

Development Document

Document Name: Zigbee2Mqtt

Revision History

Specification		Sect.	Update Description	By
Rev	Date			
1.0	2021-08-08		New version release	
2.0	2021-09-08		Add gateway mqtt protocol	
2.1	2021-11-09		Modify device list	
2.2	2022-11-23		Format optimize	

Approvals

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1. Introduction

1.1. Purpose& Description

This document mainly explains how the dusun gateway integrates zigbee devices in MQTT protocol.

1.2. Equipment requirements



DSGW-030



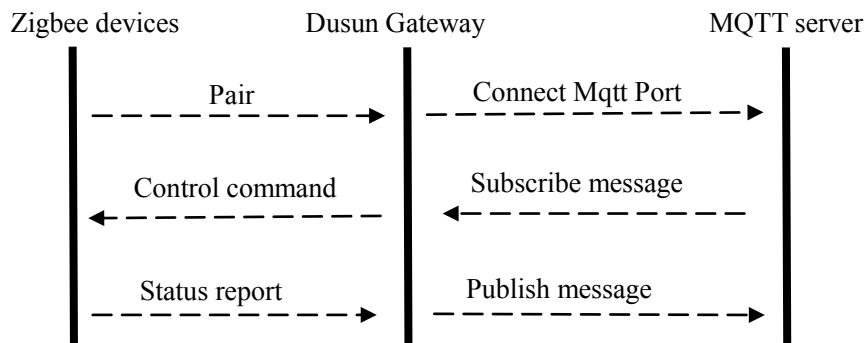
DSGW-040



PC

- a. DUSUN gateway DSGW-030 or DSGW-040
- b. PC

1.3. Docking block diagram



2. Build mqtt service

2.1 Download and install the mosquito program from <https://mosquitto.org/download/>

2.2 Create a mqtt server by the command **mosquitto -p 1888 -v**

```
C:\Program Files\mosquitto>mosquitto -p 1888 -v
1574938934: mosquitto version 1.6.7 starting
1574938934: Using default config.
1574938934: Opening ipv6 listen socket on port 1888.
1574938934: Opening ipv4 listen socket on port 1888.
```

2.3 Find out the ip address of your server, mine is 192.168.1.2. As it's the local ip, make sure the gateway and server in same LAN.

```
C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Npcap Loopback Adapter:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::4dc6:3cfa:4274:ca3a%13
    Autoconfiguration IPv4 Address. . . : 169.254.202.58
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 

Ethernet adapter ????:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::b152:ad1:6d02:666a%11
    IPv4 Address. . . . . : 192.168.1.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter VMware Network Adapter VMnet8:

    Connection-specific DNS Suffix  . : localdomain
    Link-local IPv6 Address . . . . . : fe80::15df:4cf9:2df6:951f%12
    IPv4 Address. . . . . : 192.168.61.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

C:\Users\Administrator>
```

3. Configure the gateway

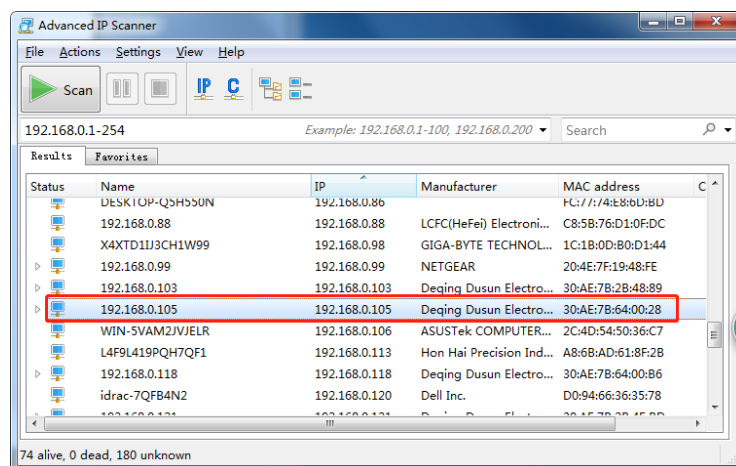
3.1. DSGW-030 configuration

3.1.1 Connect the gateway an your PC with one router, shown below,

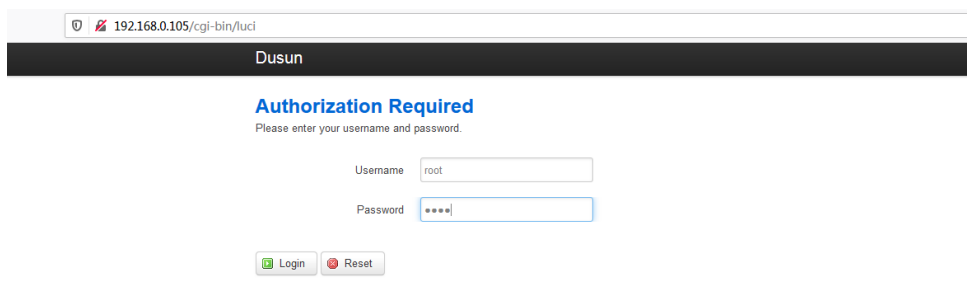


3.1.2 Log into the router to check the gateway's IP address.

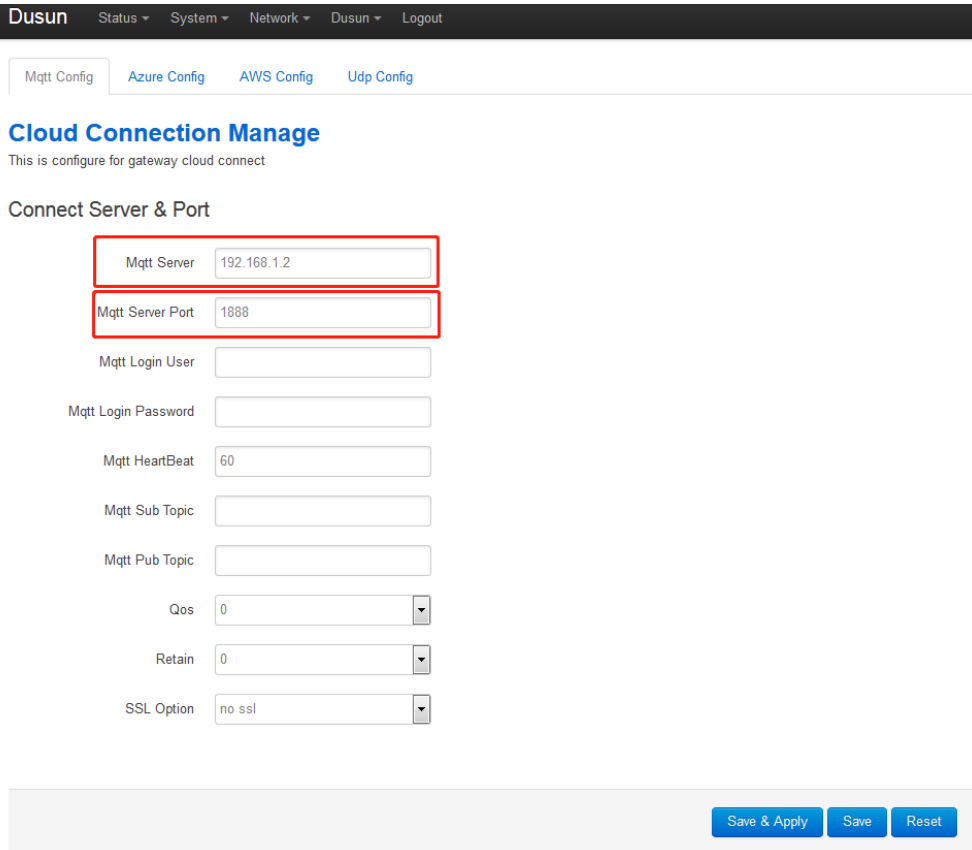
In my case, I use the program **Advanced IP Scanner** to help me find it. The IP address in red rectangle is my gateway's IP address, shown below



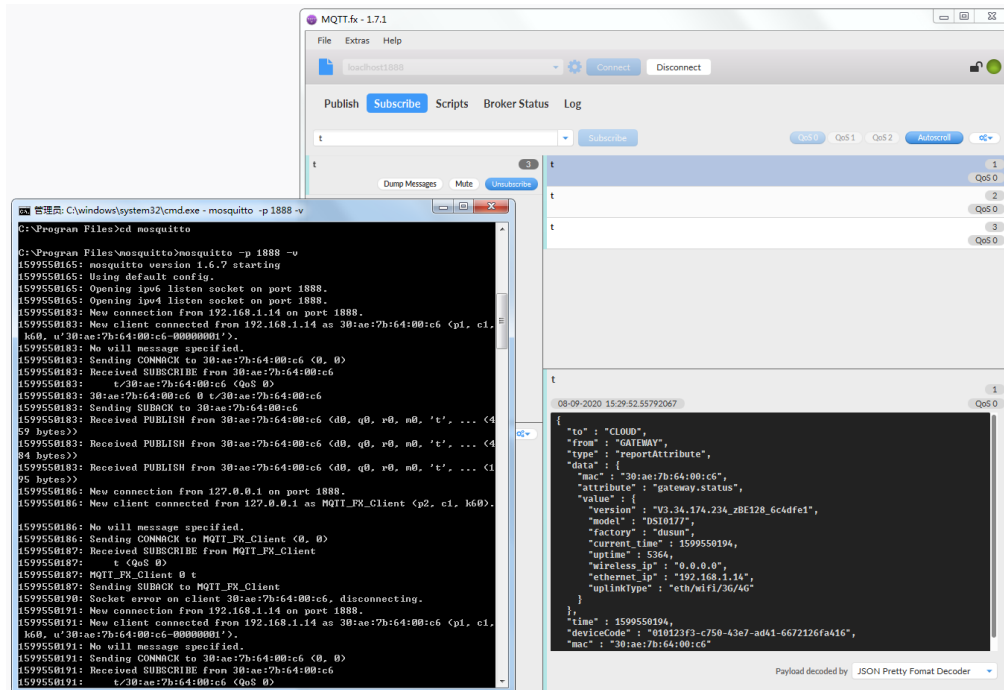
3.1.3 Open a web browser on PC, Input Gateway IP Address; Enter the username and Password (default Username: root, Password: root), login to the gateway, the process is shown below,



3.1.4 Set the mqtt configuration in the gateway website. In this case, the IP of my PC is 192.168.1.2. Thus, it's configured shown below



3.1.5 Check the connection using mqtt.fx



3.1.6 Mqtt topic

The gateway publish the messages to topic 't' and subscribe from topic 't/mac'.

For example, if gateway's mac is 30:ae:7b:64:00:c6, then it subscribes from the topic 't/30:ae:7b:64:00:c6' and publishes data to topic 't'. if you need set other topic, you need set the same topic in the Gateway web and mqtt server.

Cloud Connection Manage

This is configure for gateway cloud connect

Connect Server & Port

Mqtt Server	<input type="text" value="192.168.1.2"/>
Mqtt Server Port	<input type="text" value="1883"/>
Mqtt Login User	<input type="text" value="30:ae:7b:64:00:c6-00000001"/>
Mqtt Login Password	<input type="text" value="30:ae:7b:64:00:c6-00000001"/>
Mqtt HeartBeat	<input type="text" value="60"/>
Mqtt Sub Topic	<input type="text"/>
Mqtt Pub Topic	<input type="text"/>
Qos	<input type="text" value="0"/>
Retain	<input type="text" value="0"/>
SSL Option	<input type="text" value="no ssl"/>

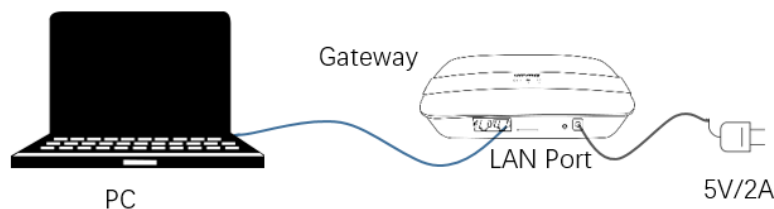
Save & Apply

Save

Reset

3.2. DSGW-040 configuration

3.2.1 Connect the gateway and your PC with one router, shown below,



3.2.2 Open a web browser on PC, Input Gateway IP Address : 192.168.66.1 ; Enter the username and Password (default Username: root, Password: root), login to the gateway, the process is shown below,

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Hangzhou 310004, china

www.dusunlock.com

192.168.66.1/cgi-bin/luci

Dusun

Authorization Required

Please enter your username and password.

Username

Password

Set the mqtt configuration like the DSGW-030.

4. General Message format

Sample command

```
{
  "data": {
    "arguments": {
      "attribute": "gateway.reboot",
      "ep": 1,
      "value": {
        "reboot_delay": 0
      },
      "mac": "30:ae:7b:2b:ff:83"
    },
    "id": "160830565505933312",
    "command": "setAttribute"
  },
  "deviceCode": "010001ff-59de-4c8d-8dd2-4ddd4fa35f74f",
  "from": "CLOUD",
  "mac": "30:ae:7b:2b:ff:83",
  "messageId": 2874,
  "time": 1558085772,
  "to": "GATEWAY",
  "type": "cmd"
}
```

Field	Description
from	Sender of message
to	Receiver of the message
mac	MAC address of the gateway
messageId	Message uuid
time	32-bit Unix epoch
type	Message type
deviceCode	Gateway registration code

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data	Data
id	Command id
command	command
arguments	Command parameter
attribute	Attribute parameter
ep	endpoint,(Indicate the number of channels when there are multi-way switches and panels)
Mac(Inside data)	MAC address of the device operated by the command
value	Specific parameter values
reboot_delay	The delay time of the restart command

5. MQTT protocol of Dusun Gateway

5.1. Gateway registration

Gateway report to cloud

```
{
  "data": {
    "mac": "30:ae:7b:16:ff:ff",
    "license": "dusun",
    "factory": "dusun"
  },
  "time": 1558420077,
  "mac": "30:ae:7b:16:ff:ff",
  "to": "CLOUD",
  "from": "GATEWAY",
  "type": "registerReq"
}
```

Field	Description
from	Sender of message
to	Receiver of the message
mac	MAC address of the gateway
time	32-bit Unix epoch
type	Message type
data	Data
Mac(Inside data)	MAC address of the gateway

Cloud response

```
{
  "data": {
    "code": 0,
    "deviceCode": "xxxxxx",
    "mac": "30:ae:7b:16:ff:ff"
  }
}
```

```
},  
  "deviceCode": "deviceCode",  
  "time": 1558420077,  
  "mac": "30:ae:7b:16:ff:ff",  
  "to": "GATEWAY",  
  "from": "CLOUD",  
  "type": "registerResp"  
}
```

Field	Description
from	Sender of message
to	Receiver of the message
mac	MAC address of the gateway
time	32-bit Unix epoch
type	Message type
deviceCode	Device code of gateway (Set by cloud)
data	Data
Mac(Inside data)	MAC address of the gateway
deviceCode	Device code of gateway (Set by cloud)

5.2. Gateway status report

Could request to gateway

```
{  
  "data": {  
    "arguments": {  
      "attribute": "gateway.status",  
      "value": {},  
      "mac": "30:ae:7b:16:ff:ff"  
    },  
    "id": "162236900961263616",  
    "command": "getAttribute"  
  },  
  "deviceCode": "xxxx",  
  "time": 1558421069,  
  "mac": "30:ae:7b:16:ff:ff",  
  "to": "GATEWAY",  
  "from": "CLOUD",  
  "type": "cmd"  
}
```

Field	Description
from	Sender of message
to	Receiver of the message
mac	MAC address of the gateway

time	32-bit Unix epoch
type	Message type
data	Data
Mac(Inside data)	MAC address of the gateway
attribute	Attribute of command

Gateway response to cloud

```

{
  "data": {
    "attribute": "gateway.status",
    "value": {
      "version": "v1",
      "model": "DSI0177",
      "factory": "dusun",
      "current_time": 1558423654,
      "uptime": 2565,
      "uplinkType": "Ethernet"
    }
  },
  "mac": "30:ae:7b:16:ff:ff"
},
"deviceCode": "xxx",
"time": 1558423654,
"mac": "30:ae:7b:16:ff:ff"
"to": "CLOUD",
"from": "GATEWAY",
"type": "reportAttribute"
}
    
```

Field	Description
from	Sender of message
to	Receiver of the message
mac	MAC address of the gateway
time	32-bit Unix epoch
type	Message type
data	Data
Mac(Inside data)	MAC address of the gateway
attribute	Attribute of command
value	
version	Gateway version
model	Gateway model
uptime	Gateway uptime
factory	Gateway manufacturer
uplinktype	Gateway connection mode

5.3. Gateway reboot

Command

```
{
  "data": {
    "arguments": {
      "attribute": "gateway.reboot",
      "ep": 1,
      "value": {
        "reboot_delay": 0
      },
      "mac": "30:ae:7b:2b:ff:83"
    },
    "id": "160830565505933312",
    "command": "setAttribute"
  },
  "deviceCode": "010001ff-59de-4c8d-8dd2-4dddffa35f74f",
  "from": "CLOUD",
  "mac": "30:ae:7b:2b:ff:83",
  "messageId": 2874,
  "time": 1558085772,
  "to": "GATEWAY",
  "type": "cmd"
}
```

Field	Description
from	Sender of message
to	Receiver of the message
mac	MAC address of the gateway
messageId	Message uuid
time	32-bit Unix epoch
type	Message type
deviceCode	Gateway registration code
data	Data
id	Command id
command	command
arguments	Command parameter
attribute	Attribute parameter
ep	endpoint,(Indicate the number of channels when there are multi-way switches and panels)
Mac(Inside data)	MAC address of the device operated by the command
value	Specific parameter values
reboot_delay	The delay time of the restart command

6. Manage zigbee devices in Dusun gateway

6.1. Add device through mqtt broker

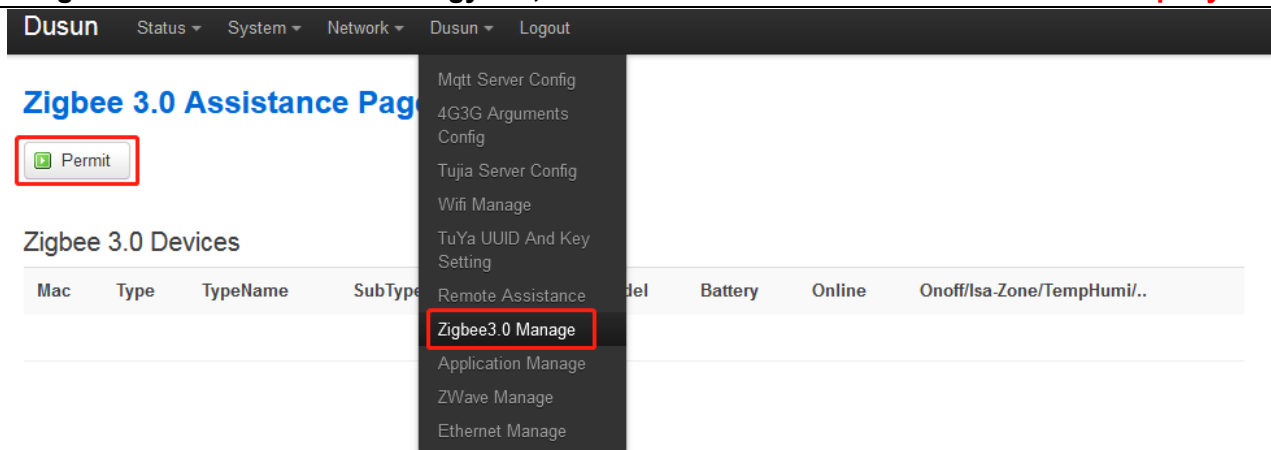
Command

```
{
  "data": {
    "arguments": {
      "attribute": "mod.add_device",
      "ep": 1,
      "value": {
        "mac": "00158d0001b61234"
      },
      "mac": "00158d0001b61234"
    },
    "id": "eb92016c-320d-4619-aca2-a401352e806f",
    "command": "setAttribute"
  },
  "from": "CLOUD",
  "mac": "30:ae:7b:2b:41:60",
  "messageId": 25607,
  "time": 1553909170,
  "to": "NXP",
  "type": "cmd"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address Can be empty if required to add all nearby zigbee devices
attribute	Operation attribute

6.2. Add device in LUCI interface

Enter the Luci of the gateway, go into zigbee3.0 manage web. And press the permit, and the gateway go into the pair mode. if pair successful , you can see the IAQ monitor device in the web.



6.3. Remove device from gateway

```
{
  "data": {
    "arguments": {
      "attribute": "mod.del_device",
      "ep": 1,
      "value": {
        "mac": "00158d0001b61234"
      },
      "mac": "00158d0001b61234"
    },
    "id": "eb92016c-320d-4619-aca2-a401352e806f",
    "command": "setAttribute"
  },
  "from": "CLOUD",
  "mac": "30:ae:7b:2b:41:60",
  "messageId": 25607,
  "time": 1553909170,
  "to": "NXP",
  "type": "cmd"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
attribute	Operation attribute

6.4. Get Zigbee device list

```
{
  "deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "from": "CLOUD",
  "mac": "30:ae:7b:64:11:ea",
  "time": 1552526478,
  "to": "NXP",
  "type": "cmd",
  "data": {
    "id": "xxxx",
    "command": "getAttribute",
    "arguments": {
      "mac": "01020304050607",
      "ep": "0",
      "attribute": "mod.device_list",
      "value": {}
    }
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
attribute	Operation attribute

7. MQTT protocol of zigbee devices

7.1. MQTT protocol of the IAQ monitor

Temperature report

Report

```
{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "deviceCode": "xxx\n",
  "to": "CLOUD",
  "time": 1630899887,
  "mac": "30:ae:7b:64:11:ea",
  "data": {
    "attribute": "device.temperature",
    "mac": "5c0272ffed8a093",
    "ep": 1,
    "value": {
      "ep": 1,
      "battery": 100,
      "value": "26.39",
      "zone": "PMT300-SGM-ZTN",
      "unit": "C",
      "ModelStr": "PMT300-SGM-ZTN"
    }
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is Celsius
value	Temperature value of the sensor

Humidity report

Report

```
{
  "type": "reportAttribute",
```

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```
"from" : "GREENPOWER",
"deviceCode" : "xxx\n",
"to" : "CLOUD",
"time" : 1630899888,
"mac" : "30:ae:7b:64:11:ea",
"data" : {
  "attribute" : "device.humidity",
  "mac" : "5c0272ffed8a093",
  "ep" : 1,
  "value" : {
    "ep" : 1,
    "battery" : 100,
    "value" : "73.71",
    "zone" : "PMT300-SGM-ZTN",
    "unit" : "%",
    "ModelStr" : "PMT300-SGM-ZTN"
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is %
value	Humidity value of the sensor

CO2 report

Report

```
{
  "type" : "reportAttribute",
  "from" : "GREENPOWER",
  "deviceCode" : "xxx\n",
  "to" : "CLOUD",
  "time" : 1630899889,
  "mac" : "30:ae:7b:64:11:ea",
  "data" : {
    "attribute" : "device.co2",
    "mac" : "5c0272ffed8a093",
```

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```
"ep" : 1,  
"value" : {  
  "ep" : 1,  
  "battery" : 100,  
  "value" : 2278,  
  "zone" : "PMT300-SGM-ZTN",  
  "unit" : "ppm",  
  "ModelStr" : "PMT300-SGM-ZTN"  
}  
}  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is ppm
value	CO2 value of the sensor

PM2.5 report

Report

```
{  
  "type" : "reportAttribute",  
  "from" : "GREENPOWER",  
  "deviceCode" : "xxx\n",  
  "to" : "CLOUD",  
  "time" : 1630899889,  
  "mac" : "30:ae:7b:64:11:ea",  
  "data" : {  
    "attribute" : "device.co2",  
    "mac" : "5c0272fffd8a093",  
    "ep" : 1,  
    "value" : {  
      "ep" : 1,  
      "battery" : 100,  
      "value" : 2278,  
      "zone" : "PMT300-SGM-ZTN",  
      "unit" : "ppm",  
      "ModelStr" : "PMT300-SGM-ZTN"  
    }  
  }  
}
```

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```

    }
  }
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is ppm
value	CO2 value of the sensor

HCHO report

Report

```

{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "deviceCode": "xxx\n",
  "to": "CLOUD",
  "time": 1630899889,
  "mac": "30:ae:7b:64:11:ea",
  "data": {
    "attribute": "device.co2",
    "mac": "5c0272ffed8a093",
    "ep": 1,
    "value": {
      "ep": 1,
      "battery": 100,
      "value": 2278,
      "zone": "PMT300-SGM-ZTN",
      "unit": "ppm",
      "ModelStr": "PMT300-SGM-ZTN"
    }
  }
}

```

Parameter	Description
mac	Mac address of gateway

command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is mg/m3
value	HCHO value of the sensor

TVOC report

Report

```

{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "deviceCode": "xxx\n",
  "to": "CLOUD",
  "time": 1630899889,
  "mac": "30:ae:7b:64:11:ea",
  "data": {
    "attribute": "device.co2",
    "mac": "5c0272ffed8a093",
    "ep": 1,
    "value": {
      "ep": 1,
      "battery": 100,
      "value": 2278,
      "zone": "PMT300-SGM-ZTN",
      "unit": "lx",
      "ModelStr": "PMT300-SGM-ZTN"
    }
  }
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor

unit	Unit is mg/m3
value	TVOC value of the sensor

PM10 report

Report

```
{
  "type": "reportAttribute",
  "deviceCode": "xxx\n",
  "from": "GREENPOWER",
  "time": 1630914340,
  "to": "CLOUD",
  "mac": "30:ae:7b:64:11:ea",
  "data": {
    "mac": "5c0272ffed8a093",
    "attribute": "device.PM10",
    "ep": 1,
    "value": {
      "ep": 1,
      "ModelStr": "PMT300-SGM-ZTN",
      "value": 67,
      "battery": 100,
      "unit": "1ug/m3",
      "zone": "PMT300-SGM-ZTN"
    }
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is 1ug/m3
value	PM10 value of the sensor

PM1.0 report

Report

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--	---	---

```
"type" : "reportAttribute",
"deviceCode" : "xxx\n",
"from" : "GREENPOWER",
"time" : 1630914340,
"to" : "CLOUD",
"mac" : "30:ae:7b:64:11:ea",
"data" : {
  "mac" : "5c0272ffed8a093",
  "attribute" : "device.PM1.0",
  "ep" : 1,
  "value" : {
    "ep" : 1,
    "ModelStr" : "PMT300-SGM-ZTN",
    "value" : 39,
    "battery" : 100,
    "unit" : "1ug/m3",
    "zone" : "PMT300-SGM-ZTN"
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the IAQ monitor
ModelStr	Model string of the IAQ monitor, reported by sensor
unit	Unit is 1ug/m3
value	PM1.0 value of the sensor

7.2. MQTT protocol of the Zigbee keypad

Set password

Command

```
{
  "to" : "GREENPOWER",
  "from" : "CLOUD",
  "type" : "cmd",
  "time" : 1612170705,
  "deviceCode" : "00000",
  "mac" : "30:ae:7b:64:0c:bb",
```

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```
"data" : {  
  "id" : "xxxx",  
  "command" : "setAttribute",  
  "arguments" : {  
    "mac" : "5c0272ffec9628c",  
    "ep" : "1",  
    "attribute" : "device.keypad.set_pass",  
    "value" : {  
      "code" : 123456,  
      "codeID" :1  
    }  
  }  
}  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	Code: password codeID: code id

Delete password

Command

```
{  
  "to" : "GREENPOWER",  
  "from" : "CLOUD",  
  "type" : "cmd",  
  "time" : 1612170705,  
  "deviceCode" : "00000",  
  "mac" : "30:ae:7b:64:0c:bb",  
  "data" : {  
    "id" : "xxxx",  
    "command" : "setAttribute",  
    "arguments" : {  
      "mac" : "5c0272ffec9628c",  
      "ep" : "1",  
      "attribute" : "device.keypad.del_pass",  
      "value" : {  
        "codeID" :1  
      }  
    }  
  }  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	codeID: code id

Query password

Command

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1612170705,
  "deviceCode": "00000",
  "mac": "30:ae:7b:64:0c:bb",
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "5c0272ffec9628c",
      "ep": "1",
      "attribute": "device.keypad.qry_pass",
      "value": {
        "codeID": 1
      }
    }
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	codeID: code id

Query keypad stat

Command

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1612170705,
```

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```

"deviceCode" : "00000",
"mac" : "30:ae:7b:64:0c:bb",
"data" : {
  "id" : "xxxx",
  "command" : "setAttribute",
  "arguments" : {
    "mac" : "5c0272ffec9628c",
    "ep" : "1",
    "attribute" : "device.keypad.qry_stat",
    "value" : {
      }
    }
  }
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

Status report

```

{
  "data" : {
    "attribute" : "device.keypad.qry_stat",
    "mac" : "5c0272ffec9628c",
    "ep" : 1,
    "value" : {
      "tamper":1,
      "battery":80,
      "version": "",
      "online":1
    }
  },
  "type" : "reportAttribute",
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "mac" : "30:ae:7b:64:0c:bb",
  "deviceCode" : "xxx\n",
  "time" : 1612170554
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type

mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

7.3. MQTT protocol of the Zigbee leakage sensor

1. Once the water leakage is detected, the following message would be uploaded

```
{
  "data": {
    "attribute": "device.zone_status",
    "mac": "842e14fffe1e9c39",
    "ep": 1,
    "value": {
      "ep": 1,
      "zone": "leak",
      "value": "0",
      "ModelStr": "RoomBankLeakSensor",
      "battery": 100
    }
  },
  "from": "GREENPOWER",
  "to": "CLOUD",
  "type": "reportAttribute",
  "deviceCode": "010123f3-c750-43e7-ad41-6672126fa416",
  "mac": "30:ae:7b:64:00:c6",
  "time": 1600412612
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

7.4. MQTT protocol of the Zigbee switch

Control ON/OFF

Command

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1612170705,
```

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```

"deviceCode" : "00000",
"mac" : "30:ae:7b:64:0c:bb",
"data" : {
  "id" : "xxxx",
  "command" : "setAttribute",
  "arguments" : {
    "mac" : "5c0272fffec9628c",
    "ep" : "1",
    "attribute" : "device.onoff",
    "value" : {
      "value" : 0
    }
  }
}
}
}
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	0 : OFF 1:ON

Timer

Command

```

{
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "cmd",
  "time" : 1612170799,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "5C0272FFFE9628C",
      "value" : {
        "atype" : "23",
        "ep" : "01",
        "attrid" : "4011",
        "data" : "0A000000",
        "cluster" : "0006"
      }
    },
    "attribute" : "ember.zb3.atr",

```

```
    "ep" : 1
  },
  "id" : "c7a325d5-085e-405c-83f3-40619e805fc2\n"
},
"to" : "NXP"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
atype	23 (fixed value)
attrid	4011 (fixed value)
cluster	0006 (fixed value)
data (inside value)	Big end, unit is second (0A000000 : 10s)

Set power on status

Command

```
{
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "cmd",
  "time" : 1612170774,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "5C0272FFFE969BF",
      "value" : {
        "atype" : "30",
        "ep" : "01",
        "attrid" : "4010",
        "data" : "02",
        "cluster" : "0006"
      },
    },
    "attribute" : "ember.zb3.atr",
    "ep" : 1
  },
  "id" : "26d4a774-85f3-495b-a1fa-b258a97fdb35\n"
},
"to" : "NXP"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
atype	30 (fixed value)
attrid	4010 (fixed value)
cluster	0006 (fixed value)
data(inside value)	00: OFF 01: ON 02: Save the state of the last power loss

Status report

On/Off report

```
{
  "data" : {
    "attribute" : "device.onoff",
    "mac" : "5c0272ffec9628c",
    "ep" : 1,
    "value" : {
      "ep" : 1,
      "value" : 0,
      "ModelStr" : "Switch1",
      "battery" : 100,
      "zone" : "Switch1"
    }
  },
  "type" : "reportAttribute",
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "mac" : "30:ae:7b:64:0c:bb",
  "deviceCode" : "xxx\n",
  "time" : 1612170554
}
```

Dimmer report

```
{
  "data" : {
    "attribute" : "device.light.dimmer",
    "mac" : "5c0272ffec9628c",
    "ep" : 1,
    "value" : {
      "ep" : 1,
      "value" : 204,
    }
  }
}
```

```
    "ModelStr" : "Switch1",
    "battery" : 100,
    "zone" : "Switch1"
  }
},
"type" : "reportAttribute",
"from" : "GREENPOWER",
"to" : "CLOUD",
"mac" : "30:ae:7b:64:0c:bb",
"deviceCode" : "xxx\n",
"time" : 1612170802
}
```

Status report

```
{
  "data" : {
    "attribute" : "device.status",
    "mac" : "5c0272ffec96033",
    "ep" : 1,
    "value" : {
      "ep" : 1,
      "version" : "1.2",
      "online" : 1,
      "type" : "1213",
      "battery" : 100,
      "subtype" : "",
      "time" : "1612170939",
      "ModelStr" : "Switch3",
      "zone" : "Switch3"
    }
  },
  "type" : "reportAttribute",
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "mac" : "30:ae:7b:64:0c:bb",
  "deviceCode" : "xxx\n",
  "time" : 1612170939
}
```

7.5. MQTT protocol of the Zigbee dimmer switch

Control ON/OFF

Command

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```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1612170705,
  "deviceCode": "00000",
  "mac": "30:ae:7b:64:0c:bb",
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "5c0272fffec9628c",
      "ep": "1",
      "attribute": "device.onoff",
      "value": {
        "value": 0
      }
    }
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	0 : OFF 1:ON

Dimmer control

Command

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1612170705,
  "deviceCode": "00000",
  "mac": "30:ae:7b:64:0c:bb",
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "5c0272fffec9628c",
      "ep": "1",

```

```

    "attribute" : "device.light.dimmer",
    "value" : {
      "value" : 128
    }
  }
}
}
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	Integer , 0 - 254

Timer

Command

```

{
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "cmd",
  "time" : 1612170799,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "5C0272FFFE9628C",
      "value" : {
        "atype" : "23",
        "ep" : "01",
        "attrid" : "4011",
        "data" : "0A000000",
        "cluster" : "0006"
      },
      "attribute" : "ember.zb3.atr",
      "ep" : 1
    },
    "id" : "c7a325d5-085e-405c-83f3-40619e805fc2\n"
  },
  "to" : "NXP"
}

```

Parameter	Description
-----------	-------------

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mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
atype	23 (fixed value)
attrid	4011 (fixed value)
cluster	0006 (fixed value)
data (inside value)	Big end, unit is second (0A000000 : 10s)

Set power on status

Command

```
{
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "cmd",
  "time" : 1612170774,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "5C0272FFFE969BF",
      "value" : {
        "atype" : "30",
        "ep" : "01",
        "attrid" : "4010",
        "data" : "02",
        "cluster" : "0006"
      }
    },
    "attribute" : "ember.zb3.atr",
    "ep" : 1
  },
  "id" : "26d4a774-85f3-495b-a1fa-b258a97fdb35\n",
},
"to" : "NXP"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

atype	30 (fixed value)		
attrid	4010 (fixed value)		
cluster	0006 (fixed value)		
data(inside value)	00: OFF	01: ON	02: Save the state of the last power loss

Status report

On/Off report

```
{
  "data": {
    "attribute": "device.onoff",
    "mac": "5c0272ffec9628c",
    "ep": 1,
    "value": {
      "ep": 1,
      "value": 0,
      "ModelStr": "Switch1",
      "battery": 100,
      "zone": "Switch1"
    }
  },
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "to": "CLOUD",
  "mac": "30:ae:7b:64:0c:bb",
  "deviceCode": "xxx\n",
  "time": 1612170554
}
```

Dimmer report

```
{
  "data": {
    "attribute": "device.light.dimmer",
    "mac": "5c0272ffec9628c",
    "ep": 1,
    "value": {
      "ep": 1,
      "value": 204,
      "ModelStr": "Switch1",
      "battery": 100,
      "zone": "Switch1"
    }
  },
  "type": "reportAttribute",
}
```

```
{
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "mac" : "30:ae:7b:64:0c:bb",
  "deviceCode" : "xxx\n",
  "time" : 1612170802
}
```

Status report

```
{
  "data" : {
    "attribute" : "device.status",
    "mac" : "5c0272ffec96033",
    "ep" : 1,
    "value" : {
      "ep" : 1,
      "version" : "1.2",
      "online" : 1,
      "type" : "1213",
      "battery" : 100,
      "subtype" : "",
      "time" : "1612170939",
      "ModelStr" : "Switch3",
      "zone" : "Switch3"
    }
  },
  "type" : "reportAttribute",
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "mac" : "30:ae:7b:64:0c:bb",
  "deviceCode" : "xxx\n",
  "time" : 1612170939
}
```

7.6. MQTT protocol of the Zigbee Curtain motor

Curtain Motor On/Off/Toggle

```
{
  "to" : "GREENPOWER",
  "mac" : "30:ae:7b:64:0b:6c",
  "type" : "cmd",
  "time" : 1627889588,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
}
```

```
"data" : {  
  "id" : "xxxx",  
  "command" : "setAttribute",  
  "arguments" : {  
    "mac" : "086bd7ffe8b99b9",  
    "ep" : "1",  
    "attribute" : "device.onoff",  
    "value" : {  
      "value" : 0  
    }  
  }  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	0:off 1:on 2:toggle

Curtain Motor level control

```
{  
  "to" : "GREENPOWER",  
  "mac" : "30:ae:7b:64:0b:6c",  
  "type" : "cmd",  
  "time" : 1627889588,  
  "from" : "CLOUD",  
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",  
  "data" : {  
    "id" : "xxxx",  
    "command" : "setAttribute",  
    "arguments" : {  
      "mac" : "086bd7ffe8b99b9",  
      "ep" : "1",  
      "attribute" : "device.light.dimmer",  
      "value" : {  
        "value" : 55  
      }  
    }  
  }  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	The setting value of curtain, vary from 0 to 100

Curtain Motor status control

```
{
  "mac" : "30:ae:7b:64:0b:6c",
  "type" : "cmd",
  "time" : 1627887578,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "086bd7fffe8b99b9",
      "value" : {
        "value" : 0,
        "ep" : 1
      },
      "attribute" : "device.shade.status",
      "ep" : 1
    },
    "id" : "48af5333-a85e-42e7-b934-f504233499c4\n"
  },
  "to" : "GREENPOWER"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	Status bit3: Direction corresponds to the positive direction of the motor, 0 is off, 1 is on

Curtain Motor close limit setting

```
{
  "mac" : "30:ae:7b:64:0b:6c",
```

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```
"type" : "cmd",
"time" : 1627889588,
"from" : "CLOUD",
"deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
"data" : {
  "command" : "setAttribute",
  "arguments" : {
    "mac" : "086bd7fffe8b99b9",
    "value" : {
      "value" : 33,
      "ep" : 1
    },
    "attribute" : "device.shade.closedlimit",
    "ep" : 1
  },
  "id" : "7cbe67c6-5e67-49f2-ae6a-ff384eec532e\n"
},
"to" : "NXP"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	Default value 0x0000

Curtain Motor mode control

```
{
  "mac" : "30:ae:7b:64:0b:6c",
  "type" : "cmd",
  "time" : 1627889588,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "086bd7fffe8b99b9",
      "value" : {
        "value" : 0,
        "ep" : 1
      },
    },
  },
}
```

```

    "attribute" : "device.shade.mode",
    "ep" : 1
  },
  "id" : "cf35f415-3291-415d-9167-98ff87b84890\n"
},
"to" : "NXP"
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	Default value 0x00

Curtain Motor stop

```

{
  "mac" : "30:ae:7b:64:0b:6c",
  "type" : "cmd",
  "time" : 1627889588,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "086bd7ffe8b99b9",
      "value" : {
      },
      "attribute" : "device.level.stop",
      "ep" : 1
    },
    "id" : "8a7476a5-e661-4fe4-bc96-61afbcc9198f\n"
  },
  "to" : "NXP"
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device

attribute	Operation attribute
value	Empty

7.7. MQTT protocol of the Zigbee switch

Report

Take a 3 gang switch as a example,

```
{
  "deviceCode" : "010000c6-4f63-481e-ad41-0a64f358060c",
  "to" : "CLOUD",
  "from" : "GREENPOWER",
  "mac" : "30:ae:7b:64:0b:6c",
  "type" : "reportAttribute",
  "time" : 1601359039,
  "data" : {
    "attribute" : "device.switch.onoff",
    "mac" : "000d6f0011bcd485",
    "ep" : 1,
    "value" : {
      "ep" : 1,
      "battery" : 100,
      "value" : 1,
      "ModelStr" : "00500c35",
      "zone" : "00500c35"
    }
  }
}
```

```
{
  "deviceCode" : "010000c6-4f63-481e-ad41-0a64f358060c",
  "to" : "CLOUD",
  "from" : "GREENPOWER",
  "mac" : "30:ae:7b:64:0b:6c",
  "type" : "reportAttribute",
  "time" : 1601361344,
  "data" : {
    "attribute" : "mod.device_list",
    "mac" : "30:ae:7b:64:0b:6c",
    "value" : {
      "device_list" : [ {
        "ModelStr" : "00500c35",
        "mac" : "000d6f0011bcd485",
        "type" : "1230",

```



```
    "epList" : [ {
      "type" : "1230",
      "ep" : "01"
    }, {
      "type" : "1230",
      "ep" : "02"
    }, {
      "type" : "1230",
      "ep" : "03"
    } ],
    "subtype" : "",
    "version" : "1.3",
    "model" : "Dusun",
    "online" : 1,
    "battery" : 100
  } ]
}
}
```

Control the Zigbee switch with mqtt server

Command

```
{
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "000d6f0011bcd485",
      "ep": "1",
      "attribute": "device.onoff",
      "value": {
        "value": 1
      }
    }
  },
  "deviceCode": "123",
  "from": "CLOUD",
  "mac": "30:ae:7b:64:0b:6c",
  "time": 1554182805,
  "to": "NXP",
  "type": "cmd"
}
```

7.8. MQTT protocol of the Zigbee door&window sensor

Once the door&window is opened, the following message would be uploaded

```
{
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "time" : 1600413820,
  "mac" : "30:ae:7b:64:00:c6",
  "deviceCode" : "010123f3-c750-43e7-ad41-6672126fa416",
  "type" : "reportAttribute",
  "data" : {
    "value" : {
      "ep" : 1,
      "zone" : "door",
      "value" : "1",
      "ModelStr" : "RoomBankDoorSensor",
      "battery" : 100
    },
    "attribute" : "device.zone_status",
    "mac" : "842e14fffe1e9a4c",
    "ep" : 1
  }
}
```

7.9. MQTT protocol of the Zigbee light sensor

Light sensor report

Report

```
{
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "type" : "reportAttribute",
  "mac" : "30:ae:7b:64:11:ea",
  "deviceCode" : "xxx\n",
  "time" : 1629684100,
  "data" : {
    "attribute" : "device.lux",
    "mac" : "04cf8cdf3c787246",
    "ep" : 1,
    "value" : {
      "ep" : 1,
      "zone" : "lumi.sen_ill.mgl01",
      "ModelStr" : "lumi.sen_ill.mgl01",

```

```
"unit": "lx",  
"value": "14.061",  
"battery": 100  
}  
}  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
battery	Battery of the light sensor
ModelStr	Model string of the light sensor, reported by sensor
unit	Unit is lux
value	Illumination intensity of the sensor

7.10. MQTT protocol of the Zigbee voice alarm

Control ON/OFF

Command

```
{  
  "to": "GREENPOWER",  
  "from": "CLOUD",  
  "type": "cmd",  
  "deviceCode": "",  
  "mac": "30:ae:7b:64:0c:bb",  
  "time": 1599028457,  
  "data": {  
    "id": "xxxx",  
    "command": "setAttribute",  
    "arguments": {  
      "mac": "000d6f000be7b700",  
      "ep": "1",  
      "attribute": "device.voicelight.alarm",  
      "value": {  
        "value": 1,  
        "light": 1  
      }  
    }  
  }  
}
```


Control sensitivity

Command

```
{
  "mac" : "30:ae:7b:64:11:ea",
  "type" : "cmd",
  "time" : 1612170774,
  "from" : "CLOUD",
  "deviceCode" : "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data" : {
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "60a423ffead1f7a",
      "value" : {
        "atype" : "20",
        "ep" : "01",
        "attrid" : "0013",
        "data" : "03",
        "cluster" : "0500"
      },
      "attribute" : "ember.zb3.atr",
      "ep" : 1
    },
    "id" : "26d4a774-85f3-495b-a1fa-b258a97fdb35\n"
  },
  "to" : "NXP"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
Atype	Data type for zigbee device control, 20 for uint8
Attrid	Attribute for zigbee device control, 0013 for sensitivity
Data	Can be 0x01 – 0x03 , 0x03 is the least sensitive value
Cluster	Cluster of zigbee device control, 0500 for IAS zone

Response

```
{
  "type" : "cmdResult",
  "from" : "GREENPOWER",
  "to" : "CLOUD",
  "deviceCode" : "",
  "mac" : "30:ae:7b:64:11:ea",
```

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```
"time" : 1615543284,  
"data" : {  
  "id" : "26d4a774-85f3-495b-a1fa-b258a97fdb35\n",  
  "code" : 0  
}  
}
```

7.12. MQTT protocol of the Zigbee temp&humi sensor

The nearby temperature and humidity data would be uploaded in every 15 minutes, the message format is listed below,

1. Nearby temperature data

```
{  
  "data" : {  
    "attribute" : "device.temperature",  
    "mac" : "842e14fffe1e9bb2",  
    "value" : {  
      "value" : "29.58",  
      "ep" : 1,  
      "zone" : "RoomBank-TemperatureHumidity",  
      "unit" : "C",  
      "ModelStr" : "RoomBank-TemperatureHumidity",  
      "battery" : 100  
    },  
    "ep" : 1  
  },  
  "from" : "GREENPOWER",  
  "to" : "CLOUD",  
  "time" : 1599706766,  
  "deviceCode" : "010123f3-c750-43e7-ad41-6672126fa416",  
  "mac" : "30:ae:7b:64:00:c6",  
  "type" : "reportAttribute"  
}
```

2. Nearby humidity data

```
{  
  "data" : {  
    "attribute" : "device.humidity",  
    "mac" : "842e14fffe1e9bb2",  
    "value" : {  
      "value" : "56.44",  
      "ep" : 1,  
      "zone" : "RoomBank-TemperatureHumidity",  
    }  
  }  
}
```

```
"unit" : "%",  
"ModelStr" : "RoomBank-TemperatureHumidity",  
"battery" : 100  
},  
"ep" : 1  
},  
"from" : "GREENPOWER",  
"to" : "CLOUD",  
"time" : 1599706766,  
"deviceCode" : "010123f3-c750-43e7-ad41-6672126fa416",  
"mac" : "30:ae:7b:64:00:c6",  
"type" : "reportAttribute"  
}
```

7.13. MQTT protocol of the Zigbee RGB bulb

1. Set the on/off of RGB bulbs, the value is 0 and 1. You copy the command as follow, change the mac of line 5 to mac of RGB bulbs, and change the mac of line 15 to mac of gateway.

```
{  
  "data": {  
    "id": "xxxx",  
    "command": "setAttribute",  
    "arguments": {  
      "mac": "123",  
      "ep": "1",  
      "attribute": "device.onoff",  
      "value": {  
        "value": 1  
      }  
    }  
  },  
  "deviceCode": "010006a3-05eb-4879-800158d00026c5444",  
  "from": "CLOUD",  
  "mac": "30:ae:7b:64:0d:ba",  
  "messageId": 24394,  
  "time": 1554182805,  
  "to": "NXP",  
  "type": "cmd"  
}
```

2. Set hue and saturation , hue from 0-254, sut from 0-254. You copy the command as follow, change the mac of line 5 to mac of RGB bulbs, and change the mac of line 16 to mac of gateway.

```
{
```

```
{
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "123",
      "ep": "1",
      "attribute": "device.light.color",
      "value": {
        "hue": 1,
        "sat": 33
      }
    }
  },
  "deviceCode": "010006a3-05eb-4879-800158d00026c5444",
  "from": "CLOUD",
  "mac": "30:ae:7b:64:0d:ba",
  "messageId": 24394,
  "time": 1554182805,
  "to": "NXP",
  "type": "cmd"
}
```

3. Set brightness, value from 0-254, You copy the command as follow, change the mac of line 6 to mac of RGB bulbs, and change the mac of line 16 to mac of gateway.

```
{
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "123",
      "ep": "1",
      "attribute": "device.light.dimmer",
      "value": {
        "value": 11
      }
    }
  },
  "deviceCode": "010006a3-05eb-4879-800158d00026c5444",
  "from": "CLOUD",
  "mac": "30:ae:7b:64:0d:ba",
  "messageId": 24394,
  "time": 1554182805,
}
```



```
"to": "NXP",  
"type": "cmd"  
}
```

7.14. MQTT protocol of the Zigbee smart switch (via dtu)

Motor on/off

Command

```
{  
  "mac": "30:ae:7b:64:0b:73",  
  "type": "cmd",  
  "time": 1625033954,  
  "from": "CLOUD",  
  "deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",  
  "data": {  
    "command": "setAttribute",  
    "arguments": {  
      "mac": "804b50fffe2bfc60",  
      "value": {  
        "time": 50,  
        "relayindex": 2,  
        "action": 2  
      },  
      "attribute": "device.485.door_open",  
      "ep": 1  
    },  
    "id": "2a2c35e5-b114-41d3-86df-e8ed419bf276\u000a"  
  },  
  "to": "NXP"  
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
time	Reserve, set a default value
relayindex	Two route relay, 1: route one, 2:route two
action	1, off 2:on
status	0x00-->OK 0x02 --> ERROR_PARAMETER 0x03-->ERROR_STATE

Response

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```
{
  "time": 1625032603,
  "from": "GREENPOWER",
  "to": "CLOUD",
  "deviceCode": "00000",
  "data": {
    "attribute": "device.485.door_open",
    "mac": "30:ae:7b:64:0b:73",
    "value": {
      "ep": 1,
      "status": 0
    }
  },
  "mac": "30:ae:7b:64:0b:73",
  "type": "reportAttribute"
}
```

Motor operation

```
{
  "mac": "30:ae:7b:64:0b:73",
  "type": "cmd",
  "time": 1625033870,
  "from": "CLOUD",
  "deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data": {
    "command": "setAttribute",
    "arguments": {
      "mac": "804b50fffe047d97",
      "value": {
        "motorindex": 1,
        "action": 2,
        "time": 11
      }
    },
    "attribute": "device.485.motor_operate",
    "ep": 1
  },
  "id": "4dde07ef-b037-4f76-b915-a463543921cfu000a"
},
"to": "NXP"
}
```

Response

```
{
  "time": 1625032603,
```

```

    "from": "GREENPOWER",
    "to": "CLOUD",
    "deviceCode": "00000",
    "data": {
      "attribute": "device.485.door_open",
      "mac": "30:ae:7b:64:0b:73",
      "value": {
        "ep": 1,
        "status": 0
      }
    },
    "mac": "30:ae:7b:64:0b:73",
    "type": "reportAttribute"
  }
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
time	Reserve
motorindex	Two route motors, 1: motor one 2: motor two
action	2:operate, open the motor
status	0x00-->OK 0x02 --> ERROR_PARAMETER 0x03-->ERROR_STATE

Sensor report

```

{
  "time": 1625032603,
  "from": "GREENPOWER",
  "to": "CLOUD",
  "deviceCode": "00000",
  "data": {
    "attribute": "device.485.sensor_rpt",
    "mac": "30:ae:7b:64:0b:73",
    "value": {
      "ep": 1,
      "sensorindex":1, // 1 or 2
      "change":0
    }
  },
  "mac": "30:ae:7b:64:0b:73",
}

```

```
"type": "reportAttribute"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
change	0: sensor in low power level 1: sensor in high power level
sensorindex	Two route sensors, 1: sensor one 2: sensor two

Version report

```
{
  "time": 1625032603,
  "from": "GREENPOWER",
  "to": "CLOUD",
  "deviceCode": "00000",
  "data": {
    "attribute": "device.485.version",
    "mac": "30:ae:7b:64:0b:73",
    "value": {
      "ep": 1,
      "hardware_version":1,
      "software_version":2
    }
  },
  "mac": "30:ae:7b:64:0b:73",
  "type": "reportAttribute"
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	
hardware_version	Hardware version
software_version	Software version

7.15. MQTT protocol of the Zigbee Thermostat

ON/OFF

Set the on/off of Thermostats, the value is 0 and 1. You can copy the command as follow, change the mac of line 12 to mac of thermostat, and change the mac of line 6 to mac of gateway.

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1589616085,
  "mac": "30:ae:7b:64:0c:bb",
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "60a423ffe9d8903",
      "ep": "1",
      "attribute": "device.onoff",
      "value": {
        "value": 0
      }
    }
  }
}
```

Response

```
{
  "time": 1608863900,
  "from": "GREENPOWER",
  "to": "CLOUD",
  "deviceCode": "xxxxx\n",
  "data": {
    "attribute": "device.onoff",
    "mac": "60a423ffe9d8903",
    "ep": 1,
    "value": {
      "zone": "Thermostat",
      "battery": 100,
      "ep": 1,
      "value": 0,
      "ModelStr": "Thermostat"
    }
  }
},
```

```
"mac": "30:ae:7b:64:0c:bb",  
"type": "reportAttribute"  
}
```

Fan speed control

Set fan speed of the thermostat

```
{  
  "to": "GREENPOWER",  
  "from": "CLOUD",  
  "type": "cmd",  
  "time": 1589616085,  
  "mac": "30:ae:7b:64:0c:bb",  
  "data": {  
    "id": "xxxx",  
    "command": "setAttribute",  
    "arguments": {  
      "mac": "60a423ffe9d8903",  
      "ep": "1",  
      "attribute": "device.fan.ctr",  
      "value": {  
        "value": 4  
      }  
    }  
  }  
}
```

Option	meaning
Value	4 : fan speed is four 5: set the fan speed to auto

Response

```
{  
  "time": 1609125162,  
  "from": "GREENPOWER",  
  "data": {  
    "ep": 1,  
    "attribute": "device.fan.ctr",  
    "mac": "60a423ffe9d8903",  
    "value": {  
      "ep": 1,  
      "battery": 100,  
      "value": 4,  
    }  
  }  
}
```

```
        "zone": "Thermostat",
        "ModelStr": "Thermostat"
    }
},
"to": "CLOUD",
"type": "reportAttribute",
"mac": "30:ae:7b:64:0c:bb",
"deviceCode": "xxxxx\n"
}
```

Temperature adjustment

Set the operation mode of the thermo stat, increase or decrease the temperature value

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1589616085,
  "mac": "30:ae:7b:64:0c:bb",
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "60a423ffe9d8903",
      "ep": "1",
      "attribute": "device.temp.ctr",
      "value": {
        "operation": 0,
        "dir": 1,
        "value": 6
      }
    }
  }
}
```

Option	meaning
Dir	Increase or decrease value of the thermostat, 1: increase 0: decrease
Value	Amount to adjust the thermostat (Range from

Option	meaning
	5~50°C, 42~122°F) Temperature change is the <value>/10, for example, the value is 6, dir is 1, then the change is +0.6°C

Response

```
{
  "to": "CLOUD",
  "from": "GREENPOWER",
  "deviceCode": "xxx\n",
  "mac": "30:ae:7b:64:00:d0",
  "type": "reportAttribute",
  "data": {
    "attribute": "device.target.temperature",
    "mac": "60a423fffe9d8903",
    "ep": 1,
    "value": {
      "ep": 1,
      "value": "23.33",
      "unit": "C",
      "zone": "Thermostat",
      "battery": 100,
      "ModelStr": "Thermostat"
    }
  },
  "time": 1611021171
}
```

Child lock setting

Command

```
{
  "mac": "30:ae:7b:64:0c:bb",
  "type": "cmd",
  "time": 1608863716,
  "from": "CLOUD",
  "to": "NXP",
  "deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data": {
    "command": "setAttribute",
    "arguments": {
      "mac": "60a423fffe9d8903",
```



```
        "value": {
            "value": 0
        },
        "attribute": "device.temp.childlock",
        "ep": 1
    },
    "id": "xxxx"
}
}
```

Option	meaning
Value	0: unlock 1: lock

Response

```
{
  "time": 1609125222,
  "from": "GREENPOWER",
  "data": {
    "ep": 1,
    "attribute": "device.temp.childlock",
    "mac": "60a423fffe9d8903",
    "value": {
      "ep": 1,
      "battery": 100,
      "value": 0,
      "zone": "Thermostat",
      "ModelStr": "Thermostat"
    }
  },
  "to": "CLOUD",
  "type": "reportAttribute",
  "mac": "30:ae:7b:64:0c:bb",
  "deviceCode": "xxxxx\n"
}
```

Programmed mode setting

Command

```
{
  "mac": "30:ae:7b:64:0c:bb",
  "type": "cmd",
  "time": 1608863751,
  "from": "CLOUD",
```

```

"to": "NXP",
"deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",
"data": {
  "command": "setAttribute",
  "arguments": {
    "mac": "60a423fffe9d8903",
    "value": {
      "value": 1
    },
    "attribute": "device.temp.progmode",
    "ep": 1
  },
  "id": "xxxx"
}
}

```

Option	meaning
Value	0: Use schedule 1: Temporary hold 2: Permanent hold 3: Hold until

Response

```

{
  "time": 1609125214,
  "from": "GREENPOWER",
  "data": {
    "ep": 1,
    "attribute": "device.temp.progmode",
    "mac": "60a423fffe9d8903",
    "value": {
      "ep": 1,
      "battery": 100,
      "value": 1,
      "zone": "Thermostat",
      "ModelStr": "Thermostat"
    }
  },
  "to": "CLOUD",
}

```

```
"type" : "reportAttribute",  
"mac" : "30:ae:7b:64:0c:bb",  
"deviceCode" : "xxxxx\n"  
}
```

Temperature mode setting

Command

```
{  
  "to": "NXP",  
  "from": "CLOUD",  
  "mac": "30:ae:7b:64:0c:bb",  
  "type": "cmd",  
  "time": 1608863751,  
  "deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",  
  "data": {  
    "id": "xxxx",  
    "command": "setAttribute",  
    "arguments": {  
      "mac": "60a423fffe9d8903",  
      "ep": "1",  
      "attribute": "device.mode.ctr",  
      "value": {  
        "value": 4  
      }  
    }  
  }  
}
```

Option	meaning
Value	0: Off 1: Auto 3: Cool 4: Heat 5: Emergency heating

Response

```
{  
  "time" : 1609125504,  
  "from" : "GREENPOWER",  
}
```

```
"data": {
  "ep": 1,
  "attribute": "device.mode.ctr",
  "mac": "60a423fffe9d8903",
  "value": {
    "ep": 1,
    "battery": 100,
    "value": 3,
    "zone": "Thermostat",
    "ModelStr": "Thermostat"
  }
},
"to": "CLOUD",
"type": "reportAttribute",
"mac": "30:ae:7b:64:0c:bb",
"deviceCode": "xxxxx\n"
}
```

Week schedule

Command

```
{
  "mac": "30:ae:7b:64:0c:bb",
  "type": "cmd",
  "time": 1609122737,
  "from": "CLOUD",
  "to": "NXP",
  "deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",
  "data": {
    "command": "setAttribute",
    "arguments": {
      "mac": "60a423fffe9d8903",
      "value": {
        "number": 4,
        "sets": [{
          "value": 12,
          "transition": 5,
          "daymask": 127
        }, {
          "value": 20,
          "transition": 300,
          "daymask": 127
        }, {
          "value": 25,
          "transition": 700,

```

```

        "daymask": 127
      }, {
        "value": 30,
        "transition": 1080,
        "daymask": 127
      }]
    },
    "attribute": "device.temp.schedule",
    "ep": 1
  },
  "id": "xxxx"
}
}

```

Option	meaning
number (inside value section)	Integer : 0 - 5
value (inside value section)	Temperature value in Celsius °C
transition (inside value section)	Time in a day. (unit is minute) For example, if the value is 300 it means the temperature would be set to the <value> in 300/60 = 5 AM, 700 implies in 11:40 AM.
daymask (inside value section)	SSFTWTM = set day of weeks mask where 0 = disable and 1 = enable. For example, enable Monday and Thursday and Saturday, the value is 0101001 = 41, all days are set is 1111111 = 127

Note: whether in different packages or in same packages, are days in a week should be set to enable this feature. That is to say, all bits in daymask should be set to 1 to enable week schedule.

Set Time Zone

Command

```

{
  "mac": "30:ae:7b:64:0c:bb",
  "type": "cmd",

```

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```

"time": 1620440600,
"from": "CLOUD",
"deviceCode": "db4a7b00-08f4-49e3-9ace-ac59ce035737",
"data": {
  "command": "setAttribute",
  "arguments": {
    "mac": "842E14FFFEF51A26",
    "value": {
      "atype": "2B",
      "ep": "01",
      "attrid": "0002",
      "data": "80700000",
      "cluster": "000A"
    },
    "attribute": "ember.zb3.atr",
    "ep": 1
  },
  "id": "39cf46f2-51a2-45e9-becc-b192334c50f1\u000a"
},
"to": "NXP"
}

```

Option	meaning
data	<p>Time zone value in seconds, little endian</p> <p>For UTC+8 is $0x00007080 = 3600*8=28800$, so the little endian value is “80700000”</p> <p>For UTC-8 is $-28800 = 0xFFFF8F80$ so the little endian value is “808FFFFFF”</p>

7.16. MQTT protocol of the Zigbee smoke detector

1. Once smoke is detected, the following message would be uploaded

```

{
  "from": "GREENPOWER",
  "to": "CLOUD",
  "mac": "30:ae:7b:64:00:c6",
  "deviceCode": "010123f3-c750-43e7-ad41-6672126fa416",
  "type": "reportAttribute",
  "time": 1600415867,

```

```

"data" : {
  "attribute" : "device.zone_status",
  "mac" : "14b457fffe801ab2",
  "value" : {
    "value" : "0",
    "ep" : 1,
    "ModelStr" : "Z3FireSensor",
    "zone" : "smoke",
    "battery" : 100
  },
  "ep" : 1
}
}

```

Option	meaning
value	Status, 0 means off /smoke alarm, 1 means on / smoke alarm

7.17. MQTT protocol of the Zigbee plug

Control ON/OFF

Command

```

{
  "to" : "GREENPOWER",
  "from" : "CLOUD",
  "type" : "cmd",
  "deviceCode" : "",
  "mac" : "30:ae:7b:64:0c:bb",
  "time" : 1599028457,
  "data" : {
    "id" : "xxxx",
    "command" : "setAttribute",
    "arguments" : {
      "mac" : "60a423fffe9d8b1e",
      "ep" : "1",
      "attribute" : "device.onoff",
      "value" : {
        "value" : 0
      }
    }
  }
}

```

}

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	0 : OFF 1:ON

Report

```
{
  "to" : "CLOUD",
  "from" : "GREENPOWER",
  "deviceCode" : "xxx\n",
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "reportAttribute",
  "time" : 1611386316,
  "data" : {
    "attribute" : "device.meter.onoff",
    "mac" : "60a423fffe9d8b1e",
    "ep" : 1,
    "value" : {
      "ModelStr" : "RB-ElectricityMeasurement",
      "ep" : 1,
      "value" : 0,
      "battery" : 100,
      "zone" : "RB-ElectricityMeasurement"
    }
  }
}
```

Report of status

Energy

Report

```
{
  "to" : "CLOUD",
  "from" : "GREENPOWER",
  "deviceCode" : "xxx\n",
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "reportAttribute",
  "time" : 1611386326,
  "data" : {
    "attribute" : "device.meter.energy",
```



```

"mac" : "60a423fffe9d8b1e",
"ep" : 1,
"value" : {
  "ModelStr" : "RB-ElectricityMeasurement",
  "ep" : 1,
  "value" : "0.0000",
  "unit" : "kWh",
  "battery" : 100,
  "zone" : "RB-ElectricityMeasurement"
}
}
}

```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

Power

Repot

```

{
  "to" : "CLOUD",
  "from" : "GREENPOWER",
  "deviceCode" : "xxx\n",
  "mac" : "30:ae:7b:64:0c:bb",
  "type" : "reportAttribute",
  "time" : 1611386326,
  "data" : {
    "attribute" : "device.meter.power",
    "mac" : "60a423fffe9d8b1e",
    "ep" : 1,
    "value" : {
      "ModelStr" : "RB-ElectricityMeasurement",
      "ep" : 1,
      "value" : "0.0000",
      "unit" : "kW",
      "battery" : 100,
      "zone" : "RB-ElectricityMeasurement"
    }
  }
}
}

```

Parameter	Description
-----------	-------------

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mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

Voltage

Report

```
{
  "to": "CLOUD",
  "from": "GREENPOWER",
  "deviceCode": "xxx\n",
  "mac": "30:ae:7b:64:0c:bb",
  "type": "reportAttribute",
  "time": 1611386326,
  "data": {
    "attribute": "device.meter.voltage",
    "mac": "60a423fffe9d8b1e",
    "ep": 1,
    "value": {
      "ModelStr": "RB-ElectricityMeasurement",
      "ep": 1,
      "value": "0.000",
      "unit": "V",
      "battery": 100,
      "zone": "RB-ElectricityMeasurement"
    }
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

Current

Report

```
{
  "to": "CLOUD",
  "from": "GREENPOWER",
```

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```
"deviceCode" : "xxx\n",
"mac" : "30:ae:7b:64:0c:bb",
"type" : "reportAttribute",
"time" : 1611386326,
"data" : {
  "attribute" : "device.meter.current",
  "mac" : "60a423fffe9d8b1e",
  "ep" : 1,
  "value" : {
    "ModelStr" : "RB-ElectricityMeasurement",
    "ep" : 1,
    "value" : "0.000",
    "unit" : "A",
    "battery" : 100,
    "zone" : "RB-ElectricityMeasurement"
  }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute

7.18. MQTT protocol of the Zigbee relay

Remote on/off

Command

```
{
  "to": "GREENPOWER",
  "from": "CLOUD",
  "type": "cmd",
  "time": 1612170705,
  "deviceCode": "00000",
  "mac": "30:ae:7b:64:11:ea",
  "data": {
    "id": "xxxx",
    "command": "setAttribute",
    "arguments": {
      "mac": "3c6a2cfffed0cd13",
      "ep": "1",
      "attribute": "device.onoff",

```

```
        "value": {
            "value": 0
        }
    }
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	1:on 0:off

Energy Report

Command

```
{
  "from": "GREENPOWER",
  "to": "CLOUD",
  "data": {
    "attribute": "device.meter.energy",
    "value": {
      "value": "0.0000",
      "ep": 1,
      "ModelStr": "CB432",
      "unit": "kWh",
      "battery": 100,
      "zone": "CB432"
    },
    "ep": 1,
    "mac": "3c6a2cffff0cd13"
  },
  "mac": "30:ae:7b:64:11:ea",
  "deviceCode": "",
  "type": "reportAttribute",
  "time": 1620371033
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device

attribute	Operation attribute
value	Energy value, unit kWh

Power Report

Command

```
{
  "from": "GREENPOWER",
  "to": "CLOUD",
  "data": {
    "attribute": "device.meter.power",
    "value": {
      "value": "0.0000",
      "ep": 1,
      "ModelStr": "CB432",
      "unit": "kW",
      "battery": 100,
      "zone": "CB432"
    },
    "ep": 1,
    "mac": "3c6a2cfffed0cd13"
  },
  "mac": "30:ae:7b:64:11:ea",
  "deviceCode": "",
  "type": "reportAttribute",
  "time": 1620371033
}
```

Parameter	Description
mac	Mac address of gateway
command	Command type
mac(inside data)	Zigbee device mac address
ep	Representing ep in Zigbee device
attribute	Operation attribute
value	Power value, unit kW

7.19. MQTT protocol of the Zigbee pir sensor

1. Once people motion detected, the following message would be uploaded

```
{
  "deviceCode": "010123f3-c750-43e7-ad41-6672126fa416",
  "from": "GREENPOWER",
  "time": 1599646954,
  "mac": "30:ae:7b:64:00:c6",
  "to": "CLOUD",
```

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```
"type": "reportAttribute",
"data": {
  "attribute": "device.zone_status",
  "mac": "00155f007482fac6",
  "ep": 242,
  "value": {
    "ep": 242,
    "zone": "pir",
    "value": "0",
    "ModelStr": "MoSe 02",
    "battery": 100
  }
}
```

Option	meaning
Value	1 for person come by / 0 for no people motion detected

7.20. MQTT protocol of the Zigbee panic button

1. Once you press the button, the following message would be received in your mqtt broker,

```
{
  "from": "GREENPOWER",
  "time": 1599641572,
  "to": "CLOUD",
  "deviceCode": "010123f3-c750-43e7-ad41-6672126fa416",
  "type": "reportAttribute",
  "mac": "30:ae:7b:64:00:c6",
  "data": {
    "attribute": "device.zone_status",
    "value": {
      "ep": 1,
      "battery": 100,
      "zone": "panicbtn",
      "ModelStr": "Key fob",
      "value": "1"
    }
  },
  "mac": "842e14fffe1eb76b",
```

```
"ep": 1  
}  
}
```

Option	meaning
Value	1 for button pressed / 0 for button released

7.21. MQTT protocol of the Zigbee Yale Lock

There are a lists of commands could be used to control the lock

Add password

There are four kinds of password,

- 1:Master password,
- 2:Main password(not master),
- 3:temporary password (For time in year),
- 4: Temporary password (For special time in a week)

Note for time:

The temporary password(Type 3) for time in year and the temporary password(Type 3) for time in a special week can be distinguished by the “**startTime**” and “**endTime**”

If the password is used to be valid in time in week, the last four bits should be the hour and minutes in a day and the previous four bits should be the day in week, to be more specific, the first four bits in binary should be “**0SSFTWTM**” represent the seven days in week.

For example, if the time is valid from 9:30 to 17:55, then the last four bits of **startTime** and **endTime** should be **0930** and **1755**. And if it’s valid in **Monday** and **Tuesday**, the value is “**00000011**” in binary, which means 3. Then the **startTime** is **30930** and **endTime** should be **31755**.

And if the password should be valid on **Sunday** and **Wednesday(01000100=68)** from **17:30** to **21:50**, the **startTime** and **endTime** should be **681730** and **682150**.

Sample command for adding one main password with passId 2

```
{  
  "data": {  
    "arguments": {  
      "attribute": "device.lock.add_password",  
      "value": {  
        "suspend": 0,  
        "passType": 0,  

```

```

        "passId": 2,
        "passVal2": 4,
        "startTime": 0,
        "passVal1": 1234,
        "endTime": 0
    },
    "mac": "000d6f00108de6a0",
    "ep": 1
},
"id": "xxxx",
"command": "setAttribute"
},
"deviceCode": "xxxx",
"from": "CLOUD",
"mac": "30:ae:7b:64:0b:7a",
"time": 1558332838,
"to": "NXP",
"type": "cmd"
}

```

value	meaning
suspend	0(Fixed value)
passType	0(Fixed value)
passId	0 for master password, 1-249 for other password
startTime	32-bit start timestamp for a time in years Smaller value for time in days in week(See in note for time)
endTime	32-bit end timestamp for a time in years Smaller value for time in days in week(See in note for time)
passVal1	Password, 4 to 6 digits password
passVal2	The number of bits of the password

Response

```
{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "to": "CLOUD",
  "data": {
    "attribute": "device.lock.password_adddel_result",
    "mac": "000d6f00108de6a0",
    "value": {
      "code": 0,
      "operation": "add",
      "battery": 96,
      "passID": 2,
      "ModelStr": "YRD216 PBDB",
      "zone": "YRD216 PBDB"
    }
  },
  "deviceCode": "17caa1bd-6888-4863-8939-910c2e98c3b9",
  "mac": "30:ae:7b:64:0b:7a",
  "time": 1602501394
}
```

Modify password

The rule is the same as adding password.

Sample command for modifying password with passId 2

```
{
  "data": {
    "arguments": {
      "attribute": "device.lock.add_password",
      "value": {
        "suspend": 0,
        "passType": 0,
        "passId": 2,
        "passVal2": 4,
        "startTime": 0,
        "passVal1": 4321,
        "endTime": 0
      }
    },
    "mac": "000d6f00108de6a0",
    "ep": 1
  },
  "id": "xxxx",
  "command": "setAttribute"
```

```

    },
    "deviceCode": "xxxx",
    "from": "CLOUD",
    "mac": "30:ae:7b:64:0b:7a",
    "time": 1558332838,
    "to": "NXP",
    "type": "cmd"
}

```

value	meaning
suspend	0
passType	0(Fixed value)
passId	0 for master password, 1-249 for other password
startTime	32-bit start timestamp for a time in years Smaller value for time in days in week(See in note for time)
endTime	32-bit end timestamp for a time in years Smaller value for time in days in week(See in note for time)
passVal1	Password, 4 to 6 digits password
passVal2	The number of bits of the password

Response

```

{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "to": "CLOUD",
  "data": {
    "attribute": "device.lock.password_adddel_result",
    "mac": "000d6f00108de6a0",
    "value": {
      "code": 0,

```

```
"operation": "add",
"battery": 96,
"passID": 2,
"ModelStr": "YRD216 PBDB",
"zone": "YRD216 PBDB"
}
},
"deviceCode": "17caa1bd-6888-4863-8939-910c2e98c3b9",
"mac": "30:ae:7b:64:0b:7a",
"time": 1602506214
}
```

Enable/disable password

Sample command for disable password with passId 2

```
{
  "data": {
    "arguments": {
      "attribute": "device.lock.mod_password",
      "value": {
        "suspend": 1,
        "passType": 0,
        "passId": 2,
        "passVal2": -1,
        "startTime": -1,
        "passVal1": -1,
        "endTime": -1
      },
      "mac": "000d6f00108de6a0",
      "ep": 1
    },
    "id": "xxxx",
    "command": "setAttribute"
  },
  "deviceCode": "xxxx",
  "from": "CLOUD",
  "mac": "30:ae:7b:64:0b:7a",
  "time": 1558332838,
  "to": "NXP",
  "type": "cmd"
}
```

value	meaning
-------	---------

value	meaning
suspend	0 for enable, 1 for disable
passType	0(Fixed value)
passId	0 for master password, 1-249 for other password
startTime	-1(fixed value)
endTime	-1(fixed value)
passVal1	-1(fixed value)
passVal2	-1(fixed value)

delete password

Sample command for delete password with passId 2

```
{
  "data": {
    "arguments": {
      "attribute": "device.lock.del_password",
      "value": {
        "suspend": 1,
        "passType": 0,
        "passId": 2,
        "passVal2": -1,
        "startTime": -1,
        "passVal1": -1,
        "endTime": -1
      },
      "mac": "000d6f00108de6a0",
      "ep": 1
    },
    "id": "xxxx",
    "command": "setAttribute"
  },
  "deviceCode": "xxxx",
  "from": "CLOUD",
```

```
"mac": "30:ae:7b:64:0b:7a",  
"time": 1558332838,  
"to": "NXP",  
"type": "cmd"  
}
```

value	meaning
suspend	0 for enable, 1 for disable
passType	0(Fixed value)
passId	0 for master password, 1-249 for other password
startTime	-1(fixed value)
endTime	-1(fixed value)
passVal1	-1(fixed value)
passVal2	-1(fixed value)

Response

```
{  
  "type": "reportAttribute",  
  "from": "GREENPOWER",  
  "to": "CLOUD",  
  "data": {  
    "attribute": "device.lock.password_adddel_result",  
    "mac": "000d6f00108de6a0",  
    "value": {  
      "code": 0,  
      "operation": "del",  
      "battery": 96,  
      "passID": 2,  
      "ModelStr": "YRD216 PBDB",  
      "zone": "YRD216 PBDB"  
    }  
  }  
},
```

```
"deviceCode" : "17caa1bd-6888-4863-8939-910c2e98c3b9",  
"mac" : "30:ae:7b:64:0b:7a",  
"time" : 1602507184  
}
```

Remote lock/unlock

Sample command for unlock the lock

```
{  
  "data": {  
    "arguments": {  
      "attribute": "device.lock.add_password",  
      "value": {  
        "suspend": 0,  
        "passType": 10,  
        "passId": 65488,  
        "passVal2": 0,  
        "startTime": 0,  
        "passVal1": 0,  
        "endTime": 0  
      },  
      "mac": "000d6f00108de6a0",  
      "ep": 1  
    },  
    "id": "xxxx",  
    "command": "setAttribute"  
  },  
  "deviceCode": "xxxx",  
  "from": "CLOUD",  
  "mac": "30:ae:7b:64:0b:7a",  
  "time": 1558332838,  
  "to": "NXP",  
  "type": "cmd"  
}
```

value	meaning
suspend	0 (Fixed value)
passType	10 (Fixed value)
passId	65488 (Fixed value)

value	meaning
startTime	0 (Fixed value)
endTime	0 (Fixed value)
passVal1	0 (Fixed value)
passVal2	Lockstate (0 : unlock / 1:lock)

Response

```
{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "to": "CLOUD",
  "data": {
    "attribute": "device.lock.password_adddel_result",
    "mac": "000d6f00108de6a0",
    "value": {
      "code": 0,
      "operation": "unlock",
      "battery": 96,
      "passID": 65488,
      "ModelStr": "YRD216 PBDB",
      "zone": "YRD216 PBDB"
    }
  },
  "deviceCode": "17caa1bd-6888-4863-8939-910c2e98c3b9",
  "mac": "30:ae:7b:64:0b:7a",
  "time": 1602500554
}
```

Auto lock with lagging

Sample command for auto lock with lagging

```
{
  "data": {
    "arguments": {
      "attribute": "device.lock.set_auto_time_insec",
      "value": {
        "time": 3
      }
    }
  },
}
```

```

        "mac": "000d6f00108de6a0",
        "ep": 1
    },
    "id": "xxxx",
    "command": "setAttribute"
},
"deviceCode": "xxxx",
"from": "CLOUD",
"mac": "30:ae:7b:64:0b:7a",
"time": 1558332838,
"to": "NXP",
"type": "cmd"
}
    
```

value	meaning
Time	Lagging time in seconds

Response

```

{
  "type": "reportAttribute",
  "from": "GREENPOWER",
  "to": "CLOUD",
  "data": {
    "attribute": "device.lock.autorelocktime",
    "mac": "000d6f00108de6a0",
    "ep": 1,
    "value": {
      "zone": "YRD216 PBDB",
      "ep": 1,
      "ModelStr": "YRD216 PBDB",
      "value": 10,
      "battery": 96
    }
  },
  "deviceCode": "17caa1bd-6888-4863-8939-910c2e98c3b9",
  "mac": "30:ae:7b:64:0b:7a",
  "time": 1602507438
}
    
```