API Overview

Cloud Development > API List > API

Version: 20200620

Online Version

Contents

This topic describes the latest APIs of Cloud Development platform. If you are using the previous version, see Open API.

1 Definitions

name	type	description
client_id	String	client_id，get from iot.tuya.com，equals accessId
secret	String	secret，get from iot.tuya.com，equals accessKey
t	Long	13-digit standard time stamp
sign	String	The signature result field, according to the result of the signature of the specified algorithm, it should be noted that the token interface is different from the service interface algorithm.
sign_method	String	Signed digest algorithm，HMAC-SHA256
device_id	String	The device is only validly numbered, and tuya cloud performs business interaction based on device_id.

name	type	description
uuid	String	Unique identification of the device chip.When device be refactory , the device_id will be changed to another one but the uuid won‘t be changed.
owner_id	String	Is the home_id selected when the user adds the device, which is equivalent to home_id.
schema	String	application unique identifier.It is based on sdk development, related to user, need to rely on this field
product_id	String	Product unique identification

2 Development process

The below development process apply to solution 2 and 3. The solution 1/4/5 will skip the step of creating App.

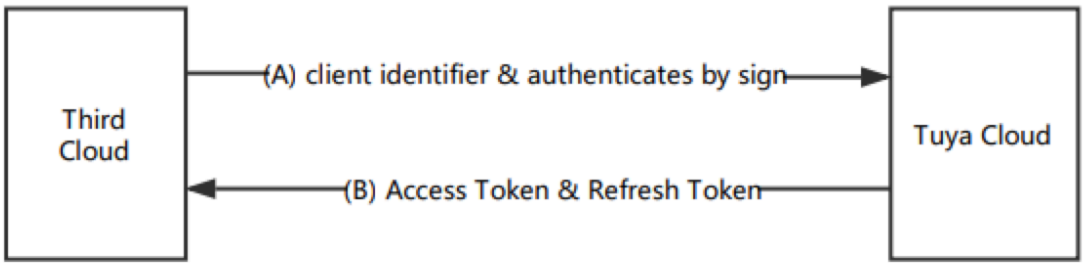
- register developer account;
- Cloud development creates cloud application projects, to get client_id & secret（Notes：Developer platform key equals accessId & accessKey）;
- Create SDK: On the tuya IoT platform, select **App Service**>**App SDK**>**Get SDK**>**Fill in parameters**>**Get schema** ;
- Business development based on openapi (Note: It is recommended to refer to the quick access documentation, based on postman to quickly understand the openapi access method);
- After the test is correct, the developer publishes it by itself system.

3 Authorization process

Each business openapi needs to perform token verification;

Tuya openapi follows the oauth2 protocol standard.

For the cloud integration scenario,Tuya provides an implicit authorization method to obtain:



- (A) The developer performs signature verification based on the client_id and secret according to tuya cloud openapi interface specification.;
- (B) Tuya cloud checks and issues tokens to third-party cloud.

> Notes: The token obtained by the implicit authorization method, the permission dimension is the developer dimension, and the operation permission scope of the token is the scope of the developer's authorized operation, such as: operation (add, delete, modify, get) the developer's application user data, operation Device data under the developer product, device data bound by the user under the operation developer application.

4 Interface specification

Environment Description

```
China   https://openapi.tuyacn.com
America https://openapi.tuyaus.com
Europe  https://openapi.tuyaeu.com
India   https://openapi.tuyain.com
```

> The user of each interface should call the corresponding interface according to its own located area.

Request Method

- Supported request methods are as follows:
  - GET
  - PUT
  - POST
  - DELETE

Note: When the request method is POST, content_type needs to use application/json.

Request Header Settings

Every interface must add the following parameters in header:

Parameter name	Type	Parameter position	Description	Required
client_id	String	header	client_id	Yes
access_token	String	header	Token obtained through the above authorization	Yes

Parameter name	Type	Parameter position	Description	Required
sign	String	header	The signature calculated by the specified signature algorithm: token-related interface, service-related interface	Yes
sign_method	String	header	HMAC-SHA256	Yes
t	Long	header	13-digit standard time stamp	Yes
lang	String	header	language，Default zh in China, default en in other areas	No

> business interface(except token interfaces) needs a parameter：access_token

Signature method

TuyaCloud provide two sign algorithm based on different scenario：

- token related interface（v1.0/token&v1.0/token/{refresh_token}）：sign = HMAC-SHA256(client_id + t, secret).toUpperCase()
- business interface(except token interfaces)： sign = HMAC-SHA256(client_id + access_token + t, secret).toUpperCase()

Return Results

Unified return to json. General format is as follows:

Normal return of business:

```
{

    "success": true,
    "result": {
        //object
    }

}
```

Erroneous return of business:

```
{

    "success": false,
    "code": 1010,
    "msg": "token illegal"

}
```

5 Signature specification

Tuya cloud Use hmac-sha256 to create a summary, according to different application scenarios, currently provides two sets of signature algorithms：

Token management interface（get token, refresh token）

sign = HMAC-SHA256(client_id + t, secret).toUpperCase()

Use the requested client_id and the currently requested 13-digit standard timestamp to stitch into a string to be signed, and use the cloud application secret as the key to participate in the hash digest. The resulting string is finally capitalized.；

Business interface

sign = HMAC-SHA256(client_id + access_token + t, secret).toUpperCase()

Use the applied cloud application client_id + the currently valid request token + the currently requested 13-digit standard timestamp to stitch into the string to be signed, and use the applied cloud application secret as the key to participate in the hash digest, and the resulting string , And finally capitalized。

Signature example

- Prepare parameters：

  client_id：1KAD46OrT9HafiKdsXeg

  secret：4OHBOnWOqaEC1mWXOpVL3yV50s0qGSRC

  t：1588925778000

  access_token：3f4eda2bdec17232f67c0b188af3eec1

- Token management interface signature：

  String to be signed：1KAD46OrT9HafiKdsXeg1588925778000

  Signature result：HMAC-SHA256(1KAD46OrT9HafiKdsXeg1588925778000,4OHBOnWOqaEC

  ceaafb5ccdc2f723a9fd3e91d3d2238ee0dd9a6d7c3c365deb50fc2af277aa83

  Convert to uppercase：CEAAFB5CCDC2F723A9FD3E91D3D2238EE0DD9A6D7C3C365DEB50

- Business interface：

  String to be signed：1KAD46OrT9HafiKdsXeg3f4eda2bdec17232f67c0b188af3eec11588925

  Signature result：HMAC-SHA256(1KAD46OrT9HafiKdsXeg3f4eda2bdec17232f67c0b188af3e

  36c30e300f226b68add014dd1ef56a81edb7b7a817840485769b9d6c96d0faa1

Convert to uppercase:36C30E300F226B68ADD014DD1EF56A81EDB7B7A817840485769B9

Implementation of HMAC SHA256 in various languages:

- Javascript HMAC SHA256

```
/**
Run the code online with this jsfiddle. Dependent upon an open source
    js library calledhttp://code.google.com/p/crypto-js/.
**/

<script src="http://crypto-js.googlecode.com/svn/tags/3.0.2/build/
    rollups/hmac-sha256.js"></script>
<script src="http://crypto-js.googlecode.com/svn/tags/3.0.2/build/
    components/enc-base64-min.js"></script>

<script>
  var hash = CryptoJS.HmacSHA256("Message", "secret");
  var hashInBase64 = hash.toString().toUpperCase();
  document.write(hashInBase64);
</script>
```

- PHP HMAC SHA256

```
/**
PHP has built in methods for hash_hmac (PHP 5) and base64_encode (PHP
    4, PHP 5) resulting in no outside dependencies. Say what you want
    about PHP but they have the cleanest code for this example.
**/

$s = hash_hmac('sha256', 'Message', 'secret', true);
echo strtoupper(var_dump(($s));
```

- Java HMAC SHA256

```java
/**
Dependent on Apache Commons Codec to encode in base64.
**/

import javax.crypto.Mac;
import javax.crypto.spec.SecretKeySpec;
import org.apache.commons.codec.binary.Base64;

public class ApiSecurityExample {
  public static void main(String[] args) {
    try {
     String secret = "secret";
     String message = "Message";

     Mac sha256_HMAC = Mac.getInstance("HmacSHA256");
     SecretKeySpec secret_key = new SecretKeySpec(secret.getBytes(), "
        HmacSHA256");
     sha256_HMAC.init(secret_key);

     byte[] bytes = sha256_HMAC.doFinal(message.getBytes());
     String hash = new HexBinaryAdapter().marshal(bytes).toUpperCase();
     System.out.println(hash);
    }
    catch (Exception e){
     System.out.println("Error");
    }
   }
}
```

- C# HMAC SHA256

```
using System;
using System.Security.Cryptography;

namespace Test
{
  public class MyHmac
  {
    private string CreateToken(string message, string secret)
    {
      secret = secret ?? "";
      var encoding = new System.Text.ASCIIEncoding();
      byte[] keyByte = encoding.GetBytes(secret);
      byte[] messageBytes = encoding.GetBytes(message);
      using (var hmacsha256 = new HMACSHA256(keyByte))
      {
        byte[] hashmessage = hmacsha256.ComputeHash(messageBytes);
        return System.Text.Encoding.Default.GetString(hashmessage).
            ToUpper();
      }
    }
  }
}
```

6 SDK Integration

6.1 Java

Accelerate the development of cloud-to-cloud docking. Currently, the Tuya Cloud SDK based on the Java development language is provided to encapsulate token-related, user-related, and device-related interfaces.

Developers only need to pay attention to the invocation of the business function method used, and build the corresponding TuyaClient instance. The instance will automatically update the token and complete the corresponding API call. The SDK mainly includes the following functions, please refer to the corresponding modules below for detailed interface information:

- Token related (no user call required)
- User related (get user list, registered users, get device list under users)
- Device-related (obtain interfaces such as device distribution network token and all device lists under the distribution network token)

Integrated SDK

IDEA import jar package: Https://jingyan.baidu.com/article/0f5fb0993e9e1f6d8334ead2.html

Eclipse import jar package:

- https://jingyan.baidu.com/article/ca41422fc76c4a1eae99ed9f.html

Download link

- https://images.tuyacn.com/smart/docs/tuyacloudapi-1.1-SNAPSHOT.jar

GitHub link

- https://github.com/TuyaInc/tuya_cloud_sdk_java

General Module

Because some of the newly added interfaces cannot be integrated into the SDK in a timely manner, developers can expand horizontally through the SDK's universal interface to meet development.

Get the header list:

```
/ **
* Get Header List
* @param isToken is a token related request, generally false
* @return
* /
public List <Header> getHeaders (Boolean isToken)
```

Universal Tuya interface:

```
/ **
    * Universal Tuya interface
    * @param url
    * @param method request type (example: GET)
    * @param headers request header content (additional header)
    * @param body
    * @return
    * /
public String commonHttpRequest (String url, HttpMethod method, Map <
    String, String> headers, Object body)

```

Call example

registered user

```
TuyaClient client = new TuyaClient (clientId, secret, RegionEnum.CN);
String uid = client.registerUser ("testApp", "86", "18212345678",
    MD5Util.getMD5 ("123456") "nickName", UserTypeEnum.MOBLIE);
System.out.println ("User successfully synced:" + uid);
```

6.2 Golang

GitHub link

- https://github.com/TuyaInc/tuya_cloud_sdk_go