5947 words | 15 min

OAuth 2.0

Prepared Information

Before starting, you should provide us with the following information:

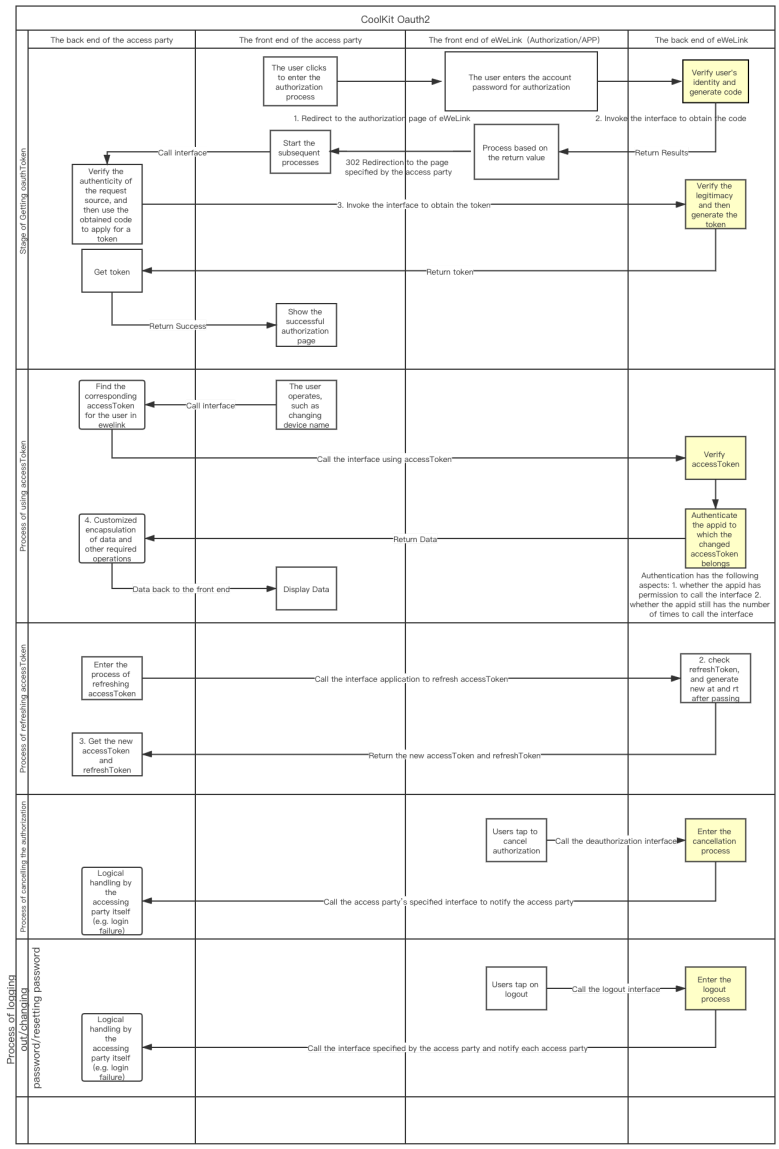
- Application Name (Project Name in English or Chinese)
- Applicant contact information (phone number or email)
- Redirect address (URL address to which users will redirect after successfully logging into their eWeLink account)
- Project Profile (a brief description of your project)

Log in [eWeLink Developer Center] (**https://dev.ewelink.cc**), submit your information for certification, and wait for the review result. Please note that the free APPID has some limitations, please refer to the [Requirements of Calling Interface and Description of APPID Permission (Important)] and [Standard of Charges] for more details.

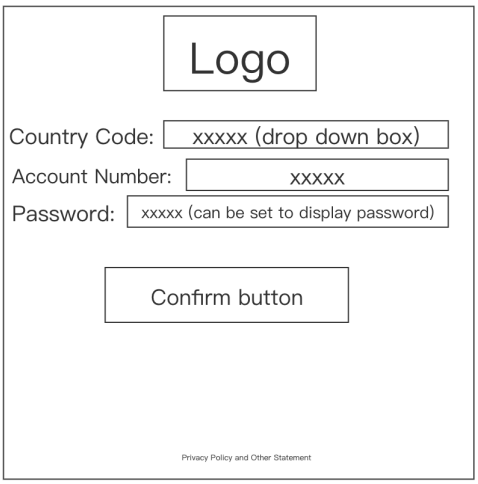
After a successful review, create an application in Platform -> App Management, and you could use the relevant service and call the corresponding interface. Please note that it's only allowed to create one application now.

Access Process

Complete Flow Chart



Authorization Page



Code examples and test cases

CoolKit OAuth Login Demo

CoolKit OAuth2.0 Postman Demo

Import **Postman** and fill in your application information in the environment file.

Interface call frequency limit: the recommended interval is greater than or equal to 1 second

Authorization Page Description

URL: **https://c2ccdn.coolkit.cc/oauth/index.html**

The text language of this authorization page is displayed based on: **Navigator.language**

Request method: GET

Query parameters:

Parameters	Allows empty	Description
clientId	N	APPID of the accessing party, apply to CoolKit
seq	N	Timestamp of this request, accurate to milliseconds.
authorization	N	Signature, see below for specific algorithms
redirectUrl	N	Redirect Url after obtaining the authorization code
grantType	N	Authorization type, only one fixed parameter can be passed (That is, only authorization code is supported currently)
state	N	Request ID, accessing parties use this variable tNo avoid cross-domain forgery problems, the server of eWeLink requires that the value must be passed, but does not check the specific value, you can pass the ID of the user of your own platform, and it will be passed back when redirecting
nonce	N	8-digit alphanumeric random string(Both upper and lower case alphanumerics are allowed)
showQRCode	Y	Whether to display the QR code pop-up window. If true, the QR code pop-up window is displayed; otherwise, the account password input box is displayed

authorization signature calculation method within parameters:

Algorithm: HMAC（Hash-based Message Authentication Code）SHA256

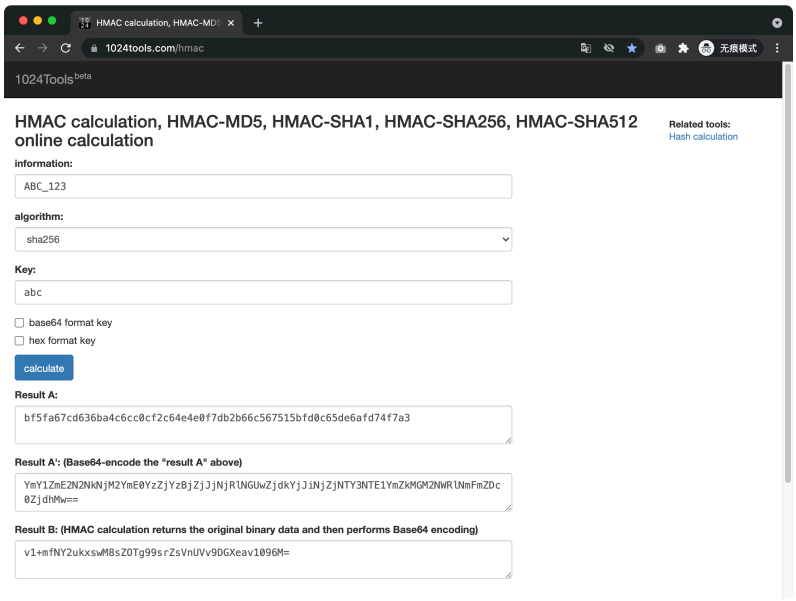
Key: {clientSecret}

Message: {clientId}_{seq}

Result: HMAC calculation returns the original binary data and then Base64 encoding

Example: Assume here: clientId = ABC，seq = 123，clientSecret = abc

The actual calculated signature is:
v1+mfNY2ukxswM8sZOTg99srZsVnUVv9DGXeav1096M=



The result of the calculation is filled in the authorization parameter

Code example:

JavaScript

```
// NodeJS
const crypto = require('crypto');
const clientId = 'ABC';
const seq = '123';
const clientSecret = 'abc';
const buffer = Buffer.from(`${clientId}_${seq}`, "utf-8");
const sign = crypto.createHmac("sha256", clientSecret).update(buffer).
console.log(sign);
// v1+mfNY2ukxswM8sZOTg99srZsVnUVv9DGXeav1096M=
```

Python

```
# Python
import hashlib
import hmac
import base64

def makeSign(key:str, message:str) -> str:
    return (base64.b64encode(hmac.new(key.encode(), message.encode(),

sign = makeSign("abc","ABC_123")
print(sign)
# v1+mfNY2ukxswM8sZOTg99srZsVnUVv9DGXeav1096M=
```

Put the above parameters into the query to get the final authorization page address:

The accessing party directs the user to open the authorization page address, for example:

https://c2ccdn.coolkit.cc/oauth/index.html?state=XXX&clientId=XXX&authorization=XXX&seq=123&redirectUrl=https://XXX.com/redirect.html8

After the user fills in the account password and clicks login successfully, the page will jump to the redirect address URL you added before and carries the parameters code, regin, state, and the request method is GET.

Example：{Your redirectUrl}?code=95bcf41b-3397-46da-886f-fdc852de84ca&region=as&state=10011

Code is valid for 30 second. When it expires, it returns:

```markup
{"error": 405, "msg": "invalid code", "data": {}}
```

After the accessing party gets the code, requesting the 'POST@/v2/user/oauth/token' interface of corresponding area to get the accessToken to complete the binding process, which can then be used to get the user's device information and control the device.

v2 Interface Description

The APIs in this document applies HTTPS protocol, in which the client sends data with UTF-8 encoding and in json format.

Requirements of Calling Interface (Important):

- Once the user has successfully logged into the eWeLink account authorization page, your platform should call [Get Thing List] Interface (GET@/v2/device/thing) one time, sync the device list, and display the correct device type according to the UIID(UI's ID).
- The interval of a single IP calling the all Interface should be greater than or equal to 500ms, with no more than 300 calls in 5 minutes. If you control our devices via WebSocket, please keep in mind that every user is not allowed to log in and log out repeatedly for a short period of time (Send userOnline command). Otherwise, your IP will be blocked and terminated by the server if the userOnline command are sent too many times for a short period.
- Partners who has the business certification and enterprises that purchased the APPID have the access to [Paid APPID] to call all Interfaces without limitations for the total number of calls now but there are the same regulations for calling frequency as the above second point.
- Developers who log in via eWeLink Developer Platform and complete the certification can use the [Free APPID] to call OAuth2.0's relevant interface, and the total number of requests for all interfaces in each region is limited to 50,000 times per month. If the limit is exceeded, the interface returns an HTTP status code of 403 error (not the returned parameter)or the interface returns error 412. The quota can continue to be used after the next month's quota refresh. If you want to lift the limit immediately, you need to pay for an upgrade to Enterprise Edition and you can contact **bd@coolkit.cn** by email.
- For APPID applied by enterprises and personal developers, Currently open some authorized brands of equipment, as well as mainstream equipment types (which will be released in batches soon, please stay tuned). If you have demand for other complex device types or new device types, please contact our relevant staff or email us via **bd@coolkit.cn**.

v2 Interface domain name

- Mainland China: **https://cn-apia.coolkit.cn**
- Asia: **https://as-apia.coolkit.cc**
- Americas: **https://us-apia.coolkit.cc**
- Europe: **https://eu-apia.coolkit.cc**

v2 Interface General parameters

Http Header	Allows Empty	Description
X-CK-Appid	The interface under the [User] category cannot be empty	APPID, the APP's logo, the credentials that need to be paid for

Http Header	Allows Empty	Description
X-CK-Nonce	Y	A combination of 8 uppercase or lowercase letters and numbers. The client should try to use random strings to facilitate joint debugging with the server.
Authorization	N	API call credentials, see below Signature Rules for the calculation method
Content-Type	PUT and POST requests are not allowed to be empty	Fixed as "application/json" or "application/json; charset=utf-8"
Host	N	Most HTTP clients will automatically add this field. If not, it must be explicitly specified by the code. The value is the corresponding interface domain name, such as: cn-apia.coolkit.cn, us-apia.coolkit.cc

v2 Interface Signature Rules

Calling all interfaces before login (including the login interface) requires signature calculation, and the signature value is placed in the Authorization parameter of the request header.

Example: Authorization: Sign QtKh6EnKoNmPnv17Ump3b/6r2hjojWb4nqSt4lnyj2U=

Calculate the signature:

Use the "app secret" as the key to generate the HMAC-SHA256 signature of the signed string, and set the Base64-encoded signature to Authorization.

- GET Request:

Order all parameters (Except sign) alphabetically based on the names of parameters and concatenate them with &:

```
appid=McFJj4Noke1mGDZCR1QarGW7P9Ycp0Vr&deviceid=1000012345&nonce=2323d
```

- POST request:

The string to be encrypted is the entire body of the json data (http body). Take the login interface as an example.

Example:

```json
{ "email": "1234@gmail.com", "password": "12345678", "countryCode": "+
```

Notes:

The value of phoneNumber needs to add country code such as: +86

phoneNumber or email, only one of them need to be passed. In China mainland only "phoneNumber" can be passed. In the rest of Asia region, "phoneNumber" or "email" can be passed, and "email" can be passed in Europe and America.

Calculating the signature:

Use the "app secret" as the key to generate the HMAC-SHA256 signature of the signed string, and set the Base64-encoded signature to Authorization.

Signature Calculation

Examples of Sha256 encryption functions in 15 programming languages: https://www.jokecamp.com/blog/examples-of-creating-base64-hashes-using-hmac-sha256-in-different-languages/

https://1024tools.com/hmac

- Digital Signature Algorithm Demo ①: Take the login interface as an example (Method: POST).

JavaScript

```
// node.js
var crypto = require('crypto');
let appsecret="OdPuCZ4PkPPi0rVKRVcGmll2NM6vVk0c";
let body={"email":"1234@gmail.com","password":"12345678","countryCode"
let buffer = Buffer.from(JSON.stringify(body),"utf-8" );
let theSign = crypto.createHmac('sha256', appsecret).update(buffer).di
// or let theSign = CryptoJS.enc.Base64.stringify(CryptoJS.HmacSHA256(
console.log(theSign)
// ttZ/gluzqrafvGonjMD20p4//arW6KoZKbo1SOMEzCA=
```

- Digital Signature Algorithm Demo ②:

Python

```
# Python
import hashlib
import hmac
import base64
import json

def makeSign(key, message):
    j = hmac.new(key.encode(), message.encode(), digestmod=hashlib.sha
    return (base64.b64encode(j.digest())).decode()

def main():
    data = {
        "email":"1234@gmail.com",
        "password":"12345678",
        "countryCode":"+1"
    }
    message = json.dumps(data)
    Sign = makeSign(key='OdPuCZ4PkPPi0rVKRVcGmll2NM6vVk0c', message=me
    print(Sign)
    # cE/Wl57Ithy21Elieq5wFsYwJWl2IrkBxlmuCnwI73c=

if __name__ == "__main__":
    main()
```

Notes: Due to the different character sequence, the signature will be different, which is normal case.

You can put the parameters of the demo in your own signature algorithm. If the calculated signature value is consistent with the provided signature value, means that the signature algorithm has passed.

v2 Interface Interface response format

The data returned by all interfaces of this protocol uses UTF-8 encoding and json format. The data format is as follows

Name	Type	Allows Empty	Description
error	Int	N	Error code, 0 means no error. Common error code within 1000. Please refer to the [General Error Code] section of this agreement. Error code above 1000 is defined by different interfaces
data	Object	N	Interface data
msg	String	N	Error information, when error=0, it is an empty string "". Other codes are returned based on different interfaces.

Example 1: Success response

```json
{
  "error": 0,
  "msg": "",
  "data": {
    "data1": "xxx",
    "data2": "yyy"
  }
}
```

Example 2: Error response

```json
{
  "error": 403,
  "msg": "api not found",
  "data": {}
}
```

V2 Interface Error Code

error code	description
400	parameter error, usually the parameter required by the interface is missing, or the type or value of the parameter is wrong
401	access token authentication error. Usually, the account is logged in by others, resulting in the invalidation of the current access token
402	access token expired
403	the interface cannot be found, usually the interface URL is written incorrectly
405	the resource cannot be found. Usually, the necessary data records cannot be found in the back-end database
406	reject the operation. Usually, the current user does not have permission to operate the specified resource

error code	description
407	appid has no operation permission
412	APPID calls exceed the limit, you can upgrade to the enterprise version by contacting bd@coolkit.cn.
500	server internal error, usually the server program error
4002	Device control failure (Check control parameter transmission or device online status).
30022	the device is offline and the operation fails. It will appear in batch updating the device status

v2 Interface list

Postman Demo download：Click download

Import **Postman** and fill in your application information in the environment file.

Interface call frequency limit: the recommended interval is greater than or equal to 1 second

Apply for third-party authorization credentials interface

URL：/v2/user/oauth/token

Request method: POST

Request parameters:

Name	Type	Allows Empty	Description
code	String	N	Authorization code
redirectUrl	String	N	Redirect address
grantType	String	N	Currently fixed to authorization_code

Response data parameters:

Name	Type	Allows Empty	Description
accessToken	String	N	Authorization Credentials
atExpiredTime	Int	N	Expiration timestamp (milliseconds) of authorization Credentials
refreshToken	String	N	Refresh the certificate of the authorization credentials
rtExpiredTime	Int	N	Refresh the expiration timestamp (milliseconds) of the authorization credentials

Token Refresh

URL: /v2/user/refresh

Request method: POST

Request Parameters:

Name	Type	Allows Empty	Description
rt	String	N	Refresh Token

Response data parameters:

Name	Type	Allows Empty	Description
at	String	N	Access Token, valid for 30 days
rt	String	N	Refresh Token, valid for 60 days

Unbind third party accounts

Note: It is expected to be released before September 9, 2021

URL: /v2/user/oauth/token

Request method: DELETE

Request parameters: nUnbindone

Response data parameters: none

Get home and room List

URL: /v2/family

Request method: GET

Request parameters:

Name	Type	Allows Empty	Description
lang	String	Y	cn returns Chinese, and en returns English, default en

Response data parameters:

Name	Type	Allows Empty	Description
familyList	Array	N	Home list
currentFamilyId	String	N	The ID of the current home

FamilyList item description:

Name	Type	Allows Empty	Description
id	String	N	Home ID
apikey	String	N	User apikey
name	String	N	Home name
index	Int	N	Sequence number of the home, which could be negative.
roomList	Array	Y	Room list

RoomList item description:

Name	Type	Allows Empty	Description
id	String	N	Room ID
name	String	N	Room name
index	Int	N	Sequence number of the room, which could be negative.

Get Thing list

Note:

- When the user device (total parameter) exceeds 30, you need to set the beginIndex parameter to get it in pages, otherwise too much data will be acquired and the server will return timeout errors such as 500.
- The total parameter returned may be greater than the total amount of device data returned, which indicates that not all device data has been obtained. The specific reason is: at present, we only authorize the brands of Sonoff and CoolKit. The brands of other manufacturers can only be used after signing a letter of authorization with the help of our business colleagues. See the chapter "Requirements of Calling Interface (Important)" for details.

URL: /v2/device/thing

Request method: GET

Description: Thing could be

- a device (owned by yourself or shared by others)
- a device group

Request parameters:

Name	Type	Allows Empty	Description
lang	String	Y	cn returns Chinese, and en returns English, default en
familyid	String	Y	Home ID. Default is the current home
num	Int	Y	The number of things to get. The default value, 30 will be used if not offered. 0 means to get all things.
beginIndex	Int	Y	The index of the item to begin to get. The default value,-9999999, will be used if not

Response data parameters:

Name	Type	Allows Empty	Description
thingList	Array	N	Thing list
total	Int	N	Total number of things (device + device group)

List items of thingList description:

Name	Type	Allows Empty	Description
itemType	Int	N	Item type 1=user’s own device 2=device shared by others 3=user's own group
itemData	Object	N	The structures of this field differs from itemType. When itemType is 1 or 2, refer to the description for device list item in [Get the list of all devices] interface. For 3, see the description of groupList item in the [Get group list] interface.
index	Int	N	Sequence number

item description:

Name	Type	Allows Empty	Description
name	String	N	Device name
deviceid	String	N	Device ID
apikey	String	N	apikey of the user to which the device belongs
extra	Object	N	The contents of the factoryDevice's extra field

Name	Type	Allows Empty	Description
brandName	String	N	Brand name
brandLogo	String	N	Brand logo url
showBrand	Boolean	N	Whether to display the brand
productModel	String	N	Product model name
devGroups	Array<Object>	Y	list of all the groups the device is in
tags	Object	Y	Tag object, which stores a custom string, and the server is only responsible for transparent transmission
devConfig	Object	Y	Device configuration from deviceConfig in the factorydevices list
settings	Object	Y	User settings. Please refer to [Change device settings] interface description.
family	Object	N	Home of the device
sharedBy	Object	Y	If the device is shared by others, it will have this attribute.
shareTo	Array<Object>	Y	The list of shared user with whom the device has been shared
devicekey	String	N	Factory apikey of the device
online	Boolean	N	Online status
params	Object	Y	Status attributes of device
gsmInfoData	Object	Y	Sim card status object of GSM device

extra description:

| **Name** | **Type** | **Allows Empty** | **Description** | | :----------- | :------- | :--------------- | :-- | --- | | model | String | N | Firmware name | | ui | String | N | UI name | | uiid | Int | N | UI ID | | description | String | N | Notes on factory information, usually the order number | | manufacturer | String | N | Manufacturer | | mac | String | N | mac address | | apmac | String | N | p mac address(device hotspot address)) | a | | modelInfo | String | N | Product model ID | | brandId | String | N | Brand ID |

settings description:

Name	Type	Allows Empty	Description
opsNotify	Int	Y	Whether to notify the user of device status change (default 0) 0=no 1=yes
opsHistory	Int	Y	Whether to save activity logs of the device (default 1) 0=no 1=yes
alarmNotify	Int	Y	Whether to send alerts from sensors or alarms to the user (default 1) 0=Do not send 1=Send

devGroups description:

Name	Type	Allows Empty	Description
type	Int	N	1 represents device group
groupId	String	N	id of the groups

sharedBy list item description:

Name	Type	Allows Empty	Description
apikey	String	N	Unique identity of the user to which the device belongs (currently using symmetric encryption of the string)
permit	Int	N	User's permission value, default is 0
phoneNumber	String	Y	Mobile number of the device owner
email	String	Y	Email of the device owner
nickname	String	Y	Nickname of the device owner
comment	String	Y	Note of sharing
shareTime	Long	Y	UTC standard time, in milliseconds, used to display sorting on the client

shareTo list item description:

| **Name** | **Type** | **Allows Empty** | **Description** | | :---------- | :------- | :--------------- | :---------- | | permit | Int | N | User's permission value, default is 0 | User's permission value, default is 0 | | apikey | String | N | ID identification of the user account shared by the receiving device (symmetric encryption of the string is currently used) | ID identification of the user account shared by the receiving device (symmetric encryption of the string is currently used) | | phoneNumber | String | Y | Mobile number of the device owner | | email | String | Y | Email of the device owner | | nickname | String | Y | Nickname of the device owner | | comment | String | Y | Note of sharing | | shareTime | Long | Y | UTC standard time, in milliseconds, used to display sorting on the client |

： devConfig description (camera)：

Name	Type	Allows Empty	Description
p2pServerName	String	Y	Server Name
p2pAccout	String	Y	Account
p2pLicense	String	Y	license

family description：

Name	Type	Allows Empty	Description
familyid	String	N	Home ID
index	Int	N	The sequence number of the device, which could be a negative number
roomid	String	Y	Room ID of the device

Get Specified Things list

URL: /v2/device/thing

Request method: POST

Request parameters:

Name	Type	Allows Empty	Description
thingList	Array	N	The total number of things in the list to get must be greater than 0 and less than or equal to 10

thingList items description:

Name	Type	Allows Empty	Description
itemType	Int	N	Item type 1=user's own device 2=device shared by others 3=user's own group
id	String	N	The ID of the corresponding thing. When itemType is 1 or 2, thing ID means deviceid. For 3 or 4, this field means group ID.

Response data parameters:

Name	Type	Allows Empty	Description
thingList	Array	N	Thing list. Please refer to the description in [Get Thing list]

Get Device or Group Status

URL: /v2/device/thing/status

Request method: GET

Request parameters:

Name	Type	Allows Empty	Description
type	Int	N	Whether to get device or group. 1=device 2=group
id	String	N	When type=1, this means deviceid. For 2, group ID.
params	String	Y	Status parameters to be obtained

Params description:

The caller can specify to obtain only the status parameters that are of interest, which should be separated by "|", and then perform url conversion.

Example: You want to get the switch and light status of a device.

1.Create the string switch|light

2.Perform url conversion on the string of (1) to get the string 'switch%7Clight', which is the value of the params to send to the interface.

If you want to get all the status of the device or group, the params should be empty.

Response data parameters:

Name	Type	Allows Empty	Description
params	Object	N	Device or group status attributes

Update the Status of a Device or Group

URL: /v2/device/thing/status

Request method: POST

Request parameters:

Name	Type	Allows Empty	Description
type	Int	N	To update a device or a group. 1=device 2=group

Name	Type	Allows Empty	Description
id	String	N	When type=1, this means deviceid. For 2, group ID.
params	Object	N	The status parameters to be updated

params description:

- When you update a device, a control command will be sent to the device. If the device is offline or sending fails, an error will be returned.
- When you update a group, the server will send a control command to all the devices in the group and ignore any devices being offline or sending failure.

Response data parameter: None

Update the Status of Multiple Devices or Groups

Description: This interface will actually send control commands directly to the device, which is dedicated to devices that cannot be updated via a persistent connection.

URL: /v2/device/thing/batch-status

Request method: POST

Request parameters:

Name	Type	Allows Empty	Description
thingList	Array<Object>	N	The list of things to update, of which the length should be greater than 0 and less than or equal to 10. The client must ensure that the ID in the list are unique, otherwise an error will occur.
timeout	Int	Y	The time to wait for all devices to respond, in milliseconds, 0 <= timeout <= 8000. if not offered, the default is 0, which means to respond immediately.

item in the thingList' description:

Name	Type	Allows Empty	Description
type	Int	N	To update devices or groups. 1=device 2=group
id	String	N	When type=1, this means deviceid. For 2, group ID.
params	Object	N	Status parameter to be updated

Response data parameter:

Name	Type	Allows Empty	Description
respList	Array<Object>	N	List of responses from all things

item in the respList description:

Name	Type	Allows Empty	Description
type	Int	N	To update devices or groups. 1=device 2=group
id	String	N	When type=1, this means deviceid. For 2, group ID.
error	Int	N	Response error code, 0 means no error. If type=2, error is fixed to 0. If timeout is 0 when calling, error is fixed to 0 as well.

Real Time Control Device

Complete process description:

The client (APP, applet, web page or other) requests to allocate a service interface and obtain the IP address + port for establishing the websocket.

Splicing WSS address: wss:// {domain or IP}:{port}/api/ws

After the connection is established, send websocket: handshake related parameters. After passing the authentication, the connection is successfully established, and then you can issue control instructions and report information to the receiving device or server.

HTTP: DispatchService (APP)

Distributed address for persistent connection used by the app

- Mainland China: **https://cn-dispa.coolkit.cn/dispatch/app**
- Americas: **https://us-dispa.coolkit.cc/dispatch/app**
- Europe: **https://eu-dispa.coolkit.cc/dispatch/app**
- Asia: **https://as-dispa.coolkit.cc/dispatch/app**

Request method: GET

Authorization parameter: Token

Request parameters: none

Note: Please note that the domain name used for mainland China and the test region is coolkit **.cn** , while the domain name used in other regions is coolkit **.cc**

Response parameters:

Name	Type	Allows empty	Description
IP	string	N	The IP address of the server for persistent connection
port	number	N	The port of the server for persistent connection
domain	string	N	The domain name of the persistent connection server.Currently only the app will return the domain name.The android client should choose to establish a long connection by IP, which can avoid the problems caused by DNS resolution. The js version of the client cannot skip the certificate check, so only the IP can be used.
error	number	N	"error:0": success
reason	string	N	"OK": success

Error code

0: success

Response example:

```json
{
  "port": 8080,
  "IP": "52.80.19.131",
  "reason": "ok",
  "domain": "cn-pconnect2.coolkit.cc",
  "error": 0
}
```

WebSocket: handshake

The authorization happens when connection is established. There are two types of handshakes, respectively on client and device. This one is on the client.

Notes:

When establishing a wss connection, the client will verify whether the accessed domain name is consistent with the domain name of the certificate. Therefore, by default, if you use IP to establish a connection, an error will be returned, causing the connection to fail.

Hence, it is recommended that the client skip the domain name verification for the certificate (both android and java can do that). If you cannot skip the certificate verification, you can try to establish a wss connection via IP.

Obtain the persistent connection address to be connected from [HTTP: Dispatchservice], and concatenate it into: "wss://IP:port/api/ws", so as to establish a persistent connection. After the handshake is successful, you need to send the string "ping" to the server periodically (see the hbInterval field for the interval) to keep the heartbeat, otherwise the device will be forced to go offline by the server.

Its parameters are as follows,

Name	Type	Allows empty	Description
action	string	N	Fixed parameter: userOnline
at	string	N	AT obtained from the login interface
apikey	string	N	User apikey (obtainable from the login interface)
appid	string	N	APPID
nonce	string	N	8-digit alphanumeric random string
ts	number	Y	Timestamp accurate to seconds
userAgent	string	N	Fixed parameter: app
sequence	string	N	Timestamp accurate to milliseconds
version	number	N	Interface version: 8

Example:

```json
{
  "action": "userOnline",
  "version": 8,
  "ts": 1571141259,
  "at": "AT obtained by login interface",
  "userAgent": "app",
  "apikey": "User APIKEY obtained by login interface",
  "appid": "McFJj4Noke1mGDZCR1QarGW7P9Ycp0Vr",
  "nonce": "2plz69ax",
  "sequence": "millisecond-level timestamp, example: 1571141530100"
}
// Need to remove space before compression, and do not incldue extra c
```

Response parameters:

Name	Type	Allows empty	Description
error	number	N	Error code
apikey	string	N	User apikey
config	string	Y	Configuration

Name	Type	Allows empty	Description
sequence	string	N	Timestamp accurate to milliseconds

Config description:

Name	Type	Allows empty	Description
hb	number	Y	Heartbeat, whether to send heartbeats to keep alive.0: No, 1: Yes
hbInterval	number	Y	Heartbeat interval, in seconds. The client needs to add 7 to this value as the interval to send keep the ping heartbeat alive.If it is not offered, the heartbeat interval will be 90 seconds by default.

Error code

0: success

Response example:

```json
{
  "error": 0,
  "apikey": "User APIKEY",
  "config": {
    "hb": 1,
    "hbInterval": 145
  },
  "sequence": "Millisecond-level timestamp , Example: 1571141530100" /
}
```

WebSocket: device online and offline notification (passively received by the app)

When the server detects a device going online or offline, it will send a notification to the app. The notification is sent to the app passively. There is no need for the client to request actively.

Parameters:

Name	Type	Allows empty	Description
nonce	string	N	8-digit alphanumeric random string
apikey	string	N	Current User apikey (available from the login interface) or the apikey of the master account (available from the interface for obtaining Thing list)
deviceid	string	N	Device ID
action	string	N	Fixed parameter: sysmsg
params	object	N	Parameters: {k:v}
ts	number	Y	Timestamp accurate to seconds

Example:

```json
{
  "action": "sysmsg",
  "deviceid": "1000000001",
  "apikey": "Current user APIKEY",
```

```
  "ts": 15452192511,
  "params": {
    "online": false
  }
}
```

WebSocket: Update device status

After device status changes and sends the 'update' command, as long as the client has a persistent connection, it will receive a notification. Therefore, it is recommended that the client keep the persistent connection alive to monitor device status or send queries to check the status of a single device, instead of checking device status periodically by requesting the HTTP interface, to reduce the burden on the server.

This is to change the statuses of a device, such as timers, sharing, on/off, etc.

Parameters:

Name	Type	Allows empty	Description
action	string	N	Fixed parameter: update
apikey	string	N	Current user apikey (available from the login interface) or the apikey of the master account (available from the interface for obtaining Thing list)
selfApikey	string	Y	Receiver's apikey. Required when the receiver updates its device status. It cannot be empty.
deviceid	string	N	Device ID
params	object	N	The server applies transparent transmission for the params, which may be an object or an array of objects. Just make sure you send the parameters of all the statuses you desire to change.
userAgent	string	N	app or device
sequence	string	N	Timestamp accurate to milliseconds

Example:

json

```
{
  "action": "update",
  "deviceid": "100000001",
  "apikey": "Current user APIKEY",
  "userAgent": "app",
  "sequence": "1585297259553",
  "params": {
    "switch": "on" // single-channel device
  }
}
```

If you update the device status shared by other users:

json

```
{
  "action": "update",
  "deviceid": "100000001",
  "apikey": "APIKEY of the master account",
  "selfApikey":"Receiver's apikey",
  "userAgent": "app",
```

```
  "sequence": "1585297259553",
  "params": {
    "switch": "on" // single-channel device
  }
}
```

params description:

The details of this field come from the protocol document. Different devices have different protocols. For example, a single-channel switch has only one "switch" field, but a multi-channel device must have more than one "switch" fields. For the lamps, you can also adjust their color and brightness, which makes their parameters different as well.

Please consult your salesperson for the protocol document. If you intend to use the eWeLink app for an unsupported product(which has no existing UIs) , additional customization fee may apply. Please contact your salesperson for details.

Response parameters:

Name	Type	Allows empty	Description
error	number	N	Error code
apikey	string	Y	User apikey
deviceid	string	Y	Device ID
sequence	string	N	Timestamp accurate to milliseconds

Example:

json

```
{
  "error": 0,
  "deviceid": "1000000001",
  "apikey": "***************",
  "sequence": "1585297259553"
}
```

Error code

504: The device does not respond (offline or command error)

Timer settings

In general, the device can add multiple timers. Every time a new timer is added, modified, or deleted, the timer array must be submitted in full.

For example, there are currently two timers, if you add another one, the submitted timer array must contain the data of the previous two timers in addition to the new timer.

Timers parameters:

Name	Type	Allows empty	Description
enabled	number	N	Enabled or not: 0 means disabled; 1 means enabled
mId	string	N	Used to identify the timer, in UIID format.
type	string	N	Timer type used by the device. "once": a non-repeating timer; "repeat": a repeating timer; "duration": a loop timer.
coolkit_timer_type	string	N	Timer type used by the client. "once": a non-repeating timer; "repeat": a

Name	Type	Allows empty	Description
			repeating timer; "duration": a loop timer; "delay": a countdown timer.
at	string	N	Execution time: Greenwich Mean Time, or the UTC time can also be used.
do	object	Y	Action to be performed
startDo	object	Y	Dedicated to the loop timer: the action to be executed at the beginning of the loop.
endDo	object	Y	Dedicated to the loop timer: the action to alternate with the first action.
period	string	Y	Dedicated to countdown timer: countdown duration, in minutes.

Example:

Non-repeating timer, which executes once only.

```json
"params":{
        "timers":[
            {
                "enabled":1, //1 means enabled
                "mId":"c102f00f-db6f-fef0-f296-9dd10fdc2193", //random
                "type":"once", //dedicated to device. "once" means non
                "at":"2017-07-24T08:28:00.000Z", //execution time, whi
                "do":{ //The action to be performed
                    "switch":"on" //It is the action to turn on the si
                },
                "coolkit_timer_type":"once" //app dedicated
            }
        ]
}
```

Repeating timer:

```json
"params":{
        "timers":[
            {
                "enabled":1,
                "mId":"847b296e-9043-ac94-ca37-aa5f91d22338",
                "type":"repeat", //a repeating timer
                "at":"36 8 * * 1,3",//For time expression, refer to "c
                "do":{
                    "switch":"on"
                },
                "coolkit_timer_type":"repeat" //repeat Execute
            }
        ]
}
```

Loop timer:

```json
"params":{
        "timers":[
            {
```

```
                "enabled":1,
                "mId":"847b296e-9043-ac94-ca37-aa5f91d22338",
                "type":"duration",
                "at" :"2018-11-21T10:24:00.980Z 10 5",//The time when
                "startDo":{
                    "switch":"on" //First execution of the loop
                },
                "endDo":{
                    "switch":"off" //Next execution
                },
                "coolkit_timer_type":"duration" //Keep repeating
            }
        ]
}
```

Countdown timer (This timer waits for specified minutes until the action is performed, which executes once only. The purpose of it is to set up a timer quickly.)

json

```
"params":{
        "timers":[
            {
                "enabled":1,
                "mId":"95303c64-fbb4-f497-1341-c592432d1d0d",
                "type":"once",
                "at" :"2017-07-24T09:10:43.223Z",
                "do":{
                    "switch":"on"
                },
                "period":"30",
                "coolkit_timer_type":"delay" // countdown timer
            }
        ]
}
```

WebSocket: check for device status

This is to check for the statuses of a device, such as timers, sharing, on/off, etc.

Parameters:

Name	Type	Allows empty	Description
action	string	N	Fixed parameter: query
apikey	string	N	User apikey (available from the login interface) or the apikey of the master account (available from the interface for obtaining Thing list)
deviceid	string	N	Device ID
params	array	N	String array, which specify the parameters to be checked for. If it is empty, all the parameteres of the device will be checked for.
userAgent	string	N	app or device
sequence	string	N	Timestamp accurate to milliseconds

Example:

json

```
{
  "action": "query",
  "deviceid": "1000000001",
```

```
  "apikey": "User APIKEY",
  "sequence": "1585297259553",
  "params": ["switch", "timers "], // If the returned value is empty,
  "from": "app",
  "userAgent": "app"
}
```

If you query the device status shared by other users:

json

```
{
    "action":"query",
    "userAgent":"app",
    "apikey":"APIKEY of the master account",
    "deviceid":"1000000001",
    "params":["switch","timers"],
    "sequence":"1585297259553",
    "selfApikey":"Current user APIKEY"}
}
```

params description:

The details of this field come from the protocol document. Different devices have different protocols. For example, a single-channel switch has only one "switch" field, but a multi-channel device must have more than one "switch" fields. For the lamps, you can also adjust their color and brightness, which makes their parameters different as well.

Please consult your salesperson for the protocol document. If you intend to use the eWeLink app for an unsupported product(which has no existing UIs) , additional customization fee may apply. Please contact your salesperson for details.

Response parameters:

Name	Type	Allows empty	Description
error	number	N	Error code
apikey	string	N	User apikey
deviceid	string	N	Device ID
params	object	N	Parameters which will be passed transparently. The server will not verify this filed.

Example:

json

```
{
    "error":0,
    "deviceid":"1000000001",
    "apikey":"***************",
    "params":{
        "switch" :"on",
      ...
    }
}
```