,b,c
&RuleDesc=test
&Where=a>10
&TopicType=1
&Common request parameters
```

Response example

```
{
  "RequestId": "9A2F243E-17FE-4846-BAB5-D02A25155A-C4",
  "Success": true
}
```

2.10.12 UpdateRuleAction

Call this operation to update a specified rule action.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>UpdateRuleAction</code> .

Parameter	Type	Required	Description
ActionId	Long	Yes	The ID of the rule action to be modified.
Type	String	Yes	The rule action type indicates the target to which data will be forwarded. Value options: MNS : Forwards data to a theme of Message Service (MNS) for message transmission. FC : Forwards data to a function of Function Compute for event computing. OTS : Forwards data to a Table Store instance for NoSQL data storage. REUBLISH : Forwards data to another topic.  Note: - For different regions, the supported target products may be different. See Regions and zones of Rules Engine. - Binary data (the <code>DataType</code> value of the rule is <code>BINARY</code>) cannot be forwarded to OTS (Table Store).
Configuration	String	Yes	Rule action configurations. The configurations for different rule action types are different. For more information, see the configuration descriptions for each type in CreateActionRule .
Common Request Parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.

Parameter	Type	Description
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=UpdateRule
&ActionId=10003
&Type=REPUBLISH
&Configuration={"topic":"/a1*****/device5/get","topicType":1}
&PublicRequestParameters
```

Response example

```
{
  "RequestId": "21D327AF-A7DE-4E59-B5D1-ACAC8C024555",
  "Success": true
}
```

2.11 Communications

2.11.1 Pub

Call this operation to publish a message to a specified topic.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>Pub</code> .
ProductKey	String	Yes	The ProductKey of the device that publishes this message.

Parameter	Type	Required	Description
TopicFullName	String	Yes	The topic that receives messages, such as <code>/ a1Q5XoY ****/ device1 / user / update</code> .  Note: · System topics are not supported. · The specified topic must have the Publish or Publish and Subscribe permissions. You can call QueryProductTopic to query the topic categories of the product. You can also go to the Topic List tab page of the Device Details page to view the topics of the device.
MessageContent	String	Yes	The body of the message to be published . To generate the message body, you must convert the raw message into binary data and perform Base64 encoding.
Qos	Integer	No	Specifies the QoS of message sending. Valid values: 0 : Indicates that the message is published at most one time. 1 : Indicates that the message is published at least one time. If you do not specify this parameter, the value is 0 .  Note: QoS=1 messages can be stored in IoT Platform for up to 7 days. IoT Platform does not store QoS=0 messages.
Common request parameters	N/A	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The GUID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
MessageId	String	The message ID generated by IoT Platform when the message is sent.

Examples

Sample requests

```
https://iot.cn-shanghai.aliyuncs.com/?Action=Pub
&ProductKey=a1Q5XoY****
&TopicFullName=%2a1Q5XoY****%2Fdevice1%2Fuser%2Fget
&MessageContent=aGVsbG8gd29ybGQ%3D
&Qos=0
&CommonRequestParameters
```

Sample responses

• JSON format

```
{
  "RequestId": "BB71E443-4447-4024-A000-EDE09922891E",
  "Success": true,
  "MessageId": "889455942124347329"
}
```

• XML format

```
<?xml version="1.0" encoding="UTF-8"?>
<PubResponse>
  <RequestId>BB71E443-4447-4024-A000-EDE09922891E</RequestId>
  <Success>true</Success>
  <MessageId>889455942124347329</MessageId>
```

```
</ PubResponse >
```

2.11.2 PubBroadcast

Call this operation to publish a broadcast message to all the devices that subscribe to a specified topic.

Limits

A server SDK can send only one broadcast message to IoT Platform per second. A message in IoT Platform can be subscribed by multiple devices.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>PubBroadcast</code> .
ProductKey	String	Yes	The key of the product that broadcast messages.

Parameter	Type	Required	Description
TopicFullName	String	Yes	The full name of the topic that receives broadcast messages. The format is: <code>/broadcast/\${productKey}/your custom field</code>. <code>\${productKey}</code> is the product key of the devices that receive broadcast messages.  Note: - When you develop your device SDK, define topics for broadcast. Topics for broadcast are not created in the IoT Platform console. - Up to 1,000 devices can subscribe to a broadcast topic. If the number of devices that will subscribe to a broadcast topic exceeds the maximum limit, you can group the devices. For example, if you have 5,000 devices, divide them into five groups each containing 1,000 devices. You can define the custom fields of the topics to group1, group2, group3, group4, and group5, and subscribe each group of devices to a broadcast topic respectively. You call this operation five times to publish a message to all the 5,000 devices.
MessageContent	String	Yes	The body of the message to be published. Convert the original message content into binary data and encode the data using Base64 encoding to generate the message body.

Parameter	Type	Required	Description
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
MessageId	String	The message ID generated by IoT Platform when the message is sent.
Code	String	The error code returned when the call fails. For more information on error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
PubBroadcast
&ProductKey=al*****
&TopicFullName=%252Fbroadcast%252FUPqSxj%252FvXXX%252Fxxx
&MessageContent=aGVsbG93b3JsZA==
&CommonRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "BB71E443 - 4447 - 4024 - A000 - EDE0992289 1E",
  "Success": true,
}
```

• XML format

```
<?xml version='1.0' encoding='UTF-8'?>
<PubBroadcastResponse>
  <RequestId>BB71E443 - 4447 - 4024 - A000 - EDE0992289 1E
</RequestId>
  <Success>true</Success>
```

```
</ PubBroadca stResponse >
```

2.11.3 RRpc

Call this operation to send a request to a specified device and receive a response from the device synchronously.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>RRpc</code> .
ProductKey	String	Yes	The product key of the device that will receive the request.
DeviceName	String	Yes	The name of the device that will receive the request.
RequestBase64Byte	String	Yes	The request message string, which is generated by encoding your request message using the Base64 encoding scheme.
Timeout	Integer	Yes	The time period for the device to respond to the request. The value is in milliseconds, and the value range is from 1,000 to 5,000.
Topic	String	No	The custom RRPC request topic. For information about defining RRPC message topics, see Define topics . If you do not specify this parameter, the default RRPC request topic is used.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.

Parameter	Type	Description
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
MessageId	String	The message ID automatically generated after a request is sent successfully. The message ID is used to identify the request message.
RrpcCode	String	The status code returned when the call is successful. The status code is used to identify the request status. Options: UNKNOWN : A system exception occurred. SUCCESS : The operation is successful. TIMEOUT : The device has not responded within the specified timeout time. OFFLINE : The device is offline. HALFCONN : The device is offline. In this status, the device is offline but it has not been offline for a full heartbeat cycle.
PayloadBase64Byte	String	The Base64-encoded payload returned by the device.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=RRpc
&ProductKey=al*****
&DeviceName=device1
&RequestBase64Byte=aGVsbG8gd29ybGQ%3D
&Timeout=1000
&CommonRequestParameters
```

Response example

· JSON format

```
{
```



```
" RequestId ":" 41C4265E - F05D - 4E2E - AB09 - E031F501AF 7F
",
  " Success ": true ,
  " RrpcCode ":" SUCCESS ",
  " PayloadBas e64Byte ":" d29ybGQgaG VsbG8 ="
  " MessageId ": 8894559421 24347392
}
```

- XML format

```
<? xml version = ' 1 . 0 ' encoding = ' UTF - 8 ' ? >
< RRpcRespon se >
  < RequestId > 41C4265E - F05D - 4E2E - AB09 - E031F501AF 7F <
RequestId />
  < Success > true </ Success >
  < RrpcCode > SUCCESS </ RrpcCode >
  < PayloadBas e64Byte > d29ybGQgaG VsbG8 =</ PayloadBas
e64Byte >
  < MessageId > 8894559421 24347392 </ MessageId >
</ RRpcRespon se >
```

2.12 Device shadows

2.12.1 GetDeviceShadow

Call this operation to query the shadow information of a specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>GetDeviceShadow</code> .
ProductKey	String	Yes	The product key of the device whose shadow information you want to query.
DeviceName	String	Yes	The name of the device whose shadow information you want to query.
Common request parameters	-	Yes	See Common parameters .

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.

Parameter	Type	Description
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information about error codes, see Error codes .
ShadowMessage	String	The shadow information returned when the call is successful.  Note: The structure of the shadow information varies depending on the status of the device. For more information, see Configure device shadows.

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=
GetDeviceShadow
&ProductKey=a1*****
&DeviceName=device1
&Common request parameters
```

Response example

• JSON format

```
{
  "RequestId": "BB71E443 - 4447 - 4024 - A000 - EDE0992289 1E",
  "Success": true,
  "ShadowMessage": {
    "method": "update",
    "state": {
      "desired": {
        "color": "green"
      },
      "reported": {},
      "version": 1
    }
  }
}
```

• XML format

```
<? xml version='1.0' encoding='UTF-8'? >
<GetDeviceShadowResponse>
  <RequestId>BB71E443 - 4447 - 4024 - A000 - EDE0992289 1E
</RequestId>
  <Success>true</Success>
  <ShadowMessage>{"method":"update","state":{"desired":
{"color":"green"},"reported":{},"version":1}</
ShadowMessage>
```

```
</ GetDeviceShadowResponse >
```

2.12.2 UpdateDeviceShadow

Call this operation to update the shadow information of a specified device.

Request parameters

Parameter	Type	Required	Description
Action	String	Yes	The operation that you want to perform. Set the value to <code>UpdateDeviceShadow</code> .
ProductKey	String	Yes	The product key of the device whose shadow information you want to update.
DeviceName	String	Yes	The name of the device whose shadow information you want to update.
ShadowMessage	String	Yes	The new message of the device shadow. The following is an example: <pre>{ "method": "update", "state": { "desired": { "color": "green" } }, "version": 2 }</pre> For more information, see the following table ShadowMessage .
Common request parameters	-	Yes	See Common parameters .

Table 2-81: ShadowMessage

Parameter	Type	Required	Description
method	String	Yes	The specified action type. Set the value to <code>update</code> .
state	String	Yes	The specific state that is sent to the shadow by the device, where <code>desired</code> is the desired state of the shadow.

Parameter	Type	Required	Description
version	String	Yes	The version of the device shadow, which must be higher than the current version.

Response parameters

Parameter	Type	Description
RequestId	String	The globally unique ID generated by Alibaba Cloud for the request.
Success	Boolean	Indicates whether the call is successful. A value of <code>true</code> indicates that the call is successful. A value of <code>false</code> indicates that the call has failed.
ErrorMessage	String	The error message returned when the call fails.
Code	String	The error code returned when the call fails. For more information on error codes, see Error codes .

Examples

Request example

```
https://iot.cn-shanghai.aliyuncs.com/?Action=UpdateDeviceShadow
&ProductKey=al*****
&DeviceName=device1
&ShadowMessage=[{"method":"update","state":{"desired":{"color":"green"},"reported":"","version":1}]
&CommonRequestParameters
```

Response example

• JSON format

```
{
  "RequestId": "BB71E443-4447-4024-A000-EDE09922891E",
  "Success": true,
}
```

• XML format

```
<?xml version='1.0' encoding='UTF-8'?>
<UpdateDeviceShadowResponse>
  <RequestId>BB71E443-4447-4024-A000-EDE09922891E</RequestId>
  <Success>true</Success>
</UpdateDeviceShadowResponse>
```