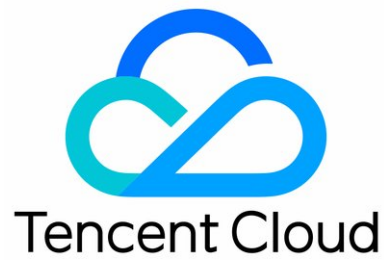


# **TencentDB for DBbrain**

## **API Documentation**

### **Product Documentation**




#### Copyright Notice

©2013-2019 Tencent Cloud. All rights reserved.

Copyright in this document is exclusively owned by Tencent Cloud. You must not reproduce, modify, copy or distribute in any way, in whole or in part, the contents of this document without Tencent Cloud's the prior written consent.

#### Trademark Notice

 Tencent Cloud

All trademarks associated with Tencent Cloud and its services are owned by Tencent Cloud Computing (Beijing) Company Limited and its affiliated companies. Trademarks of third parties referred to in this document are owned by their respective proprietors.

#### Service Statement

This document is intended to provide users with general information about Tencent Cloud's products and services only and does not form part of Tencent Cloud's terms and conditions. Tencent Cloud's products or services are subject to change. Specific products and services and the standards applicable to them are exclusively provided for in Tencent Cloud's applicable terms and conditions.

## Contents

### API Documentation

- API Category

- Making API Requests

  - Request Structure

  - Common Params

  - Signature v3

  - Signature

  - Responses

- Other APIs

  - DescribeDBSpaceStatus

  - DescribeTopSpaceTableTimeSeries

  - DescribeTopSpaceTables

- Exception Detection APIs

  - DescribeDBDiagEvent

  - DescribeDBDiagHistory

- Slow SQL Analysis APIs

  - DescribeSlowLogTimeSeriesStats

  - DescribeSlowLogTopSqls

- Data Types

- Error Codes

# API Documentation

## API Category

Last updated : 2020-07-31 10:12:54

### Exception Detection APIs

API Name	Feature
<a href="#">DescribeDBDiagEvent</a>	Gets diagnosis event details
<a href="#">DescribeDBDiagHistory</a>	Gets instance diagnosis history

### Other APIs

API Name	Feature
<a href="#">DescribeDBSpaceStatus</a>	Queries overview of instance space usage during a specified time period
<a href="#">DescribeTopSpaceTableTimeSeries</a>	Queries daily space statistics of top tables during a specified time period
<a href="#">DescribeTopSpaceTables</a>	Queries space statistics of top tables

### Slow SQL Analysis APIs

API Name	Feature
<a href="#">DescribeSlowLogTimeSeriesStats</a>	Gets slow log statistics histogram
<a href="#">DescribeSlowLogTopSqls</a>	Queries slow log statistics in specified time period by SQL template

# Making API Requests

## Request Structure

Last updated : 2020-06-12 10:32:17

### 1. Service Address

The API supports access from either a nearby region (at `dbbrain.tencentcloudapi.com`) or a specified region (at `dbbrain.ap-guangzhou.tencentcloudapi.com` for Guangzhou, for example).

We recommend using the domain name to access the nearest server. When you call an API, the request is automatically resolved to a server in the region **nearest** to the location where the API is initiated. For example, when you initiate an API request in Guangzhou, this domain name is automatically resolved to a Guangzhou server, the result is the same as that of specifying the region in the domain like "`dbbrain.ap-guangzhou.tencentcloudapi.com`".

*\*Note: For latency-sensitive businesses, we recommend that you specify the region in the domain name. \**

Tencent Cloud currently supports the following regions:

Hosted region	Domain name
Local access region (recommended, only for non-financial availability zones)	<code>dbbrain.tencentcloudapi.com</code>
South China (Guangzhou)	<code>dbbrain.ap-guangzhou.tencentcloudapi.com</code>
East China (Shanghai)	<code>dbbrain.ap-shanghai.tencentcloudapi.com</code>
North China (Beijing)	<code>dbbrain.ap-beijing.tencentcloudapi.com</code>
Southwest China (Chengdu)	<code>dbbrain.ap-chengdu.tencentcloudapi.com</code>
Southwest China (Chongqing)	<code>dbbrain.ap-chongqing.tencentcloudapi.com</code>
Hong Kong, Macao, Taiwan (Hong Kong, China)	<code>dbbrain.ap-hongkong.tencentcloudapi.com</code>
Southeast Asia (Singapore)	<code>dbbrain.ap-singapore.tencentcloudapi.com</code>
Southeast Asia (Bangkok)	<code>dbbrain.ap-bangkok.tencentcloudapi.com</code>
South Asia (Mumbai)	<code>dbbrain.ap-mumbai.tencentcloudapi.com</code>
Northeast Asia (Seoul)	<code>dbbrain.ap-seoul.tencentcloudapi.com</code>
Northeast Asia (Tokyo)	<code>dbbrain.ap-tokyo.tencentcloudapi.com</code>
U.S. East Coast (Virginia)	<code>dbbrain.na-ashburn.tencentcloudapi.com</code>
U.S. West Coast (Silicon Valley)	<code>dbbrain.na-siliconvalley.tencentcloudapi.com</code>
North America (Toronto)	<code>dbbrain.na-toronto.tencentcloudapi.com</code>
Europe (Frankfurt)	<code>dbbrain.eu-frankfurt.tencentcloudapi.com</code>
Europe (Moscow)	<code>dbbrain.eu-moscow.tencentcloudapi.com</code>

**Note: As financial availability zones and non-financial availability zones are isolated, when accessing the services in a financial availability zone (with the common parameter `Region` specifying a financial availability zone), it is**

necessary to specify a domain name of the financial availability zone, preferably in the same region as specified in `Region`.

Access region for financial availability zone	Domain name for financial availability zone
East China (Shanghai Finance)	dbbrain.ap-shanghai-fsi.tencentcloudapi.com
South China (Shenzhen Finance)	dbbrain.ap-shenzhen-fsi.tencentcloudapi.com

## 2. Communications Protocol

All the Tencent Cloud APIs communicate via HTTPS, providing highly secure communication tunnels.

## 3. Request Methods

Supported HTTP request methods:

- POST (recommended)
- GET

The Content-Type types supported by POST requests:

- application/json (recommended). The TC3-HMAC-SHA256 signature algorithm must be used.
- application/x-www-form-urlencoded. The HmacSHA1 or HmacSHA256 signature algorithm must be used.
- multipart/form-data (only supported by certain APIs). You must use TC3-HMAC-SHA256 to calculate the signature.

The size of a GET request packet is up to 32 KB. The size of a POST request is up to 1 MB when the HmacSHA1 or HmacSHA256 signature algorithm is used, and up to 10 MB when TC3-HMAC-SHA256 is used.

## 4. Character Encoding

Only UTF-8 encoding is used.

# Common Params

Last updated : 2020-07-31 10:12:54

Common parameters are used for all APIs authenticating requestors. Common parameters must be included in all API requests, and they will not be described in individual API documents.

## Signature Algorithm v3

When the TC3-HMAC-SHA256 algorithm is used, the common parameters should be uniformly placed in the HTTP request header, as shown below:

Parameter Name	Type	Required	Description
X-TC-Action	String	Yes	The name of the API for the desired operation. For the specific value, see the description of common parameter <code>Action</code> in the input parameters in related API documentation. For example, the API for querying the CVM instance list is <code>DescribeInstances</code> .
X-TC-Region	String	Yes	Region parameter, which is used to identify the region to which the data you want to work with belongs. For values supported for an API, see the description of common parameter <code>Region</code> in the input parameters in related API documentation. Note: This parameter is not required for some APIs (which will be indicated in related API documentation), and will not take effect even it is passed.
X-TC-Timestamp	Integer	Yes	The current UNIX timestamp that records the time when the API request was initiated, for example, 1529223702. Note: If the difference between the UNIX timestamp and the server time is greater than 5 minutes, a signature expiration error may occur.
X-TC-Version	String	Yes	API version of the action. For the valid values, see the description of the common input parameter <code>Version</code> in the API documentation. For example, the version of CVM is 2017-03-12.
Authorization	String	Yes	The HTTP authentication request header, for example: TC3-HMAC-SHA256 Credential=AKIDEXAMPLE/Date/service/tc3_request, SignedHeaders=content-type;host, Signature=fe5f80f77d5fa3beca038a248ff027d0445342fe2855ddc963176630326f1024 Here: - TC3-HMAC-SHA256: Signature method, currently fixed as this value; - Credential: Signature credential; AKIDEXAMPLE is the SecretId; Date is a date in UTC time, and this value must match the value of X-TC-Timestamp (a common parameter) in UTC time format; service is the name of the product/service, and is generally a domain name prefix. For example, a domain name cvm.tencentcloudapi.com refers to the CVM product and the value would be cvm; - SignedHeaders: The headers that contains the authentication information; content-type and host are the required headers; - Signature: Signature digest.
X-TC-Token	String	No	The token used for a temporary certificate. It must be used with a temporary key. You can obtain the temporary key and token by calling a CAM API. No token is required for a long-term key.

Assuming you want to query the list of Cloud Virtual Machine instances in the Guangzhou region, the request structure in the form of request URL, request header and request body may be as follows:

Example of an HTTP GET request structure:

```
https://cvm.tencentcloudapi.com/?Limit=10&Offset=0
```

```
Authorization: TC3-HMAC-SHA256 Credential=AKIDz8krbsJ5yKBZQpn74WFkLPx3EXAMPLE/2018-10-09/cvm/tc3_request, SignedHeaders=content-type;host, Signature=5da7a33f6993f0614b047e5df4582db9e9bf4672ba50567dba16c6ccf174c474
Content-Type: application/x-www-form-urlencoded
Host: cvm.tencentcloudapi.com
X-TC-Action: DescribeInstances
X-TC-Version: 2017-03-12
X-TC-Timestamp: 1539084154
X-TC-Region: ap-guangzhou
```

The following example shows you how to structure an HTTP POST (application/json) request:

```
https://cvm.tencentcloudapi.com/
```

```
Authorization: TC3-HMAC-SHA256 Credential=AKIDEXAMPLE/2018-05-30/cvm/tc3_request, SignedHeaders=content-type;host, Signature=582c400e06b5924a6f2b5d7d672d79c15b13162d9279b0855cfba6789a8edb4c
Content-Type: application/json
Host: cvm.tencentcloudapi.com
X-TC-Action: DescribeInstances
X-TC-Version: 2017-03-12
X-TC-Timestamp: 1527672334
X-TC-Region: ap-guangzhou
```

```
{"Offset":0,"Limit":10}
```

Example of an HTTP POST (multipart/form-data) request structure (only supported by specific APIs):

```
https://cvm.tencentcloudapi.com/
```

```
Authorization: TC3-HMAC-SHA256 Credential=AKIDEXAMPLE/2018-05-30/cvm/tc3_request, SignedHeaders=content-type;host, Signature=582c400e06b5924a6f2b5d7d672d79c15b13162d9279b0855cfba6789a8edb4c
Content-Type: multipart/form-data; boundary=58731222010402
Host: cvm.tencentcloudapi.com
X-TC-Action: DescribeInstances
X-TC-Version: 2017-03-12
X-TC-Timestamp: 1527672334
X-TC-Region: ap-guangzhou
```

```
--58731222010402
```

```
Content-Disposition: form-data; name="Offset"
```

```
0
```

```
--58731222010402
```

```
Content-Disposition: form-data; name="Limit"
```

```
10
```

```
--58731222010402--
```

## Signature Algorithm v1

To adopt the HmacSHA1 and HmacSHA256 signature methods, common parameters must be put into the request string, as shown below:

Parameter Name	Type	Required	Description
----------------	------	----------	-------------



Parameter Name	Type	Required	Description
Action	String	Yes	The name of the API for the desired operation. For the specific value, see the description of common parameter <code>Action</code> in the input parameters in related API documentation. For example, the API for querying the CVM instance list is <code>DescribeInstances</code> .
Region	String	Yes	Region parameter, which is used to identify the region to which the data you want to work with belongs. For values supported for an API, see the description of common parameter <code>Region</code> in the input parameters in related API documentation. Note: This parameter is not required for some APIs (which will be indicated in related API documentation), and will not take effect even if it is passed.
Timestamp	Integer	Yes	The current UNIX timestamp that records the time when the API request was initiated, for example, 1529223702. If the difference between the value and the current system time is too large, a signature expiration error may occur.
Nonce	Integer	Yes	A random positive integer used along with <code>Timestamp</code> to prevent replay attacks.
SecretId	String	Yes	The identifying <code>SecretId</code> obtained on the <a href="#">Cloud API Key</a> page. A <code>SecretId</code> corresponds to a unique <code>SecretKey</code> which is used to generate the request signature (Signature).
Signature	String	Yes	Request signature used to verify the validity of this request. This is calculated based on the actual input parameters. For more information about how this is calculated, see the API authentication documentation.
Version	String	Yes	API version of the action. For the valid values, see the description of the common input parameter <code>Version</code> in the API documentation. For example, the version of CVM is 2017-03-12.
SignatureMethod	String	No	Signature method. Currently, only HmacSHA256 and HmacSHA1 are supported. The HmacSHA256 algorithm is used to verify the signature only when this parameter is specified as HmacSHA256. In other cases, the signature is verified with HmacSHA1.
Token	String	No	The token used for a temporary certificate. It must be used with a temporary key. You can obtain the temporary key and token by calling a CAM API. No token is required for a long-term key.

Assuming you want to query the list of Cloud Virtual Machine instances in the Guangzhou region, the request structure in the form of request URL, request header and request body may be as follows:

Example of an HTTP GET request structure:

```
https://cvm.tencentcloudapi.com/?Action=DescribeInstances&Version=2017-03-12&SignatureMethod=HmacSHA256&Timestamp=1527672334&Signature=37ac2f4fde00b0ac9bd9eadeb459b1bbee224158d66e7ae5fcadb70b2d181d02&Region=ap-guangzhou&Nonce=23823223&SecretId=AKIDEXAMPLE
```

```
Host: cvm.tencentcloudapi.com
Content-Type: application/x-www-form-urlencoded
```

Example of an HTTP POST request structure:

```
https://cvm.tencentcloudapi.com/
```

```
Host: cvm.tencentcloudapi.com
Content-Type: application/x-www-form-urlencoded
```

```
Action=DescribeInstances&Version=2017-03-12&SignatureMethod=HmacSHA256&Timestamp=1527672334&Signature=37ac2f4fde00b0ac9bd9eadeb459b1bbee224158d66e7ae5fcadb70b2d181d02&Region=ap-guangzhou&Nonce=23823223&SecretId=AKIDEXAMPLE
```

## Region List

The supported Region field values for all APIs in this product are listed as below. For any API that does not support any of the following regions, this field will be described additionally in the relevant API document.

Region	Value
North China (Beijing)	ap-beijing
Southwest China (Chengdu)	ap-chengdu
Southwest China (Chongqing)	ap-chongqing
South China (Guangzhou)	ap-guangzhou
Hong Kong/Macao/Taiwan (Hong Kong, China)	ap-hongkong
East China (Nanjing)	ap-nanjing
East China (Shanghai)	ap-shanghai
East China (Shanghai Finance)	ap-shanghai-fsi
South China (Shenzhen Finance)	ap-shenzhen-fsi
Eastern U.S. (Virginia)	na-ashburn
Western U.S. (Silicon Valley)	na-siliconvalley

# Signature v3

Last updated : 2020-07-23 09:14:41

TencentCloud API authenticates every single request, i.e., the request must be signed using the security credentials in the designated steps. Each request has to contain the signature information (Signature) in the common request parameters and be sent in the specified way and format.

## Applying for Security Credentials

The security credential used in this document is a key, which includes a SecretId and a SecretKey. Each user can have up to two pairs of keys.

- SecretId: Used to identify the API caller, which is just like a username.
- SecretKey: Used to authenticate the API caller, which is just like a password.
- **You must keep your security credentials private and avoid disclosure; otherwise, your assets may be compromised. If they are disclosed, please disable them as soon as possible.**

You can apply for the security credentials through the following steps:

1. Log in to the [Tencent Cloud Console](#).
2. Go to the [TencentCloud API Key](#) console page.
3. On the [TencentCloud API Key](#) page, click **Create** to create a SecretId/SecretKey pair.

## Using the Resources for Developers

TencentCloud API comes with SDKs for seven commonly used programming languages, including [Python](#), [Java](#), [PHP](#), [Go](#), [NodeJS](#) and [.NET](#). In addition, it provides [API Explorer](#) which enables online call, signature verification, and SDK code generation. If you have any troubles calculating a signature, consult these resources.

## TC3-HMAC-SHA256 Signature Algorithm

Compatible with the previous HmacSHA1 and HmacSHA256 signature algorithms, the TC3-HMAC-SHA256 signature algorithm is more secure and supports larger requests and JSON format with better performance. We recommend using TC3-HMAC-SHA256 to calculate the signature.

TencentCloud API supports both GET and POST requests. For the GET method, only the Content-Type: application/x-www-form-urlencoded protocol format is supported. For the POST method, two protocol formats, Content-Type: application/json and Content-Type: multipart/form-data, are supported. The JSON format is supported by default for all business APIs, and the multipart format is supported only for specific business APIs. In this case, the API cannot be called in JSON format. See the specific business API documentation for more information. The POST method is recommended, as there is no difference in the results of both the methods, but the GET method only supports request packets up to 32 KB.

The following uses querying the list of CVM instances in the Guangzhou region as an example to describe the steps of signature splicing. We chose this API because:

1. CVM is activated by default, and this API is often used;
2. It is read-only and does not change the status of existing resources;
3. It covers many types of parameters, which allows it to be used to demonstrate how to use arrays containing data structures.

In the example, we try to choose common parameters and API parameters that are prone to mistakes. When you actually call an API, please use parameters based on the actual conditions. The parameters vary by API. Do not copy the parameters and values in this example.

Assuming that your SecretId and SecretKey are AKIDz8krbsJ5yKBZQpn74WFkMLPx3EXAMPLE and Gu5t9xGARNpq86cd98joQYCN3EXAMPLE, respectively, if you want to view the status of the instance in the Guangzhou region whose CVM instance name is "unnamed" and have only one data entry returned, then the request may be:

```
curl -X POST https://cvm.tencentcloudapi.com %
-H "Authorization: TC3-HMAC-SHA256 Credential=AKIDz8krbsJ5yKBZQpn74WFkMLPx3EXAMPLE/2019-02-25/cvm/tc3_request, SignedHeaders=content-type;host, Signature=63eae8f4b793c20564dafd5a5f62817d6e8de7ce5d4fb2d38f7babf1531c493c" %
-H "Content-Type: application/json; charset=utf-8" %
-H "Host: cvm.tencentcloudapi.com" %
-H "X-TC-Action: DescribeInstances" %
-H "X-TC-Timestamp: 1551113065" %
-H "X-TC-Version: 2017-03-12" %
-H "X-TC-Region: ap-guangzhou" %
-d '{"Limit": 1, "Filters": [{"Values": ["unnamed"], "Name": "instance-name"}]}'
```

The signature calculation process is explained in detail below.

## 1. Concatenating the CanonicalRequest String

Concatenate the canonical request string (CanonicalRequest) in the following pseudocode format:

```
CanonicalRequest =
HTTPRequestMethod + '\n' +
CanonicalURI + '\n' +
CanonicalQueryString + '\n' +
CanonicalHeaders + '\n' +
SignedHeaders + '\n' +
HashedRequestPayload
```

Field Name	Explanation
HTTPRequestMethod	HTTP request method (GET or POST). This example uses <code>POST</code> .
CanonicalURI	URI parameter. Slash ("/") is used for API 3.0.
CanonicalQueryString	The query string in the URL of the originating HTTP request. This is always an empty string "" for POST requests, and is the string after the question mark (?) for GET requests. For example: <code>Limit=10&amp;Offset=0</code> . Note: <code>CanonicalQueryString</code> must be URL-encoded, referencing <a href="#">RFC3986</a> , the UTF8 character set. We recommend using the programming language library. All special characters must be encoded and capitalized.
CanonicalHeaders	Header information for signature calculation, including at least two headers of <code>host</code> and <code>content-type</code> . Custom headers can be added to participate in the signature process to improve the uniqueness and security of the request. Concatenation rules: 1. Both the key and value of the header should be converted to lowercase with the leading and trailing spaces removed, so they are concatenated in the format of <code>key:value\n</code> format; 2. If there are multiple headers, they should be sorted in ASCII ascending order by the header keys (lowercase).  The calculation result in this example is <code>content-type:application/json; charset=utf-8\nhost:cvm.tencentcloudapi.com\n</code> . Note: <code>content-type</code> must match the actually sent content. In some programming languages, a <code>charset</code> value would be added even if it is not specified. In this case, the request sent is different from the one signed, and the sever will return an error indicating that signature verification failed.

Field Name	Explanation
SignedHeaders	<p>Header information for signature calculation, indicating which headers of the request participate in the signature process (they must each individually correspond to the headers in CanonicalHeaders). <code>Content-type</code> and <code>host</code> are required headers.</p> <p>Concatenation rules:</p> <ol style="list-style-type: none"> <li>Both the key and value of the header should be converted to lowercase;</li> <li>If there are multiple headers, they should be sorted in ASCII ascending order by the header keys (lowercase) and separated by semicolons (;).</li> </ol> <p>The value in this example is <code>content-type;host</code></p>
HashedRequestPayload	<p>Hash value of the request payload (i.e., the body, such as <code>{"Limit": 1, "Filters": [{"Values": ["unnamed"], "Name": "instance-name"}]}</code> in this example). The pseudocode for calculation is <code>Lowercase(HexEncode(Hash.SHA256(RequestPayload)))</code> by SHA256 hashing the payload of the HTTP request, performing hexadecimal encoding, and finally converting the encoded string to lowercase letters. For GET requests, <code>RequestPayload</code> is always an empty string. The calculation result in this example is <code>99d58dfbc6745f6747f36bfca17dee5e6881dc0428a0a36f96199342bc5b4907</code>.</p>

According to the rules above, the `CanonicalRequest` string obtained in the example is as follows:

```
POST
/

content-type:application/json; charset=utf-8
host:cvm.tencentcloudapi.com

content-type;host
99d58dfbc6745f6747f36bfca17dee5e6881dc0428a0a36f96199342bc5b4907
```

## 2. Concatenating the String to Be Signed

The string to sign is concatenated as follows:

```
StringToSign =
Algorithm + \n +
RequestTimestamp + \n +
CredentialScope + \n +
HashedCanonicalRequest
```

Field Name	Explanation
Algorithm	Signature algorithm, which is currently always <code>TC3-HMAC-SHA256</code> .
RequestTimestamp	Request timestamp, i.e., the value of the common parameter <code>X-TC-Timestamp</code> in the request header, which is the UNIX timestamp of the current time in seconds, such as <code>1551113065</code> in this example.
CredentialScope	Scope of the credential in the format of <code>Date/service/tc3_request</code> , including the date, requested service and termination string ( <code>tc3_request</code> ). <b>Date is a date in UTC time, whose value should match the UTC date converted by the common parameter <code>X-TC-Timestamp</code></b> ; <code>service</code> is the product name, which should match the domain name of the product called. The calculation result in this example is <code>2019-02-25/cvm/tc3_request</code> .
HashedCanonicalRequest	Hash value of the <code>CanonicalRequest</code> string concatenated in the steps above. The pseudocode for calculation is <code>Lowercase(HexEncode(Hash.SHA256(CanonicalRequest)))</code> . The calculation result in this example is <code>2815843035062fffd5fd6f2a44ea8a34818b0dc46f024b8b3786976a3adda7a</code> .

Note:

1. Date has to be calculated from the timestamp "X-TC-Timestamp" and the time zone is UTC+0. If you add the system's local time zone information (such as UTC+8), calls can succeed both day and night but will definitely fail at 00:00. For example, if the timestamp is 1551113065 and the time in UTC+8 is 2019-02-26 00:44:25, the UTC+0 date in the calculated Date value should be 2019-02-25 instead of 2019-02-26.
2. Timestamp must be the same as your current system time, and your system time and standard time must be synced; if the difference between Timestamp and your current system time is larger than five minutes, the request will fail. If your system time is out of sync with the standard time for a while, the request will fail and return a signature expiration error.

According to the preceding rules, the string to be signed obtained in the example is as follows:

```
TC3-HMAC-SHA256
1551113065
2019-02-25/cvm/tc3_request
2815843035062ffda5fd6f2a44ea8a34818b0dc46f024b8b3786976a3adda7a
```

### 3. Calculating the Signature

1) Calculate the derived signature key with the following pseudocode:

```
SecretKey = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE"
SecretDate = HMAC_SHA256("TC3" + SecretKey, Date)
SecretService = HMAC_SHA256(SecretDate, Service)
SecretSigning = HMAC_SHA256(SecretService, "tc3_request")
```

Field Name	Explanation
SecretKey	The original SecretKey, i.e., Gu5t9xGARNpq86cd98joQYCN3EXAMPLE .
Date	The Date field information in Credential , such as 2019-02-25 in this example.
Service	Value in the Service field in Credential , such as cvm in this example.

2) Calculate the signature with the following pseudocode:

```
Signature = HexEncode(HMAC_SHA256(SecretSigning, StringToSign))
```

### 4. Concatenating the Authorization

The Authorization is concatenated as follows:

```
Authorization =
Algorithm + ' ' +
'Credential=' + SecretId + '/' + CredentialScope + ', ' +
'SignedHeaders=' + SignedHeaders + ', ' +
'Signature=' + Signature
```

Field Name	Explanation
Algorithm	Signature algorithm, which is always TC3-HMAC-SHA256 .
SecretId	The SecretId in the key pair, i.e., AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE .

Field Name	Explanation
CredentialScope	Credential scope (see above). The calculation result in this example is <code>2019-02-25/cvm/tc3_request</code> .
SignedHeaders	Header information for signature calculation (see above), such as <code>content-type;host</code> in this example.
Signature	Signature value. The calculation result in this example is <code>63eae8f4b793c20564dafd5a5f62817d6e8de7ce5d4fb2d38f7babf1531c493c</code> .

According to the rules above, the value obtained in the example is:

```
TC3-HMAC-SHA256 Credential=AKIDz8krbsJ5yKBZQpn74WFkLPx3EXAMPLE/2019-02-25/cvm/tc3_request, SignedHeaders=content-type;host, Signature=63eae8f4b793c20564dafd5a5f62817d6e8de7ce5d4fb2d38f7babf1531c493c
```

The following example shows a finished authorization header:

```
POST https://cvm.tencentcloudapi.com/
Authorization: TC3-HMAC-SHA256 Credential=AKIDz8krbsJ5yKBZQpn74WFkLPx3EXAMPLE/2019-02-25/cvm/tc3_request, SignedHeaders=content-type;host, Signature=63eae8f4b793c20564dafd5a5f62817d6e8de7ce5d4fb2d38f7babf1531c493c
Content-Type: application/json; charset=utf-8
Host: cvm.tencentcloudapi.com
X-TC-Action: DescribeInstances
X-TC-Version: 2017-03-12
X-TC-Timestamp: 1551113065
X-TC-Region: ap-guangzhou

{"Limit": 1, "Filters": [{"Values": ["unnamed"], "Name": "instance-name"}]}
```

## 5. Signature Demo

### Java

```
import java.nio.charset.Charset;
import java.nio.charset.StandardCharsets;
import java.security.MessageDigest;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.TimeZone;
import java.util.TreeMap;
import javax.crypto.Mac;
import javax.crypto.spec.SecretKeySpec;
import javax.xml.bind.DatatypeConverter;

public class TencentCloudAPITC3Demo {
    private final static Charset UTF8 = StandardCharsets.UTF_8;
    private final static String SECRET_ID = "AKIDz8krbsJ5yKBZQpn74WFkLPx3EXAMPLE";
    private final static String SECRET_KEY = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE";
    private final static String CT_JSON = "application/json; charset=utf-8";

    public static byte[] hmac256(byte[] key, String msg) throws Exception {
        Mac mac = Mac.getInstance("HmacSHA256");
        SecretKeySpec secretKeySpec = new SecretKeySpec(key, mac.getAlgorithm());
        mac.init(secretKeySpec);
        return mac.doFinal(msg.getBytes(UTF8));
    }

    public static String sha256Hex(String s) throws Exception {
        MessageDigest md = MessageDigest.getInstance("SHA-256");
        byte[] d = md.digest(s.getBytes(UTF8));
        return DatatypeConverter.printHexBinary(d).toLowerCase();
    }
}
```

```

}

public static void main(String[] args) throws Exception {
String service = "cvm";
String host = "cvm.tencentcloudapi.com";
String region = "ap-guangzhou";
String action = "DescribeInstances";
String version = "2017-03-12";
String algorithm = "TC3-HMAC-SHA256";
String timestamp = "1551113065";
//String timestamp = String.valueOf(System.currentTimeMillis() / 1000);
SimpleDateFormat sdf = new SimpleDateFormat("yyyy-MM-dd");
// Pay attention to the time zone; otherwise, errors may occur
sdf.setTimeZone(TimeZone.getTimeZone("UTC"));
String date = sdf.format(new Date(Long.valueOf(timestamp + "000")));

// ***** Step 1: Concatenate the CanonicalRequest string *****
String httpRequestMethod = "POST";
String canonicalUri = "/";
String canonicalQueryString = "";
String canonicalHeaders = "content-type:application/json; charset=utf-8\r\n" + "host:" + host + "\r\n";
String signedHeaders = "content-type;host";

String payload = "{\r\n  \"Limit\": 1,\r\n  \"Filters\": [\r\n    {\r\n      \"Values\": [\r\n        \"unnamed\"\r\n      ],\r\n      \"Name\": \"instance-name\"\r\n    }]\r\n}";
String hashedRequestPayload = sha256Hex(payload);
String canonicalRequest = httpRequestMethod + "\r\n" + canonicalUri + "\r\n" + canonicalQueryString + "\r\n"
+ canonicalHeaders + "\r\n" + signedHeaders + "\r\n" + hashedRequestPayload;
System.out.println(canonicalRequest);

// ***** Step 2: Concatenate the string to sign *****
String credentialScope = date + "/" + service + "/" + "tc3_request";
String hashedCanonicalRequest = sha256Hex(canonicalRequest);
String stringToSign = algorithm + "\r\n" + timestamp + "\r\n" + credentialScope + "\r\n" + hashedCanonicalRequest;
System.out.println(stringToSign);

// ***** Step 3: Calculate the signature *****
byte[] secretDate = hmac256(("TC3" + SECRET_KEY).getBytes(UTF8), date);
byte[] secretService = hmac256(secretDate, service);
byte[] secretSigning = hmac256(secretService, "tc3_request");
String signature = DatatypeConverter.printHexBinary(hmac256(secretSigning, stringToSign)).toLowerCase();
System.out.println(signature);

// ***** Step 4: Concatenate the Authorization *****
String authorization = algorithm + " " + "Credential=" + SECRET_ID + "/" + credentialScope + ", "
+ "SignedHeaders=" + signedHeaders + ", " + "Signature=" + signature;
System.out.println(authorization);

TreeMap<String, String> headers = new TreeMap<String, String>();
headers.put("Authorization", authorization);
headers.put("Content-Type", CT_JSON);
headers.put("Host", host);
headers.put("X-TC-Action", action);
headers.put("X-TC-Timestamp", timestamp);
headers.put("X-TC-Version", version);
headers.put("X-TC-Region", region);

StringBuilder sb = new StringBuilder();
sb.append("curl -X POST https://").append(host)
.append(" -H \r\nAuthorization: ").append(authorization).append("\r\n")
.append(" -H \r\nContent-Type: application/json; charset=utf-8\r\n")
.append(" -H \r\nHost: ").append(host).append("\r\n")
.append(" -H \r\nX-TC-Action: ").append(action).append("\r\n")

```



```
.append(" -H %X-TC-Timestamp: ").append(timestamp).append("%")
.append(" -H %X-TC-Version: ").append(version).append("%")
.append(" -H %X-TC-Region: ").append(region).append("%")
.append(" -d ' '").append(payload).append(" ");
System.out.println(sb.toString());
}
}
```

## Python

```
# -*- coding: utf-8 -*-
import hashlib, hmac, json, os, sys, time
from datetime import datetime

# Key Parameters
secret_id = "AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE"
secret_key = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE"

service = "cvm"
host = "cvm.tencentcloudapi.com"
endpoint = "https://" + host
region = "ap-guangzhou"
action = "DescribeInstances"
version = "2017-03-12"
algorithm = "TC3-HMAC-SHA256"
#timestamp = int(time.time())
timestamp = 1551113065
date = datetime.utcfromtimestamp(timestamp).strftime("%Y-%m-%d")
params = {"Limit": 1, "Filters": [{"Name": "instance-name", "Values": ["unnamed"]}]}

# ***** Step 1: Concatenate the CanonicalRequest string *****
http_request_method = "POST"
canonical_uri = "/"
canonical_querystring = ""
ct = "application/json; charset=utf-8"
payload = json.dumps(params)
canonical_headers = "content-type:%s\nhost:%s\n" % (ct, host)
signed_headers = "content-type;host"
hashed_request_payload = hashlib.sha256(payload.encode("utf-8")).hexdigest()
canonical_request = (http_request_method + "\n" +
canonical_uri + "\n" +
canonical_querystring + "\n" +
canonical_headers + "\n" +
signed_headers + "\n" +
hashed_request_payload)
print(canonical_request)

# ***** Step 2: Concatenate the string to sign *****
credential_scope = date + "/" + service + "/" + "tc3_request"
hashed_canonical_request = hashlib.sha256(canonical_request.encode("utf-8")).hexdigest()
string_to_sign = (algorithm + "\n" +
str(timestamp) + "\n" +
credential_scope + "\n" +
hashed_canonical_request)
print(string_to_sign)

# ***** Step 3: Calculate the Signature *****
# Function for computing signature digest
def sign(key, msg):
return hmac.new(key, msg.encode("utf-8"), hashlib.sha256).digest()
```

```

secret_date = sign(("TC3" + secret_key).encode("utf-8"), date)
secret_service = sign(secret_date, service)
secret_signing = sign(secret_service, "tc3_request")
signature = hmac.new(secret_signing, string_to_sign.encode("utf-8"), hashlib.sha256).hexdigest()
print(signature)

# ***** Step 4: Concatenate the Authorization *****
authorization = (algorithm + " " +
"Credential=" + secret_id + "/" + credential_scope + ", " +
"SignedHeaders=" + signed_headers + ", " +
"Signature=" + signature)
print(authorization)

print('curl -X POST ' + endpoint
+ ' -H "Authorization: ' + authorization + '"
+ ' -H "Content-Type: application/json; charset=utf-8"
+ ' -H "Host: ' + host + '"
+ ' -H "X-TC-Action: ' + action + '"
+ ' -H "X-TC-Timestamp: ' + str(timestamp) + '"
+ ' -H "X-TC-Version: ' + version + '"
+ ' -H "X-TC-Region: ' + region + '"
+ " -d '" + payload + "'")

```

## Golang

```

package main

import (
    "crypto/hmac"
    "crypto/sha256"
    "encoding/hex"
    "fmt"
    "time"
)

func sha256hex(s string) string {
    b := sha256.Sum256([]byte(s))
    return hex.EncodeToString(b[:])
}

func hmacsha256(s, key string) string {
    hashed := hmac.New(sha256.New, []byte(key))
    hashed.Write([]byte(s))
    return string(hashed.Sum(nil))
}

func main() {
    secretId := "AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE"
    secretKey := "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE"
    host := "cvm.tencentcloudapi.com"
    algorithm := "TC3-HMAC-SHA256"
    service := "cvm"
    version := "2017-03-12"
    action := "DescribeInstances"
    region := "ap-guangzhou"
    //var timestamp int64 = time.Now().Unix()
    var timestamp int64 = 1551113065

    // step 1: build canonical request string
    httpRequestMethod := "POST"
    canonicalURI := "/"

```

```

canonicalQueryString := ""
canonicalHeaders := "content-type:application/json; charset=utf-8" + "host:" + host + ""
signedHeaders := "content-type;host"
payload := `{"Limit": 1, "Filters": [{"Values": ["unnamed"], "Name": "instance-name"}]}`
hashedRequestPayload := sha256hex(payload)
canonicalRequest := fmt.Sprintf("%s\n%s\n%s\n%s\n%s\n%s",
httpRequestMethod,
canonicalURI,
canonicalQueryString,
canonicalHeaders,
signedHeaders,
hashedRequestPayload)
fmt.Println(canonicalRequest)

// step 2: build string to sign
date := time.Unix(timestamp, 0).UTC().Format("2006-01-02")
credentialScope := fmt.Sprintf("%s/%s/tc3_request", date, service)
hashedCanonicalRequest := sha256hex(canonicalRequest)
string2sign := fmt.Sprintf("%s\n%d\n%s\n%s",
algorithm,
timestamp,
credentialScope,
hashedCanonicalRequest)
fmt.Println(string2sign)

// step 3: sign string
secretDate := hmacsha256(date, "TC3"+secretKey)
secretService := hmacsha256(service, secretDate)
secretSigning := hmacsha256("tc3_request", secretService)
signature := hex.EncodeToString([]byte(hmacsha256(string2sign, secretSigning)))
fmt.Println(signature)

// step 4: build authorization
authorization := fmt.Sprintf("%s Credential=%s/%s, SignedHeaders=%s, Signature=%s",
algorithm,
secretId,
credentialScope,
signedHeaders,
signature)
fmt.Println(authorization)

curl := fmt.Sprintf(`curl -X POST https://%s%
-H "Authorization: %s"%
-H "Content-Type: application/json; charset=utf-8"%
-H "Host: %s" -H "X-TC-Action: %s"%
-H "X-TC-Timestamp: %d"%
-H "X-TC-Version: %s"%
-H "X-TC-Region: %s"%
-d '%s'`, host, authorization, host, action, timestamp, version, region, payload)
fmt.Println(curl)
}

```

## PHP

```

<?php
$secretId = "AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE";
$secretKey = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE";
$host = "cvm.tencentcloudapi.com";
$service = "cvm";
$version = "2017-03-12";
$action = "DescribeInstances";

```

```

$region = "ap-guangzhou";
// $timestamp = time();
$timestamp = 1551113065;
$algorithm = "TC3-HMAC-SHA256";

// step 1: build canonical request string
$httpRequestMethod = "POST";
$canonicalUri = "/";
$canonicalQueryString = "";
$canonicalHeaders = "content-type:application/json; charset=utf-8¥n".host:.$host.¥n";
$signedHeaders = "content-type;host";
$payload = '{"Limit": 1, "Filters": [{"Values": ["unnamed"], "Name": "instance-name"}]}';
$hashedRequestPayload = hash("SHA256", $payload);
$canonicalRequest = $httpRequestMethod.¥n
.$canonicalUri.¥n
.$canonicalQueryString.¥n
.$canonicalHeaders.¥n
.$signedHeaders.¥n
.$hashedRequestPayload;
echo $canonicalRequest.PHP_EOL;

// step 2: build string to sign
$date = gmdate("Y-m-d", $timestamp);
$credentialScope = $date."/".$service."/tc3_request";
$hashedCanonicalRequest = hash("SHA256", $canonicalRequest);
$stringToSign = $algorithm.¥n
.$timestamp.¥n
.$credentialScope.¥n
.$hashedCanonicalRequest;
echo $stringToSign.PHP_EOL;

// step 3: sign string
$secretDate = hash_hmac("SHA256", $date, "TC3".$secretKey, true);
$secretService = hash_hmac("SHA256", $service, $secretDate, true);
$secretSigning = hash_hmac("SHA256", "tc3_request", $secretService, true);
$signature = hash_hmac("SHA256", $stringToSign, $secretSigning);
echo $signature.PHP_EOL;

// step 4: build authorization
$authorization = $algorithm
." Credential=".$secretId."/".$credentialScope
.", SignedHeaders=content-type;host, Signature=".$signature;
echo $authorization.PHP_EOL;

$curl = "curl -X POST https://".$host
.' -H "Authorization: '.$authorization.'"
.' -H "Content-Type: application/json; charset=utf-8"
.' -H "Host: '.$host.'"
.' -H "X-TC-Action: '.$action.'"
.' -H "X-TC-Timestamp: '.$timestamp.'"
.' -H "X-TC-Version: '.$version.'"
.' -H "X-TC-Region: '.$region.'"
." -d '$payload.'"";
echo $curl.PHP_EOL;

```

## Ruby

```

# -*- coding: UTF-8 -*-
# require ruby>=2.3.0
require 'digest'
require 'json'

```

```

require 'time'
require 'openssl'

# Key Parameters
secret_id = 'AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE'
secret_key = 'Gu5t9xGARNpq86cd98joQYCN3EXAMPLE'

service = 'cvm'
host = 'cvm.tencentcloudapi.com'
endpoint = 'https://' + host
region = 'ap-guangzhou'
action = 'DescribeInstances'
version = '2017-03-12'
algorithm = 'TC3-HMAC-SHA256'
# timestamp = Time.now.to_i
timestamp = 1551113065
date = Time.at(timestamp).utc.strftime('%Y-%m-%d')

# ***** Step 1: Concatenate the CanonicalRequest string *****
http_request_method = 'POST'
canonical_uri = '/'
canonical_querystring = ''
canonical_headers = "content-type:application/json; charset=utf-8\nhost:#{host}\n"
signed_headers = 'content-type;host'
# params = { 'Limit' => 1, 'Filters' => [{ 'Name' => 'instance-name', 'Values' => ['unnamed'] }] }
# payload = JSON.generate(params, { 'ascii_only' => true, 'space' => ' ' })
# json will generate in random order, to get specified result in example, we hard-code it here.
payload = '{"Limit": 1, "Filters": [{"Values": ["unnamed"], "Name": "instance-name"}]}'
hashed_request_payload = Digest::SHA256.hexdigest(payload)
canonical_request = [
  http_request_method,
  canonical_uri,
  canonical_querystring,
  canonical_headers,
  signed_headers,
  hashed_request_payload,
].join("\n")

puts canonical_request

# ***** Step 2: Concatenate the string to sign *****
credential_scope = date + '/' + service + '/' + 'tc3_request'
hashed_request_payload = Digest::SHA256.hexdigest(canonical_request)
string_to_sign = [
  algorithm,
  timestamp.to_s,
  credential_scope,
  hashed_request_payload,
].join("\n")
puts string_to_sign

# ***** Step 3: Calculate the Signature *****
digest = OpenSSL::Digest.new('sha256')
secret_date = OpenSSL::HMAC.digest(digest, 'TC3' + secret_key, date)
secret_service = OpenSSL::HMAC.digest(digest, secret_date, service)
secret_signing = OpenSSL::HMAC.digest(digest, secret_service, 'tc3_request')
signature = OpenSSL::HMAC.hexdigest(digest, secret_signing, string_to_sign)
puts signature

# ***** Step 4: Concatenate the Authorization *****
authorization = "#{algorithm} Credential=#{secret_id}/#{credential_scope}, SignedHeaders=#{signed_headers}, Signature=#{signature}"

```

```
puts authorization
```

```
puts `curl -X POST ` + endpoint %  
+ ` -H "Authorization: " + authorization + "` %  
+ ` -H "Content-Type: application/json; charset=utf-8" %  
+ ` -H "Host: " + host + "` %  
+ ` -H "X-TC-Action: " + action + "` %  
+ ` -H "X-TC-Timestamp: " + timestamp.to_s + "` %  
+ ` -H "X-TC-Version: " + version + "` %  
+ ` -H "X-TC-Region: " + region + "` %  
+ ` -d "` + payload + "`
```

## Signature Failure

The following situational error codes for signature failure may occur. Please resolve the errors accordingly.

Error Code	Description
AuthFailure.SignatureExpire	Signature expired. Timestamp and server time cannot differ by more than five minutes.
AuthFailure.SecretIdNotFound	The key does not exist. Please go to the console to check whether it is disabled or you copied fewer or more characters.
AuthFailure.SignatureFailure	Signature error. It is possible that the signature was calculated incorrectly, the signature does not match the content actually sent, or the SecretKey is incorrect.
AuthFailure.TokenFailure	Temporary certificate token error.
AuthFailure.InvalidSecretId	Invalid key (not a TencentCloud API key type).

# Signature

Last updated : 2020-07-31 10:12:55

Tencent Cloud API authenticates each access request, i.e. each request needs to include authentication information (Signature) in the common parameters to verify the identity of the requester.

The Signature is generated by the security credentials which include SecretId and SecretKey. If you don't have the security credentials yet, go to the [TencentCloud API Key](#) page to apply for them; otherwise, you cannot invoke the TencentCloud API.

## 1. Applying for Security Credentials

Before using the TencentCloud API for the first time, go to the [TencentCloud API Key](#) page to apply for security credentials.

Security credentials consist of SecretId and SecretKey:

- SecretId is used to identify the API requester.
- SecretKey is used to encrypt the signature string and verify it on the server.
- **You must keep your security credentials private and avoid disclosure.**

You can apply for the security credentials through the following steps:

1. Log in to the [Tencent Cloud Console](#).
2. Go to the [TencentCloud API Key](#) page.
3. On the [API Key Management](#) page, click **Create Key** to create a SecretId/SecretKey pair.

Note: Each account can have up to two pairs of SecretId/SecretKey.

## 2. Generating a Signature

With the SecretId and SecretKey, a signature can be generated. The following describes how to generate a signature:

Assume that the SecretId and SecretKey are:

- SecretId: AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE
- SecretKey: Gu5t9xGARNpq86cd98joQYCN3EXAMPLE

**Note: This is just an example. For actual operations, please use your own SecretId and SecretKey.**

Take the Cloud Virtual Machine's request to view the instance list (DescribeInstances) as an example. When you invoke this API, the request parameters may be as follows:

Parameter name	Description	Parameter value
Action	Method name	DescribeInstances
SecretId	Key ID	AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE
Timestamp	Current timestamp	1465185768
Nonce	Random positive integer	11886
Region	Region where the instance is located	ap-guangzhou
InstanceIds.0	ID of the instance to query	ins-09dx96dg
Offset	Offset	0

Parameter name	Description	Parameter value
Limit	Allowed maximum output	20
Version	API version number	2017-03-12

## 2.1. Sorting Parameters

First, sort all the request parameters in an ascending lexicographical order (ASCII code) by their names. Notes: (1) Parameters are sorted by their names instead of their values; (2) The parameters are sorted based on ASCII code, not in an alphabetical order or by values. For example, InstanceIds.2 should be arranged after InstanceIds.12. You can complete the sorting process using a sorting function in a programming language, such as the ksort function in PHP. The parameters in the example are sorted as follows:

```
{
  'Action' : 'DescribeInstances',
  'InstanceIds.0' : 'ins-09dx96dg',
  'Limit' : 20,
  'Nonce' : 11886,
  'Offset' : 0,
  'Region' : 'ap-guangzhou',
  'SecretId' : 'AKIDz8krbsJ5yKBZQpn74WFkmlPx3EXAMPLE',
  'Timestamp' : 1465185768,
  'Version' : '2017-03-12',
}
```

When developing in another programming language, you can sort these sample parameters and it will work as long as you obtain the same results.

## 2.2. Concatenating a Request String

This step generates a request string.

Format the request parameters sorted in the previous step into the form of "parameter name"="parameter value". For example, for the Action parameter, its parameter name is "Action" and its parameter value is "DescribeInstances", so it will become Action=DescribeInstances after formatted.

**Note: The "parameter value" is the original value but not the value after URL encoding.**

Then, concatenate the formatted parameters with "&". The resulting request string is as follows:

```
Action=DescribeInstances&InstanceIds.0=ins-09dx96dg&Limit=20&Nonce=11886&Offset=0&Region=ap-guangzhou&SecretId=AKIDz8krbsJ5yKBZQpn74WFkmlPx3EXAMPLE&Timestamp=1465185768&Version=2017-03-12
```

## 2.3. Concatenating the Signature Original String

This step generates a signature original string.

The signature original string consists of the following parameters:

1. HTTP method: POST and GET modes are supported, and GET is used here for the request. Please note that the method name should be in all capital letters.
2. Request server: the domain name of the request to view the list of instances (DescribeInstances) is cvm.tencentcloudapi.com. The actual request domain name varies by the module to which the API belongs. For more information, see the instructions of the specific API.
3. Request path: The request path in the current version of TencentCloud API is fixed to /.
4. Request string: the request string generated in the previous step.

The concatenation rule of the signature original string is: Request method + request host + request path + ? + request string

The concatenation result of the example is:



```
GETcvm.tencentcloudapi.com/?Action=DescribeInstances&InstanceIds.0=ins-09dx96dg&Limit=20&Nonce=11886&Offset=0&Region=ap-guangzhou&SecretId=AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE&Timestamp=1465185768&Version=2017-03-12
```

## 2.4. Generating a Signature String

This step generates a signature string.

First, use the HMAC-SHA1 algorithm to sign the **signature original string** obtained in the previous step, and then encode the generated signature using Base64 to obtain the final signature.

The specific code is as follows with the PHP language being used as an example:

```
$secretKey = 'Gu5t9xGARNpq86cd98joQYCN3EXAMPLE';
$srcStr = 'GETcvm.tencentcloudapi.com/?Action=DescribeInstances&InstanceIds.0=ins-09dx96dg&Limit=20&Nonce=11886&Offset=0&Region=ap-guangzhou&SecretId=AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE&Timestamp=1465185768&Version=2017-03-12';
$signStr = base64_encode(hash_hmac('sha1', $srcStr, $secretKey, true));
echo $signStr;
```

The final signature is:

```
EliP9YW3pW28FpsEdkXt/+WcGeI=
```

When developing in another programming language, you can sign and verify the original in the example above and it works as long as you get the same results.

## 3. Encoding a Signature String

The generated signature string cannot be directly used as a request parameter and must be URL encoded.

For example, if the signature string generated in the previous step is EliP9YW3pW28FpsEdkXt/+WcGeI=, the final signature string request parameter (Signature) is EliP9YW3pW28FpsEdkXt%2f%2bWcGeI%3d, which will be used to generate the final request URL.

**Note: If your request method is GET, or the request method is POST and the Content-Type is application/x-www-form-urlencoded, then all the request parameter values need to be URL encoded (except the parameter key and the symbol of =) when sending the request. Non-ASCII characters need to be encoded with UTF-8 before URL encoding.**

**Note: The network libraries of some programming languages automatically URL encode all parameters, in which case there is no need to URL encode the signature string; otherwise, two rounds of URL encoding will cause the signature to fail.**

**Note: Other parameter values also need to be encoded using RFC 3986. Use %XY in percent-encoding for special characters such as Chinese characters, where "X" and "Y" are hexadecimal characters (0-9 and uppercase A-F), and using lowercase will cause an error.**

## 4. Signature Failure

The following situational error codes for signature failure may occur. Please resolve the errors accordingly.

Error code	Error description
AuthFailure.SignatureExpire	The signature is expired
AuthFailure.SecretIdNotFound	The key does not exist
AuthFailure.SignatureFailure	Signature error

Error code	Error description
AuthFailure.TokenFailure	Token error
AuthFailure.InvalidSecretId	Invalid key (not a TencentCloud API key type)

## 5. Signature Demo

When calling API 3.0, you are recommended to use the corresponding Tencent Cloud SDK 3.0 which encapsulates the signature process, enabling you to focus on only the specific APIs provided by the product when developing. See [SDK Center](#) for more information. Currently, the following programming languages are supported:

- [Python](#)
- [Java](#)
- [PHP](#)
- [Go](#)
- [JavaScript](#)
- [.NET](#)

To further explain the signing process, we will use a programming language to implement the process described above. The request domain name, API and parameter values in the sample are used here. This goal of this example is only to provide additional clarification for the signature process, please see the SDK for actual usage.

The final output URL might be: `https://cvm.tencentcloudapi.com/?Action=DescribeInstances&InstanceIds.0=ins-09dx96dg&Limit=20&Nonce=11886&Offset=0&Region=ap-guangzhou&SecretId=AKIDz8krbsJ5yKBZQpn74WFkmlPx3EXAMPLE&Signature=ElIP9YW3pW28FpsEdkXt%2F%2BWcGeI%3D&Timestamp=1465185768&Version=2017-03-12`.

Note: The key in the example is fictitious, and the timestamp is not the current time of the system, so if this URL is opened in the browser or called using commands such as curl, an authentication error will be returned: Signature expired. In order to get a URL that can work properly, you need to replace the SecretId and SecretKey in the example with your real credentials and use the current time of the system as the Timestamp.

Note: In the example below, even if you use the same programming language, the order of the parameters in the URL may be different for each execution. However, the order does not matter, as long as all the parameters are included in the URL and the signature is calculated correctly.

Note: The following code is only applicable to API 3.0. It cannot be directly used in other signature processes. Even with an older API, signature calculation errors may occur due to the differences in details. Please refer to the corresponding documentation.

### Java

```
import java.io.UnsupportedEncodingException;
import java.net.URLEncoder;
import java.util.Random;
import java.util.TreeMap;
import javax.crypto.Mac;
import javax.crypto.spec.SecretKeySpec;
import javax.xml.bind.DatatypeConverter;

public class TencentCloudAPIDemo {
    private final static String CHARSET = "UTF-8";

    public static String sign(String s, String key, String method) throws Exception {
        Mac mac = Mac.getInstance(method);
        SecretKeySpec secretKeySpec = new SecretKeySpec(key.getBytes(CHARSET), mac.getAlgorithm());
```

```

mac.init(secretKeySpec);
byte[] hash = mac.doFinal(s.getBytes(CHARSET));
return DatatypeConverter.printBase64Binary(hash);
}

public static String getStringToSign(TreeMap<String, Object> params) {
    StringBuilder s2s = new StringBuilder("GETcvm.tencentcloudapi.com/?");
    // When signing, the parameters need to be sorted in lexicographical order. TreeMap is used here to guarantee the correct order.
    for (String k : params.keySet()) {
        s2s.append(k).append("=").append(params.get(k).toString()).append("&");
    }
    return s2s.toString().substring(0, s2s.length() - 1);
}

public static String getUrl(TreeMap<String, Object> params) throws UnsupportedEncodingException {
    StringBuilder url = new StringBuilder("https://cvm.tencentcloudapi.com/?");
    // There is no requirement for the order of the parameters in the actual request URL.
    for (String k : params.keySet()) {
        // The request string needs to be URL encoded. As the Key is all in English letters, only the value is URL encoded here.
        url.append(k).append("=").append(URLEncoder.encode(params.get(k).toString(), CHARSET)).append("&");
    }
    return url.toString().substring(0, url.length() - 1);
}

public static void main(String[] args) throws Exception {
    TreeMap<String, Object> params = new TreeMap<String, Object>(); // TreeMap enables automatic sorting
    // A random number should be used when actually calling, for example: params.put("Nonce", new Random().nextInt(java.lang.Integer.MAX_VALUE));
    params.put("Nonce", 11886); // Common parameter
    // The current time of the system should be used when actually calling, for example: params.put("Timestamp", System.currentTimeMillis() / 1000);
    params.put("Timestamp", 1465185768); // Common parameter
    params.put("SecretId", "AKIDz8krbsJ5yKBZQpn74WFkmlPx3EXAMPLE"); // Common parameter
    params.put("Action", "DescribeInstances"); // Common parameter
    params.put("Version", "2017-03-12"); // Common parameter
    params.put("Region", "ap-guangzhou"); // Common parameter
    params.put("Limit", 20); // Business parameter
    params.put("Offset", 0); // Business parameter
    params.put("InstanceIds.0", "ins-09dx96dg"); // Business parameter
    params.put("Signature", sign(getStringToSign(params), "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE", "HmacSHA1")); // Common parameter
    System.out.println(getUrl(params));
}
}

```

## Python

Note: If running in a Python 2 environment, the following requests dependency package must be installed first: `pip install requests`.

```

# -*- coding: utf8 -*-
import base64
import hashlib
import hmac
import time

import requests

secret_id = "AKIDz8krbsJ5yKBZQpn74WFkmlPx3EXAMPLE"
secret_key = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE"

def get_string_to_sign(method, endpoint, params):

```

```

s = method + endpoint + "/"?
query_str = "&".join("%s=%s" % (k, params[k]) for k in sorted(params))
return s + query_str

def sign_str(key, s, method):
    hmac_str = hmac.new(key.encode("utf8"), s.encode("utf8"), method).digest()
    return base64.b64encode(hmac_str)

if __name__ == '__main__':
    endpoint = "cvm.tencentcloudapi.com"
    data = {
        'Action': 'DescribeInstances',
        'InstanceIds.0': 'ins-09dx96dg',
        'Limit': 20,
        'Nonce': 11886,
        'Offset': 0,
        'Region': 'ap-guangzhou',
        'SecretId': secret_id,
        'Timestamp': 1465185768, # int(time.time())
        'Version': '2017-03-12'
    }
    s = get_string_to_sign("GET", endpoint, data)
    data["Signature"] = sign_str(secret_key, s, hashlib.sha1)
    print(data["Signature"])
    # An actual invocation would occur here, which may incur fees after success
    # resp = requests.get("https://" + endpoint, params=data)
    # print(resp.url)

```

## Golang

```

package main

import (
    "bytes"
    "crypto/hmac"
    "crypto/sha1"
    "encoding/base64"
    "fmt"
    "sort"
)

func main() {
    secretId := "AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE"
    secretKey := "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE"
    params := map[string]string{
        "Nonce": "11886",
        "Timestamp": "1465185768",
        "Region": "ap-guangzhou",
        "SecretId": secretId,
        "Version": "2017-03-12",
        "Action": "DescribeInstances",
        "InstanceIds.0": "ins-09dx96dg",
        "Limit": "20",
        "Offset": "0",
    }

    var buf bytes.Buffer
    buf.WriteString("GET")
    buf.WriteString("cvm.tencentcloudapi.com")
    buf.WriteString("/")
    buf.WriteString("?")

```

```
// sort keys by ascii asc order
keys := make([]string, 0, len(params))
for k, _ := range params {
    keys = append(keys, k)
}
sort.Strings(keys)

for i := range keys {
    k := keys[i]
    buf.WriteString(k)
    buf.WriteString("=")
    buf.WriteString(params[k])
    buf.WriteString("&")
}
buf.Truncate(buf.Len() - 1)

hashed := hmac.New(sha1.New, []byte(secretKey))
hashed.Write(buf.Bytes())

fmt.Println(base64.StdEncoding.EncodeToString(hashed.Sum(nil)))
}
```

## PHP

```
<?php
$secretId = "AKIDz8krbsJ5yKBZQpn74WFkmlPx3EXAMPLE";
$secretKey = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE";
$params["Nonce"] = 11886;//rand();
$params["Timestamp"] = 1465185768;//time();
$params["Region"] = "ap-guangzhou";
$params["SecretId"] = $secretId;
$params["Version"] = "2017-03-12";
$params["Action"] = "DescribeInstances";
$params["InstanceIds.0"] = "ins-09dx96dg";
$params["Limit"] = 20;
$params["Offset"] = 0;

ksort($params);

$signStr = "GETcvm.tencentcloudapi.com/?";
foreach ( $params as $key => $value ) {
    $signStr = $signStr . $key . "=" . $value . "&";
}
$signStr = substr($signStr, 0, -1);

$signature = base64_encode(hash_hmac("sha1", $signStr, $secretKey, true));
echo $signature.PHP_EOL;
// need to install and enable curl extension in php.ini
// $params["Signature"] = $signature;
// $url = "https://cvm.tencentcloudapi.com/?".http_build_query($params);
// echo $url.PHP_EOL;
// $ch = curl_init();
// curl_setopt($ch, CURLOPT_URL, $url);
// $output = curl_exec($ch);
// curl_close($ch);
// echo json_decode($output);
```

## Ruby

```
# -*- coding: UTF-8 -*-
# require ruby>=2.3.0
require 'time'
require 'openssl'
require 'base64'

secret_id = "AKIDz8krbsJ5yKBZQpn74WFkmLPx3EXAMPLE"
secret_key = "Gu5t9xGARNpq86cd98joQYCN3EXAMPLE"

method = 'GET'
endpoint = 'cvm.tencentcloudapi.com'
data = {
  'Action' => 'DescribeInstances',
  'InstanceIds.0' => 'ins-09dx96dg',
  'Limit' => 20,
  'Nonce' => 11886,
  'Offset' => 0,
  'Region' => 'ap-guangzhou',
  'SecretId' => secret_id,
  'Timestamp' => 1465185768, # Time.now.to_i
  'Version' => '2017-03-12',
}
sign = method + endpoint + '/'?
params = []
data.sort.each do |item|
  params << "#{item[0]}=#{item[1]}"
end
sign += params.join('&')
digest = OpenSSL::Digest.new('sha1')
data['Signature'] = Base64.encode64(OpenSSL::HMAC.digest(digest, secret_key, sign))
puts data['Signature']

# require 'net/http'
# uri = URI('https://' + endpoint)
# uri.query = URI.encode_www_form(data)
# p uri
# res = Net::HTTP.get_response(uri)
# puts res.body
```

# Responses

Last updated : 2020-06-12 10:32:18

## Response for Successful Requests

For example, when calling CAM API (version: 2017-03-12) to view the status of instances (DescribeInstancesStatus), if the request has succeeded, you may see the response as shown below:

```
{
  "Response": {
    "TotalCount": 0,
    "InstanceStatusSet": [],
    "RequestId": "b5b41468-520d-4192-b42f-595cc34b6c1c"
  }
}
```

- The API will return `Response` , which contains `RequestId` , as long as it processes the request. It does not matter if the request is successful or not.
- `RequestId` is the unique ID of an API request. Contact us with this ID when an exception occurs.
- Except for the fixed fields, all fields are action-specified. For the definitions of action-specified fields, see the corresponding API documentation. In this example, `TotalCount` and `InstanceStatusSet` are the fields specified by the API `DescribeInstancesStatus` .  
0 `TotalCount` means that the requester owns 0 CVM instance so the `InstanceStatusSet` is empty.

## Response for Failed Requests

If the request has failed, you may see the response as shown below:

```
{
  "Response": {
    "Error": {
      "Code": "AuthFailure.SignatureFailure",
      "Message": "The provided credentials could not be validated. Please ensure your signature is correct."
    },
    "RequestId": "ed93f3cb-f35e-473f-b9f3-0d451b8b79c6"
  }
}
```

- The presence of the `Error` field indicates that the request has failed. A response for a failed request will include `Error` , `Code` and `Message` fields.
- `Code` is the code of the error that helps you identify the cause and solution. There are two types of error codes so you may find the code in either common error codes or API-specified error codes.
- `Message` explains the cause of the error. Note that the returned messages are subject to service updates. The information the messages provide may not be up-to-date and should not be the only source of reference.
- `RequestId` is the unique ID of an API request. Contact us with this ID when an exception occurs.

## Common Error Codes

If there is an `Error` field in the response, it means that the API call failed. The `Code` field in `Error` indicates the error code. The following table lists the common error codes that all actions can return.

Error Code	Description
AuthFailure.InvalidSecretId	Invalid key (not a TencentCloud API key type).
AuthFailure.MFAFailure	MFA failed.
AuthFailure.SecretIdNotFound	The key does not exist.
AuthFailure.SignatureExpire	Signature expired.
AuthFailure.SignatureFailure	Signature error.
AuthFailure.TokenFailure	Token error.
AuthFailure.UnauthorizedOperation	The request does not have CAM authorization.
DryRunOperation	DryRun Operation. It means that the request would have succeeded, but the DryRun parameter was used.
FailedOperation	Operation failed.
InternalError	Internal error.
InvalidAction	The API does not exist.
InvalidParameter	Incorrect parameter.
InvalidParameterValue	Invalid parameter value.
LimitExceeded	Quota limit exceeded.
MissingParameter	A parameter is missing.
NoSuchVersion	The API version does not exist.
RequestLimitExceeded	The number of requests exceeds the frequency limit.
ResourceInUse	Resource is in use.
ResourceInsufficient	Insufficient resource.
ResourceNotFound	The resource does not exist.
ResourceUnavailable	Resource is unavailable.
UnauthorizedOperation	Unauthorized operation.
UnknownParameter	Unknown parameter.
UnsupportedOperation	Unsupported operation.
UnsupportedProtocol	HTTPS request method error. Only GET and POST requests are supported.
UnsupportedRegion	API does not support the requested region.



# Other APIs

## DescribeDBSpaceStatus

Last updated : 2020-07-31 10:12:56

### 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to query the overview of instance space usage during a specified time period, including disk usage growth (MB), available disk space (MB), total disk space (MB), and estimated number of available days.

A maximum of 20 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

### 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeDBSpaceStatus.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
RangeDays	No	Integer	Query period in days. The end date is the current date and the query period is 7 days by default.

### 3. Output Parameters

Parameter Name	Type	Description
Growth	Integer	Disk usage growth in MB.
Remain	Integer	Available disk space in MB.
Total	Integer	Total disk space in MB.

Parameter Name	Type	Description
AvailableDays	Integer	Estimated number of available days.
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

### Example1 Querying overview of instance space usage during a specified time period

#### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action=DescribeDBSpaceStatus
&InstanceId=cdb-test
&RangeDays=5
&<Common request parameters>
```

#### Output Example

```
{
  "Response": {
    "Remain": 23224,
    "RequestId": "78cf7bb1-0608-11ea-a9ef-2736f0f7f829",
    "Growth": 231,
    "Total": 50000,
    "AvailableDays": 35
  }
}
```

## 5. Developer Resources

### API Explorer

This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.

- [API 3.0 Explorer](#)

### SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)
- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

### Command Line Interface

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

The following only lists the error codes related to the API business logic. For other error codes, see [Common Error Codes](#).

Error Code	Description
InvalidParameter	Invalid parameter.
InvalidParameterValue	Incorrect parameter value.
UnauthorizedOperation	Unauthorized operation.

# DescribeTopSpaceTableTimeSeries

Last updated : 2020-07-31 10:12:55

## 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to query the daily space data of top tables consuming the most instance space. The data is daily collected by DBbrain during a specified time period. The return results are sorted by size by default.

A maximum of 20 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

## 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeTopSpaceTableTimeSeries.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
Limit	No	Integer	Number of returned top tables. Default value: 20. Maximum value: 20.
SortBy	No	String	Field used to sort top tables. Valid values: DataLength, IndexLength, TotalLength, DataFree, FragRatio, TableRows, PhysicalFileSize. Default value: PhysicalFileSize.
StartDate	No	Date	Start date. It can be as early as 6 days before the current date, and defaults to 6 days before the end date.
EndDate	No	Date	End date. It can be as early as 6 days before the current date, and defaults to the current date.

## 3. Output Parameters

Parameter Name	Type	Description
TopSpaceTableTimeSeries	Array of <a href="#">TableSpaceTimeSeries</a>	Time series list of the returned space statistics of top tables.

Parameter Name	Type	Description
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

### Example1 Querying daily space statistics of top tables during a specified time period

#### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action=DescribeTopSpaceTableTimeSeries
&InstanceId=cdb-test
&Limit=2
&StartDate=2020-01-01
&EndDate=2020-01-01
&<Common request parameters>
```

#### Output Example

```
{
  "Response": {
    "RequestId": "d97eacb0-cebd-40b6-963b-579092454f05",
    "TopSpaceTableTimeSeries": [
      {
        "TableName": "test",
        "TableSchema": "test_bak",
        "SeriesData": {
          "Series": [
            {
              "Values": [
                0
              ],
              "Metric": "DataFree",
              "Unit": "MB"
            },
            {
              "Values": [
                0.1
              ],
              "Metric": "DataLength",
              "Unit": "MB"
            },
            {
              "Values": [
                0
              ],
              "Metric": "IndexLength",
              "Unit": "MB"
            },
            {
              "Values": [
                0.1
              ],
              "Metric": "TotalLength",
              "Unit": "MB"
            }
          ]
        }
      }
    ]
  }
}
```

```
"Values": [
0
],
"Metric": "FragRatio",
"Unit": "%"
},
{
"Values": [
9
],
"Metric": "TableRows",
"Unit": ""
},
{
"Values": [
0.1
],
"Metric": "PhysicalFileSize",
"Unit": "MB"
}
],
"Timestamp": [
1588089600
]
},
"Engine": "InnoDB"
},
{
"TableName": "test22",
"TableSchema": "test_bak",
"SeriesData": {
"Series": [
{
"Values": [
0
],
"Metric": "DataFree",
"Unit": "MB"
},
{
"Values": [
0.1
],
"Metric": "DataLength",
"Unit": "MB"
},
{
"Values": [
0
],
"Metric": "IndexLength",
"Unit": "MB"
},
{
"Values": [
0.1
],
"Metric": "TotalLength",
"Unit": "MB"
},
{
"Values": [
```

```
0
],
"Metric": "FragRatio",
"Unit": "%"
},
{
"Values": [
6
],
"Metric": "TableRows",
"Unit": ""
},
{
"Values": [
0.1
],
"Metric": "PhysicalFileSize",
"Unit": "MB"
}
],
"Timestamp": [
1588089600
]
},
"Engine": "InnoDB"
}
]
}
}
```

## 5. Developer Resources

### API Explorer

This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.

- [API 3.0 Explorer](#)

### SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)
- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

### Command Line Interface

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

The following only lists the error codes related to the API business logic. For other error codes, see [Common Error Codes](#).

---

Error Code	Description
InvalidParameter	Invalid parameter.
InvalidParameterValue	Incorrect parameter value.
UnauthorizedOperation	Unauthorized operation.



# DescribeTopSpaceTables

Last updated : 2020-07-31 10:12:55

## 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to query real-time space statistics of top tables of an instance. The return results are sorted by size by default.

A maximum of 20 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

## 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeTopSpaceTables.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
Limit	No	Integer	Number of returned top tables. Default value: 20. Maximum value: 20.
SortBy	No	String	Field used to sort top tables. Valid values: DataLength, IndexLength, TotalLength, DataFree, FragRatio, TableRows, PhysicalFileSize. Default value: PhysicalFileSize.

## 3. Output Parameters

Parameter Name	Type	Description
TopSpaceTables	Array of <a href="#">TableSpaceData</a>	List of the returned space statistics of top tables.
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

### Example1 Querying space statistics of top tables

#### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action=DescribeTopSpaceTables
&InstanceId=cdb-test
&Limit=2
&SortBy=TableRows
&<Common request parameters>
```

#### Output Example

```
{
  "Response": {
    "RequestId": "ed279d8b-a9d9-48d6-9429-e0fde000994a",
    "TopSpaceTables": [
      {
        "DataFree": 0,
        "TableName": "test",
        "TotalLength": 0.1,
        "TableSchema": "test_bak",
        "FragRatio": 0,
        "DataLength": 0.1,
        "PhysicalFileSize": 0.1,
        "TableRows": 9,
        "Engine": "InnoDB",
        "IndexLength": 0
      },
      {
        "DataFree": 0,
        "TableName": "test",
        "TotalLength": 0.1,
        "TableSchema": "test_bak",
        "FragRatio": 0,
        "DataLength": 0.1,
        "PhysicalFileSize": 0.1,
        "TableRows": 9,
        "Engine": "InnoDB",
        "IndexLength": 0
      }
    ]
  }
}
```

## 5. Developer Resources

### API Explorer

This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.

- [API 3.0 Explorer](#)

### SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)
- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

### Command Line Interface

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

The following only lists the error codes related to the API business logic. For other error codes, see [Common Error Codes](#).

Error Code	Description
InvalidParameter	Invalid parameter.
InvalidParameterValue	Incorrect parameter value.
UnauthorizedOperation	Unauthorized operation.

# Exception Detection APIs

## DescribeDBDiagEvent

Last updated : 2020-07-31 10:12:56

### 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to get the details of an instance exception diagnosis event.

A maximum of 20 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

### 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeDBDiagEvent.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
EventId	No	Integer	Event ID, which can be obtained through the <code>DescribeDBDiagHistory</code> API.

### 3. Output Parameters

Parameter Name	Type	Description
DiagItem	String	Diagnosis item.
DiagType	String	Diagnosis type.
EventId	Integer	Event ID.
Explanation	String	Event details.
Outline	String	Summary.

Parameter Name	Type	Description
Problem	String	Problem found.
Severity	Integer	Severity, which can be divided into 5 levels: 1: fatal, 2: severe, 3: warning, 4: notice, 5: healthy.
StartTime	Timestamp	Start time
Suggestions	String	Suggestion.
Metric	String	Reserved field. Note: this field may return null, indicating that no valid values can be obtained.
EndTime	Timestamp	End time.
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

### Example1 Getting diagnosis event details

#### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action=DescribeDBDiagEvent
&InstanceId=test
&EventId=5
&<Common request parameters>
```

#### Output Example

```
{
  "Response": {
    "Suggestions": "[]",
    "DiagType": "Database snapshot",
    "EndTime": "2019-11-06 12:05:50",
    "RequestId": "78cf7bb1-0608-11ea-a9ef-2736f0f7f829",
    "Explanation": "[]",
    "StartTime": "2019-11-06 12:05:40",
    "EventId": 5,
    "Severity": 4,
    "Outline": "1 problem found during database health check",
    "Problem": "[{"DataType":"title","Data":{"Name":"Session snapshot"}}, {"DataType":"title","Data":{"Name":"Transaction snapshot"}}, {"DataType":"title","Data":{"Name":"InnoDB status snapshot"}}]",
    "Metric": "",
    "DiagItem": "Health check"
  }
}
```

## 5. Developer Resources

### API Explorer

**This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.**

- [API 3.0 Explorer](#)

## SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)
- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

## Command Line Interface

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

The following only lists the error codes related to the API business logic. For other error codes, see [Common Error Codes](#).

Error Code	Description
InvalidParameter	Invalid parameter.
InvalidParameterValue	Incorrect parameter value.
UnauthorizedOperation	Unauthorized operation.

# DescribeDBDiagHistory

Last updated : 2020-07-31 10:12:56

## 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to get the list of instance diagnosis events.

A maximum of 20 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

## 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeDBDiagHistory.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
StartTime	Yes	Timestamp	Start time, such as "2019-09-10 12:13:14".
EndTime	Yes	Timestamp	End time, such as "2019-09-11 12:13:14".

## 3. Output Parameters

Parameter Name	Type	Description
Events	Array of <a href="#">DiagHistoryEventItem</a>	Event description.
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

## Example1 Getting instance diagnosis event list

### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action= DescribeDBDiagHistory
&StartTime=2019-01-01 00:00:00
&EndTime=2019-01-01 01:00:00
&InstanceId=cdb-test
&<Common request parameters>
```

### Output Example

```
{
  "Response": {
    "RequestId": "",
    "Events": [
      {
        "DiagType": "Row lock",
        "EndTime": "2019-07-08 15:17:20",
        "StartTime": "2019-07-08 15:51:08",
        "EventId": 5,
        "Severity": 4,
        "Outline": "Monitoring metric ¥innodb_row_lock_waits¥ triggered an alarm. Current value: 131",
        "DiagItem": "UPDATE statement row lock wait"
      }
    ]
  }
}
```

## 5. Developer Resources

### API Explorer

This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.

- [API 3.0 Explorer](#)

### SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)
- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

### Command Line Interface

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

The following only lists the error codes related to the API business logic. For other error codes, see [Common Error Codes](#).



---

Error Code	Description
InvalidParameter	Invalid parameter.
InvalidParameterValue	Incorrect parameter value.
UnauthorizedOperation	Unauthorized operation.

# Slow SQL Analysis APIs

## DescribeSlowLogTimeSeriesStats

Last updated : 2020-07-31 10:12:55

### 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to get the slow log statistics histogram.

A maximum of 5 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

### 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeSlowLogTimeSeriesStats.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
StartTime	Yes	Timestamp	Start time.
EndTime	Yes	Timestamp	End time.

### 3. Output Parameters

Parameter Name	Type	Description
Period	Integer	Time range in seconds in histogram.
TimeSeries	Array of <a href="#">TimeSlice</a>	Number of slow logs in specified time range.
SeriesData	<a href="#">MonitorMetricSeriesData</a>	Instance CPU utilization monitoring data in specified time range.

Parameter Name	Type	Description
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

### Example1 Getting slow log statistics histogram

#### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action=DescribeSlowLogTimeSeriesStats
&InstanceId=test
&StartTime=2019-01-01 00:00:00
&EndTime=2019-01-01 01:00:00
&<Common request parameters>
```

#### Output Example

```
{
  "Response": {
    "TimeSeries": [
      {
        "Count": 0,
        "Timestamp": 1568113800
      },
      {
        "Count": 0,
        "Timestamp": 1568191680
      },
      {
        "Count": 0,
        "Timestamp": 1568269560
      },
      {
        "Count": 0,
        "Timestamp": 1568347440
      },
      {
        "Count": 2,
        "Timestamp": 1568425320
      },
      {
        "Count": 0,
        "Timestamp": 1568503200
      },
      {
        "Count": 0,
        "Timestamp": 1568581080
      },
      {
        "Count": 0,
        "Timestamp": 1568658960
      },
      {
        "Count": 0,
        "Timestamp": 1568736840
      }
    ]
  }
}
```

```
},
{
  "Count": 0,
  "Timestamp": 1568814720
},
{
  "Count": 0,
  "Timestamp": 1568892600
},
{
  "Count": 0,
  "Timestamp": 1568970480
},
{
  "Count": 0,
  "Timestamp": 1569048360
},
{
  "Count": 0,
  "Timestamp": 1569126240
},
{
  "Count": 0,
  "Timestamp": 1569204120
},
{
  "Count": 0,
  "Timestamp": 1569282000
},
{
  "Count": 0,
  "Timestamp": 1569359880
},
{
  "Count": 0,
  "Timestamp": 1569437760
},
{
  "Count": 0,
  "Timestamp": 1569515640
},
{
  "Count": 0,
  "Timestamp": 1569593520
},
{
  "Count": 0,
  "Timestamp": 1569671400
},
{
  "Count": 0,
  "Timestamp": 1569749280
},
{
  "Count": 0,
  "Timestamp": 1569827160
},
{
  "Count": 0,
  "Timestamp": 1569905040
},
{
```



```
-1
],
"Metric": "cpu_use_rate",
"Unit": "%"
}
],
"Timestamp": [
1568113800,
1568191680,
1568269560,
1568347440,
1568425320,
1568503200,
1568581080,
1568658960,
1568736840,
1568814720,
1568892600,
1568970480,
1569048360,
1569126240,
1569204120,
1569282000,
1569359880,
1569437760,
1569515640,
1569593520,
1569671400,
1569749280,
1569827160,
1569905040,
1569982920,
1570060800,
1570138680,
1570216560,
1570294440,
1570372320,
1570450200
]
},
"RequestId": "b445f8ee-9357-4d93-83c2-3596f9d1f27e",
"Period": 77880
}
}
```

## 5. Developer Resources

### API Explorer

This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.

- [API 3.0 Explorer](#)

### SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)

- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

### **Command Line Interface**

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

There is no error code related to the API business logic. For other error codes, please see [Common Error Codes](#).

# DescribeSlowLogTopSqls

Last updated : 2020-07-31 10:12:55

## 1. API Description

Domain name for API request: dbbrain.tencentcloudapi.com.

This API is used to get and sort the top slow SQL statements in a specified time period by the aggregation mode of SQL template plus schema.

A maximum of 5 requests can be initiated per second for this API.

Note: This API supports Finance regions. If the common parameter Region is a Finance region, a domain name with the Finance region needs to be specified, for example: dbbrain.ap-shanghai-fsi.tencentcloudapi.com

We recommend you to use API Explorer

[Try it](#)

API Explorer provides a range of capabilities, including online call, signature authentication, SDK code generation, and API quick search. It enables you to view the request, response, and auto-generated examples.

## 2. Input Parameters

The following request parameter list only provides API request parameters and some common parameters. For the complete common parameter list, see [Common Request Parameters](#).

Parameter Name	Required	Type	Description
Action	Yes	String	Common parameter. The value used for this API: DescribeSlowLogTopSqls.
Version	Yes	String	Common parameter. The value used for this API: 2019-10-16.
Region	Yes	String	Common parameter. For more information, please see the <a href="#">list of regions</a> supported by the product.
InstanceId	Yes	String	Instance ID.
StartTime	Yes	Timestamp	Start time.
EndTime	Yes	Timestamp	End time.
SortBy	No	String	Sorting key. Valid values: QueryTime, ExecTimes, RowsSent, LockTime, RowsExamined.
OrderBy	No	String	Sorting order. Valid values: ASC (ascending), DESC (descending).
Limit	No	Integer	Number of results to be returned. Default value: 20. Maximum value: 100.
Offset	No	Integer	Offset. Default value: 0.

## 3. Output Parameters

Parameter Name	Type	Description
----------------	------	-------------



Parameter Name	Type	Description
TotalCount	Integer	Number of eligible entries.
Rows	Array of <a href="#">SlowLogTopSqlItem</a>	List of top slow SQL statements
RequestId	String	The unique request ID, which is returned for each request. RequestId is required for locating a problem.

## 4. Example

### Example1 Querying slow log statistics in specified time period by SQL template

#### Input Example

```
https://dbbrain.tencentcloudapi.com/?Action=DescribeSlowLogTopSqls
&InstanceId=test
&SortBy=QueryTime
&OrderBy=ASC
&Limit=10
&Offset=0
&StartTime=2019-01-01 00:00:00
&EndTime=2019-01-01 01:00:00
&<Common request parameters>
```

#### Output Example

```
{
  "TotalCount": 1,
  "Rows": [
    {
      "RowsExaminedMax": 0,
      "ExecTimes": 2,
      "RowsSentMax": 0,
      "QueryTimeRatio": 100,
      "LockTimeRatio": 0,
      "LockTimeMin": 0,
      "RowsExaminedRatio": 0,
      "Schema": "",
      "SqlText": "select test from test",
      "QueryTime": 28.17341,
      "SqlTemplate": "select ? from ?",
      "QueryTimeMax": 14.086705,
      "LockTime": 0,
      "RowsSent": 0,
      "RowsSentMin": 0,
      "LockTimeMax": 0,
      "RowsSentRatio": 0,
      "RowsExamined": 0,
      "RowsExaminedMin": 0,
      "QueryTimeMin": 0
    }
  ]
}
```

## 5. Developer Resources

### API Explorer

This tool allows online call, signature authentication, SDK code generation and quick search of APIs to greatly improve the efficiency of using TencentCloud APIs.

- [API 3.0 Explorer](#)

### SDK

TencentCloud API 3.0 integrates SDKs that support various programming languages to make it easier for you to call APIs.

- [Tencent Cloud SDK 3.0 for Python](#)
- [Tencent Cloud SDK 3.0 for Java](#)
- [Tencent Cloud SDK 3.0 for PHP](#)
- [Tencent Cloud SDK 3.0 for Go](#)
- [Tencent Cloud SDK 3.0 for NodeJS](#)
- [Tencent Cloud SDK 3.0 for .NET](#)

### Command Line Interface

- [Tencent Cloud CLI 3.0](#)

## 6. Error Code

The following only lists the error codes related to the API business logic. For other error codes, see [Common Error Codes](#).

Error Code	Description
InvalidParameter	Invalid parameter.
InvalidParameterValue	Incorrect parameter value.

# Data Types

Last updated : 2020-07-31 10:12:56

## DiagHistoryEventItem

Instance diagnosis event

Used by actions: DescribeDBDiagHistory.

Name	Type	Description
DiagType	String	Diagnosis type.
EndTime	Timestamp	End time.
StartTime	Timestamp	Start time.
EventId	Integer	Event ID.
Severity	Integer	Severity, which can be divided into 5 levels: 1: fatal, 2: severe, 3: warning, 4: notice, 5: healthy.
Outline	String	Summary.
DiagItem	String	Diagnosis item.
InstanceId	String	Instance ID. Note: this field may return null, indicating that no valid values can be obtained.
Metric	String	Reserved field Note: this field may return null, indicating that no valid values can be obtained.
Region	String	Region Note: this field may return null, indicating that no valid values can be obtained.

## MonitorFloatMetric

Monitoring data in float type

Used by actions: DescribeTopSpaceTableTimeSeries.

Name	Type	Description
Metric	String	Metric name.
Unit	String	Metric unit.
Values	Array of Float	Metric value. Note: this field may return null, indicating that no valid values can be obtained.

## MonitorFloatMetricSeriesData

Monitoring metric value in float type in a unit of time interval

Used by actions: DescribeTopSpaceTableTimeSeries.

Name	Type	Description
Series	Array of <a href="#">MonitorFloatMetric</a>	Monitoring metric.
Timestamp	Array of Integer	Timestamp corresponding to monitoring metric.

## MonitorMetric

Monitoring data

Used by actions: DescribeSlowLogTimeSeriesStats.

Name	Type	Description
Metric	String	Metric name.
Unit	String	Metric unit.
Values	Array of Integer	Metric value. Note: this field may return null, indicating that no valid values can be obtained.

## MonitorMetricSeriesData

Monitoring metric data in specified time range

Used by actions: DescribeSlowLogTimeSeriesStats.

Name	Type	Description
Series	Array of <a href="#">MonitorMetric</a>	Monitoring metric.
Timestamp	Array of Integer	Timestamp corresponding to monitoring metric.

## SlowLogTopSqlItem

Top slow SQL statements

Used by actions: DescribeSlowLogTopSqls.

Name	Type	Description
LockTime	Float	Total SQL lock wait time
LockTimeMax	Float	Maximum lock wait time
LockTimeMin	Float	Minimum lock wait time
RowsExamined	Integer	Total number of scanned rows
RowsExaminedMax	Integer	Maximum number of scanned rows
RowsExaminedMin	Integer	Minimum number of scanned rows
QueryTime	Float	Total duration
QueryTimeMax	Float	Maximum execution time

Name	Type	Description
QueryTimeMin	Float	Minimum execution time
RowsSent	Integer	Total number of returned rows
RowsSentMax	Integer	Maximum number of returned rows
RowsSentMin	Integer	Minimum number of returned rows
ExecTimes	Integer	Number of executions
SqlTemplate	String	SQL template
SqlText	String	SQL with parameter (random)
Schema	String	Schema
QueryTimeRatio	Float	Ratio of total duration
LockTimeRatio	Float	Ratio of total SQL lock wait time
RowsExaminedRatio	Float	Ratio of total number of scanned rows
RowsSentRatio	Float	Ratio of total number of returned rows

## TableSpaceData

Database table space statistics.

Used by actions: DescribeTopSpaceTables.

Name	Type	Description
TableName	String	Table name.
TableSchema	String	Database name.
Engine	String	Database table storage engine.
DataLength	Float	Data space in MB.
IndexLength	Float	Index space in MB.
DataFree	Float	Fragmented space in MB.
TotalLength	Float	Total space usage in MB.
FragRatio	Float	Fragmented rate (%).
TableRows	Integer	Number of rows.
PhysicalFileSize	Float	Size in MB of the physical file exclusive to a table.

## TableSpaceTimeSeries

Time series of database table space data

Used by actions: DescribeTopSpaceTableTimeSeries.

Name	Type	Description
TableName	String	Table name.
TableSchema	String	Database name.
Engine	String	Database table storage engine.
SeriesData	<a href="#">MonitorFloatMetricSeriesData</a>	Monitoring metric data in a unit of time interval.

## TimeSlice

Slow log statistics in specified time range

Used by actions: DescribeSlowLogTimeSeriesStats.

Name	Type	Description
Count	Integer	Total number
Timestamp	Integer	Statistics start time

# Error Codes

Last updated : 2020-06-12 10:32:19

## Feature Description

If there is an Error field in the response, it means that the API call failed. For example:

```
{
  "Response": {
    "Error": {
      "Code": "AuthFailure.SignatureFailure",
      "Message": "The provided credentials could not be validated. Please check your signature is correct."
    },
    "RequestId": "ed93f3cb-f35e-473f-b9f3-0d451b8b79c6"
  }
}
```

Code in Error indicates the error code, and Message indicates the specific information of the error.

## Error Code List

### Common Error Codes

Error Code	Description
UnsupportedOperation	Unsupported operation.
ResourceInUse	Resource is in use.
InternalServerError	Internal error.
RequestLimitExceeded	The number of requests exceeds the frequency limit.
AuthFailure.SecretIdNotFound	Key does not exist. Check if the key has been deleted or disabled in the console, and if not, check if the key is correctly entered. Note that whitespaces should not exist before or after the key.
LimitExceeded	Quota limit exceeded.
NoSuchVersion	The API version does not exist.
ResourceNotFound	The resource does not exist.
AuthFailure.SignatureFailure	Invalid signature. Signature calculation error. Please ensure you've followed the signature calculation process described in the Signature API documentation.
AuthFailure.SignatureExpire	Signature expired. Timestamp and server time cannot differ by more than five minutes. Please ensure your current local time matches the standard time.
UnsupportedRegion	API does not support the requested region.
UnauthorizedOperation	Unauthorized operation.
InvalidParameter	Incorrect parameter.
ResourceUnavailable	Resource is unavailable.

Error Code	Description
AuthFailure.MFAFailure	MFA failed.
AuthFailure.UnauthorizedOperation	The request is not authorized. For more information, see the <a href="#">CAM</a> documentation.
AuthFailure.InvalidSecretId	Invalid key (not a TencentCloud API key type).
AuthFailure.TokenFailure	Token error.
DryRunOperation	DryRun Operation. It means that the request would have succeeded, but the DryRun parameter was used.
FailedOperation	Operation failed.
UnknownParameter	Unknown parameter.
UnsupportedProtocol	HTTP(S) request protocol error; only GET and POST requests are supported.
InvalidParameterValue	Invalid parameter value.
InvalidAction	The API does not exist.
MissingParameter	A parameter is missing.
ResourceInsufficient	Insufficient resource.