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HoneyComm HCBG01 Bluetooth Gateway

Document information

Product model	HCBG01

Product description	Bluetooth Gateway
File type	User Guide
Version date	V1.0 Jul1, 2021

Preparation

Welcome to use the Bluetooth gateway. Before proceeding to the next step, please prepare the following devices:

1. One Computer (with WiFi and Ethernet ports);
2. One Bluetooth gateway;
3. One Bluetooth gateway power adapter;
4. One wireless router.

Network Configuration

In order to come more families with the characteristics of a Bluetooth gateway, it is recommended to follow the order of chapters 2.1, 2.2, and 2.3.

Directly Connect

Connect the computer directly to the Bluetooth gateway, quickly familiarize yourself with the Bluetooth gateway.The computer is connected to the Bluetooth gateway through

WiFi, and the Bluetooth gateway can be configured through the computer. The computer can also act as a server to observe gateway data.

Step:

1. Power the Bluetooth gateway through the power adapter, and the power indicator lightis on. When the WiFi indicator light flashes, the Bluetooth Wi-Fi can be connected through the computer, with SSIDGW_ *******, The connection password 66668888;

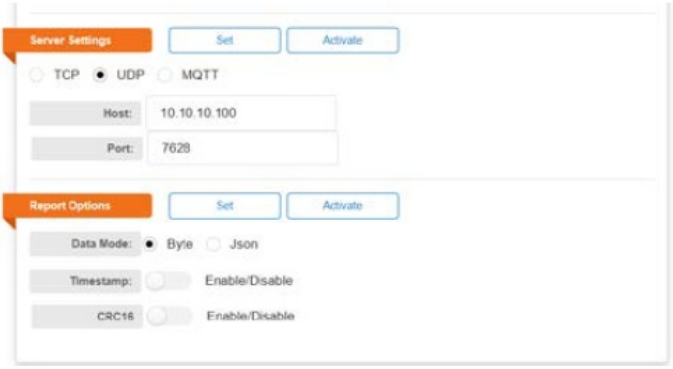
2. After successful connection, enter 10.10.10.254 in the web browser to enter the gateway configuration interface, and the login password is: admin.
3. The Bluetooth gateway will assign an IPaddress to the computer. Please check the IP address obtained by the computer Wireless network interface controller, such as10.10.10. * * *;
4. Configure the target server address of the gateway in the gateway configuration interface as10.10.10.***(default is10.10.10.100), and the port defaults to7628(if7628port is already occupied, please modify it to another port such as7629).
5. The default configuration of the gateway is UDP protocol, with Bytearray data format.

6. Users can use network debugging assistants such as Net Assist, to listen to Bluetooth gateway data. The Net

   Assisttool is configured as:

   Protocol type:UDP

   Local host address: 10.10.10. * * *(needs to be consistent with the gateway) Local host port:7628(needs to be consistent with the gateway) SelectHEXin the receiving and sending settings

7. 

   After successful configuration, Net Assist will receive data from the gateway. Can be parsed based on Bluetooth gateway data protocol.

8. If TCP is required, modify the gateway target server protocol to TCP, fill in the corresponding IP and port number, and configure the Net Assist tool as follows:

   Protocol type:TCP Server

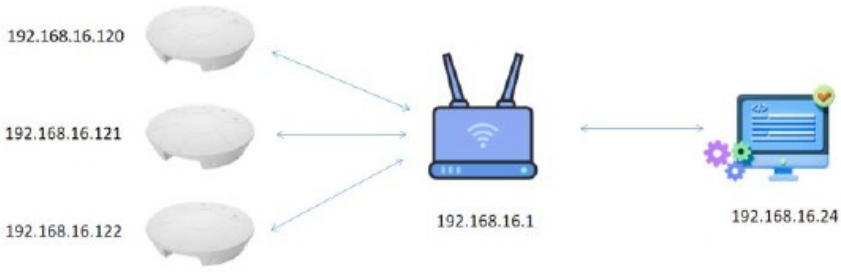
   Local host address: 10.10.10. * * *(needs to be consistent with the gateway) Local host port: 7628 (needs to be consistent with the gateway) Select HEX in the receiving and sending settings, as shown in the following figure:

9.

If you need to use MQTT, build your own MQTT server and fill in the corresponding MQTT node address and related subscription topics, as shown in the following figure:

Local area networks

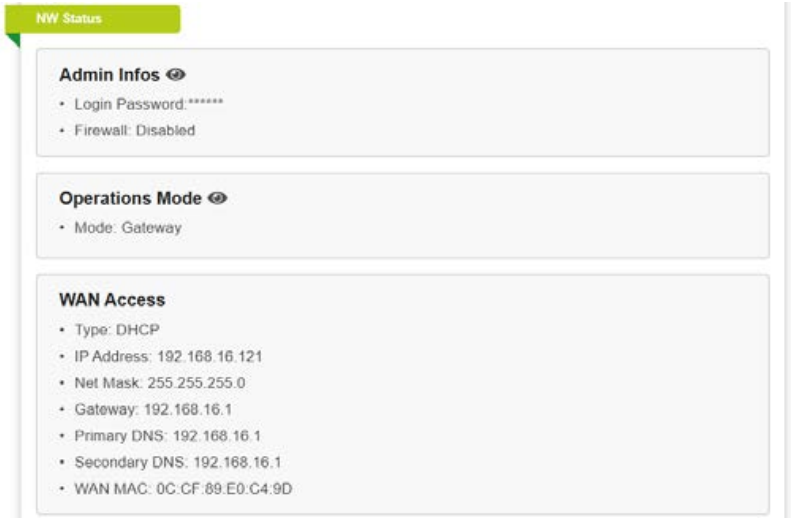
Bluetooth gateway and the computer are connected to a router. The Bluetooth gateway is connected to the router through a network cable, and the computer is also connected to the same router. The computer acts as a server to obtain gateway data.



Step:

1. Power the Bluetooth gateway through the power adapter, and the power indicator light is on. When the WiFi indicator light flashes, the Bluetooth gateway's WiFi can be connected through the computer, with SSIDGW_ *******, The connection password 66668888;

2. After successful connection, enter 10.10.10.254 in the web browser to enter the gateway configuration interface, and the login password is admin;
3. Configure a Bluetooth gateway to connect to the router through wired or wireless means (please refer to the relevant content on gateway configuration in this document). After successful connection, the router assigns IP addresses to the gateway, such as192.168.16.120,192.168.16.121, and 192.168.16.122. As shown in the following figure,



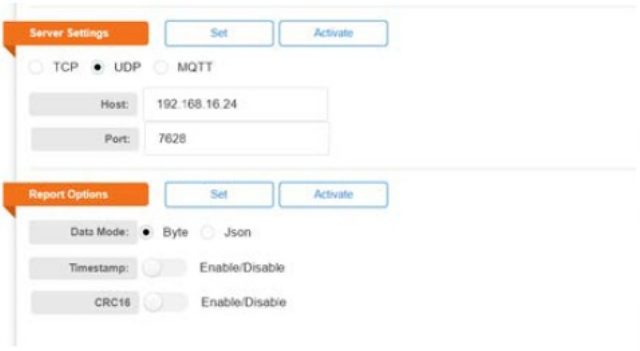
Connect the computer to the router through a network cable. Assuming that the IP address assigned by the router to the wired network card of the computer is 192.168.16.24, the computer, router, and gateway form a local area network.

4. Enter the Bluetooth gateway configuration interface again and set the target server address of the Bluetooth gateway to the IP address obtained by the computer from the router: 192.168.16.24. The default port is 7628 (if the 7628port is already occupied, please modify it to another port such as 7629).
5. The default configuration of the gateway is UDP protocol, with Bytearray data format.

6. Users can listen to Bluetooth gateway data through network tools such as Net Assist, which is configured as:

   Protocol type: UDP

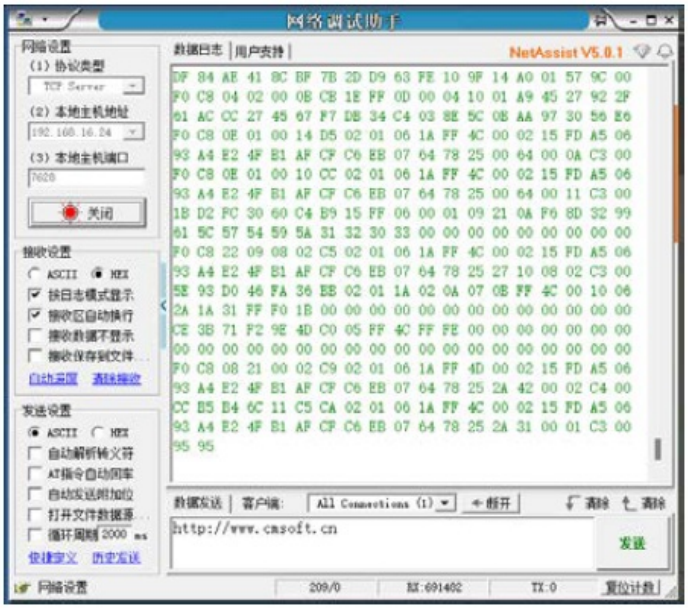
   - Local host address: 192.168.16.24 (needs to be consistent with the gateway)
   - Local host port: 7628 (needs to be consistent with the gateway)
   - Select HEX in the receiving and sending settings



7. After successful configuration, Net Assist will receive data from the gateway. Can be parsed based on Bluetooth gateway data protocol.
8. If TCP is required, modify the gateway target server protocol to TCP, fill in the corresponding IP and port number, and configure the Net Assistassistant tool as follows:

   Protocol type: TCP Server Local host address: 192.168.16.24 (needs to be consistent with the gateway) Local host port: 7628 (needs to be consistent with the gateway)

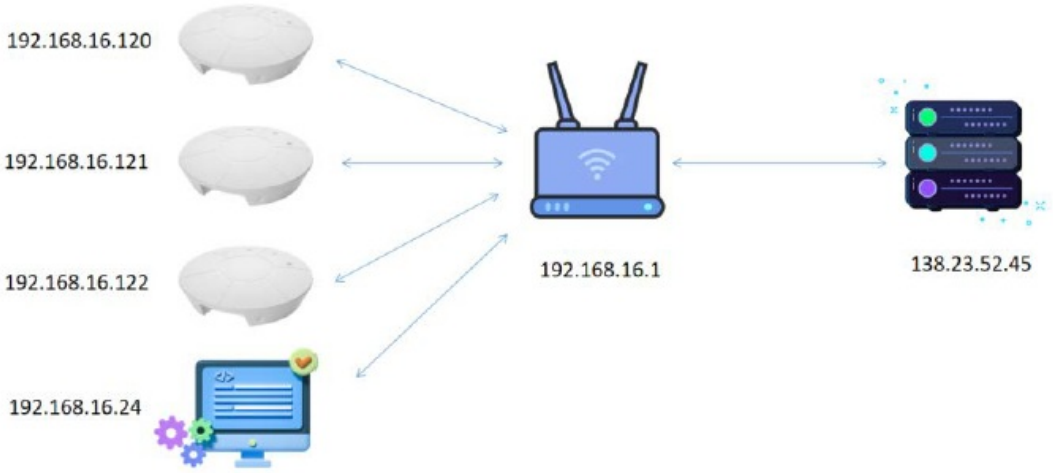
   Select HEX in the receive and send settings, as shown in the following figure:



9. If you need to use MQTT, build your own MQTT server and fill in the corresponding MQTT node address and related subscription topics, as shown in the following figure:

Wide Area Network

The Bluetooth gateway connects to the external network through a router, and users can obtain gateway data from the server. This application scenario requires routers to be able to connect to external networks.



Step:

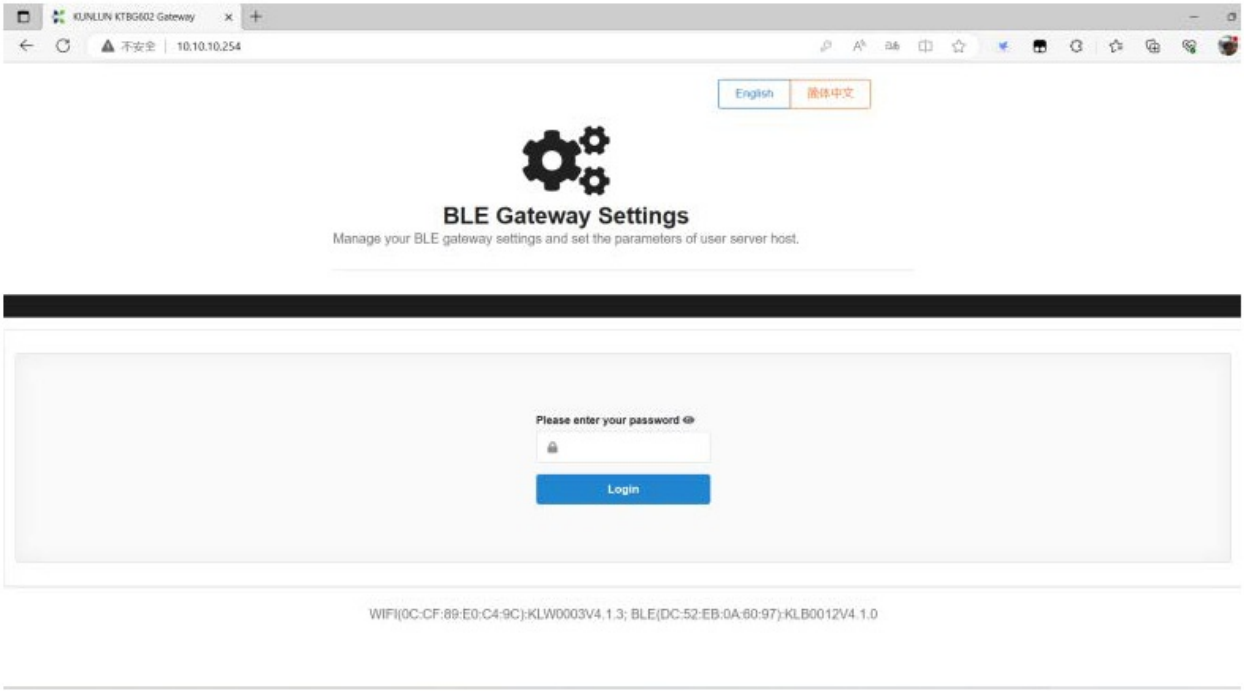
1. Power the Bluetooth gateway through the power adapter, and the power indicator light is on. When the WiFi indicator light flashes, the Bluetooth gateway's WiFi can be connected through the computer, with SSIDGW_ *******. The connection password 66668888;

2. After successful connection, enter 10.10.10.254 in the web browser to enter the gateway configuration interface, and the login password is admin.
3. Configure a Bluetooth gateway to connect to the router through wired or wireless means (please refer to the relevant content on gateway configuration in this document). After successful connection, the router assigns IP addresses to the gateway, such as192.168.16.120,192.168.16.121,192.168.16.122;
4. Assuming the existing cloud server IP is 138.23.52.45 (please refer to the relevant content on gateway configuration in this document for details). Enter the Bluetooth gateway configuration interface again and set the target server address of the Bluetooth gateway to the cloud server IP address: 138.23.52.45. The default port is 7628 (if the 7628 port is already occupied, please modify it to another port such as 7629).
5. The default configuration of the gateway is UD protocol, with Bytearray data format.
6. Users can listen to Bluetooth gateway dataon the server through network tools such as Net Assist
7. After successful configuration, Net Assist will receive data from the gateway.Can be parsed based on Bluetooth gateway data protocol; (8) If TCP or MQTT is required, corresponding modifications can be madeon the gateway and Net Assist sides.

Gateway Configuration

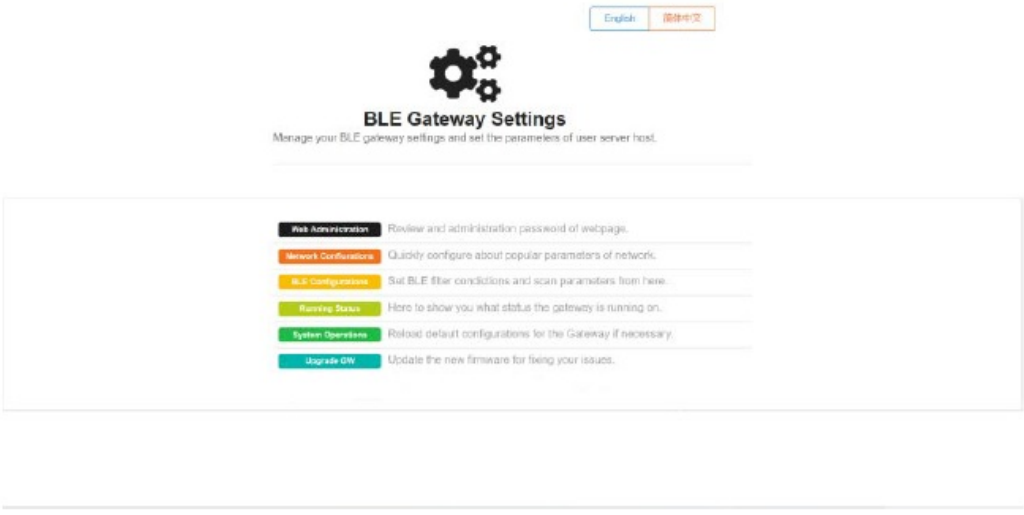
Login Gateway

1. It is recommended to use Google Chrome to open the page:http://10.10.10.254; 3.1.2Enter the default password: “admin”.



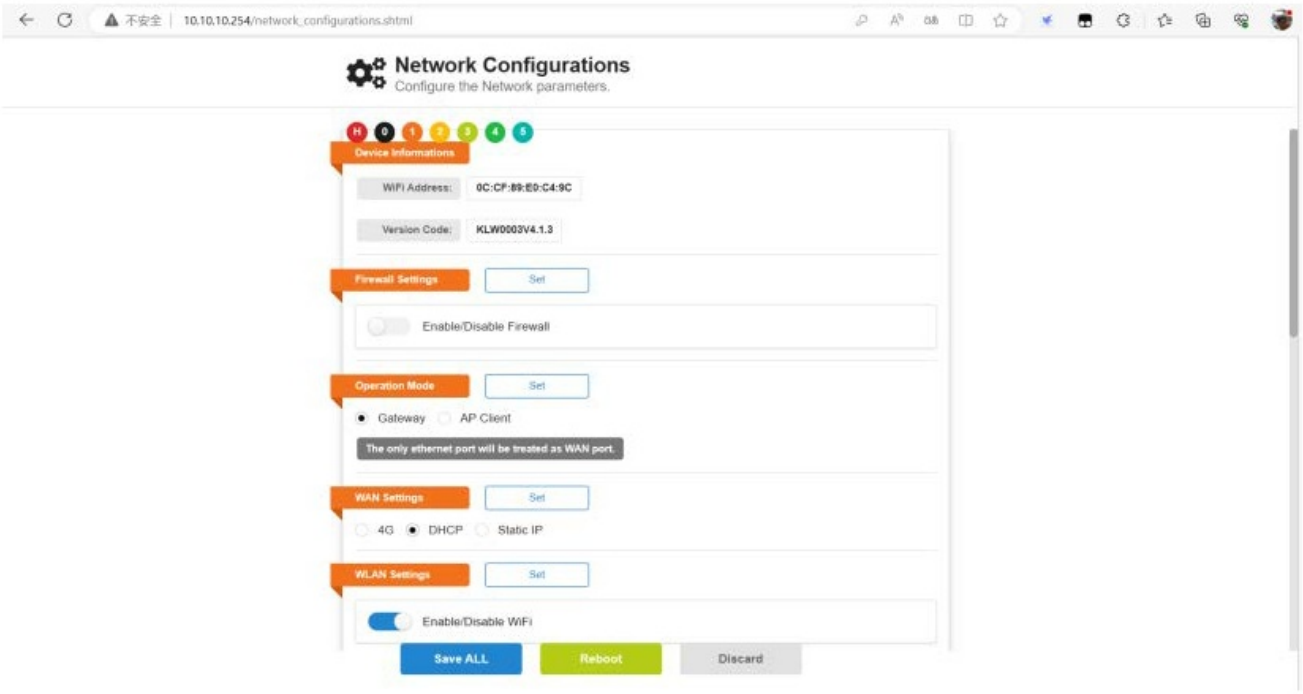
Gateway Home Page

1. The title corresponds to each gateway operation.
2. Web Administration: Review and administration password of webpage
    - Network Configuration: Quickly configure about popular parameters of network
    - BLE Configurations: Set filter conditions ans scan parameters from here
    - Running Status: Here to show you what status the gateway is running on
    - System Operations: Reload default configurations for the Gateway if necessary
    - Upgrade GW: Update the new firmware for fixing your issues



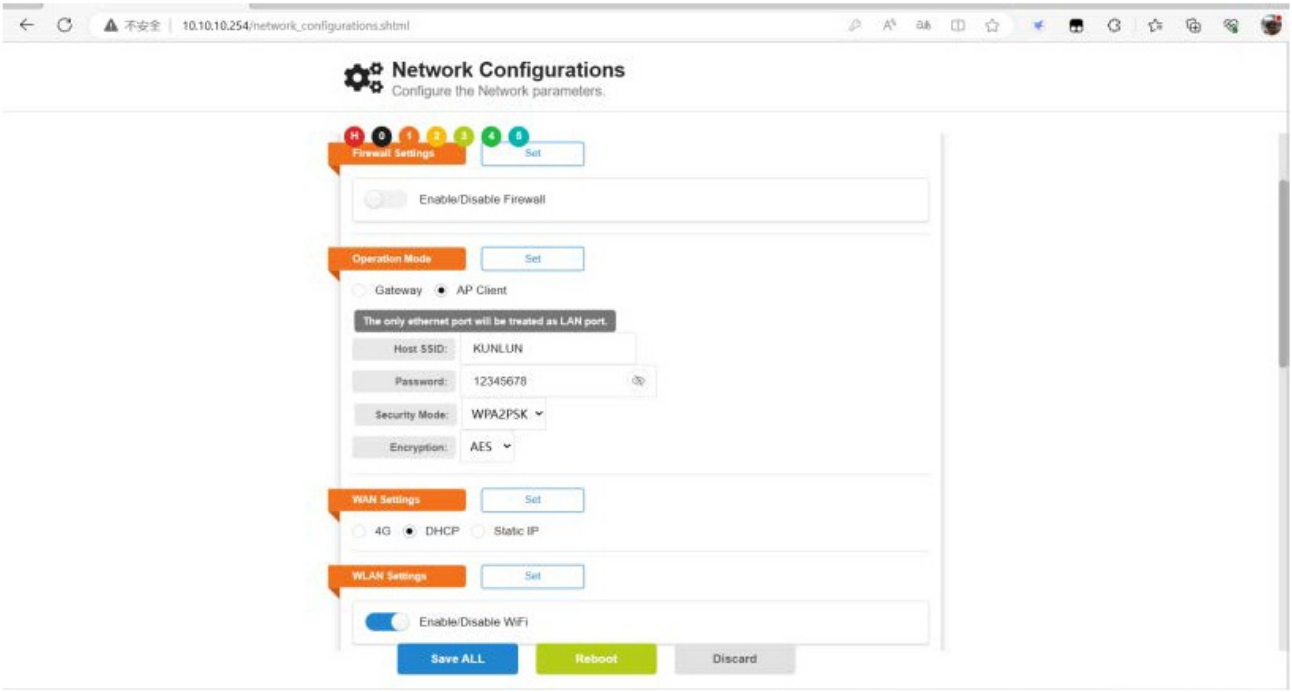
Using wired networks

1. Open the gateway network configuration;SelectGatewaymode;
2. Choose dynamic DHCP or static IP as needed.
3. Bluetooth gateway connects to the router LAN port through a network cable.
4. Click “Save All”andthen click “Reboot” to restart and take effect.



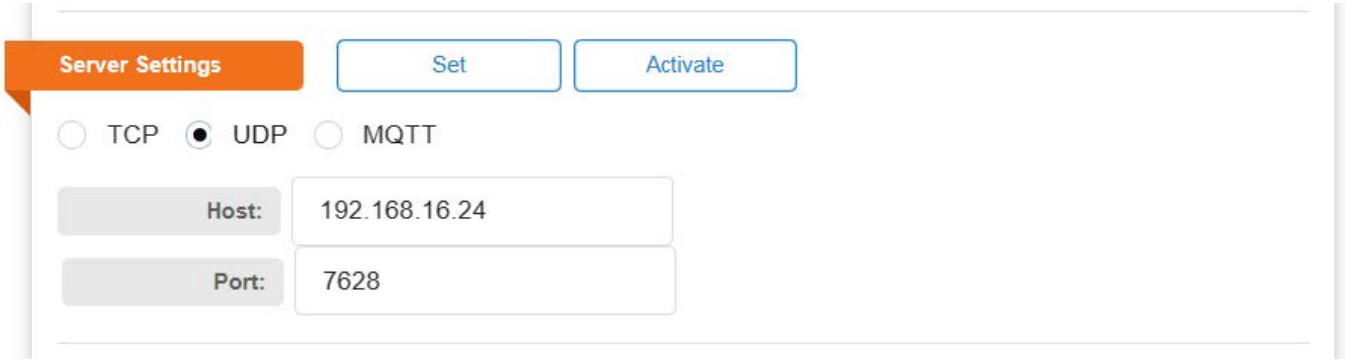
Using Wireless Networks

1. When the Bluetooth gateway uses Wi-Fi to connect to the Wi-Fi router, the network port of the Bluetooth gateway should not be connected to a network cable.
2. Open the gateway network configuration.
3. Select the AP/Client mode and fill in the SSID, password, Security Mode, and Encryption of the connected Wi-Fi router;
4. Choose dynamicDHCP or staticIP as needed.
5. Click “Save All”and then click “Reboot”to restart and take effect.



Modifying Gateway Hotspots

1. Turn on or off the Wi-Fi of the Bluetooth gateway itself;
2. Modify the SSID and password of WiFi;
3. Click “Save All” and then click “Reboot” to restart and take effect.



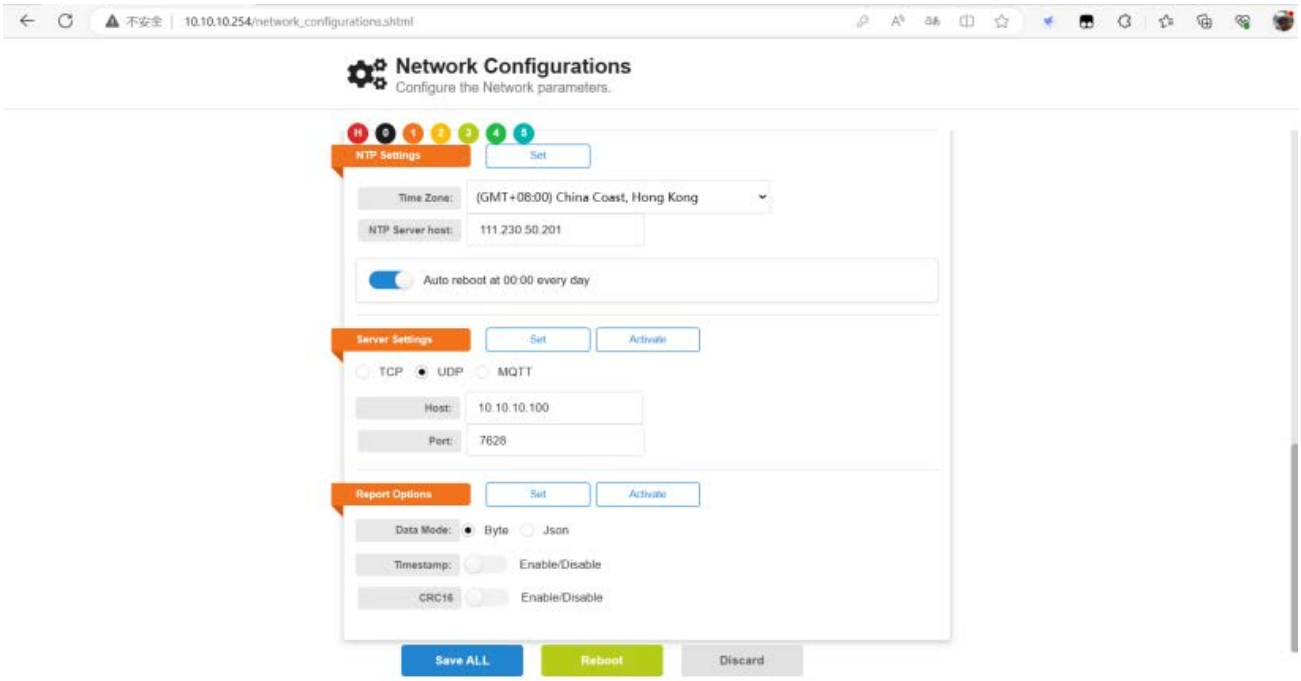
Setting the Target Server

1. Select the server protocol type;
2. Fill in the corresponding parameters;
3. After clicking the “SET” button, click “Activate” to take effect.

Setting Data Format

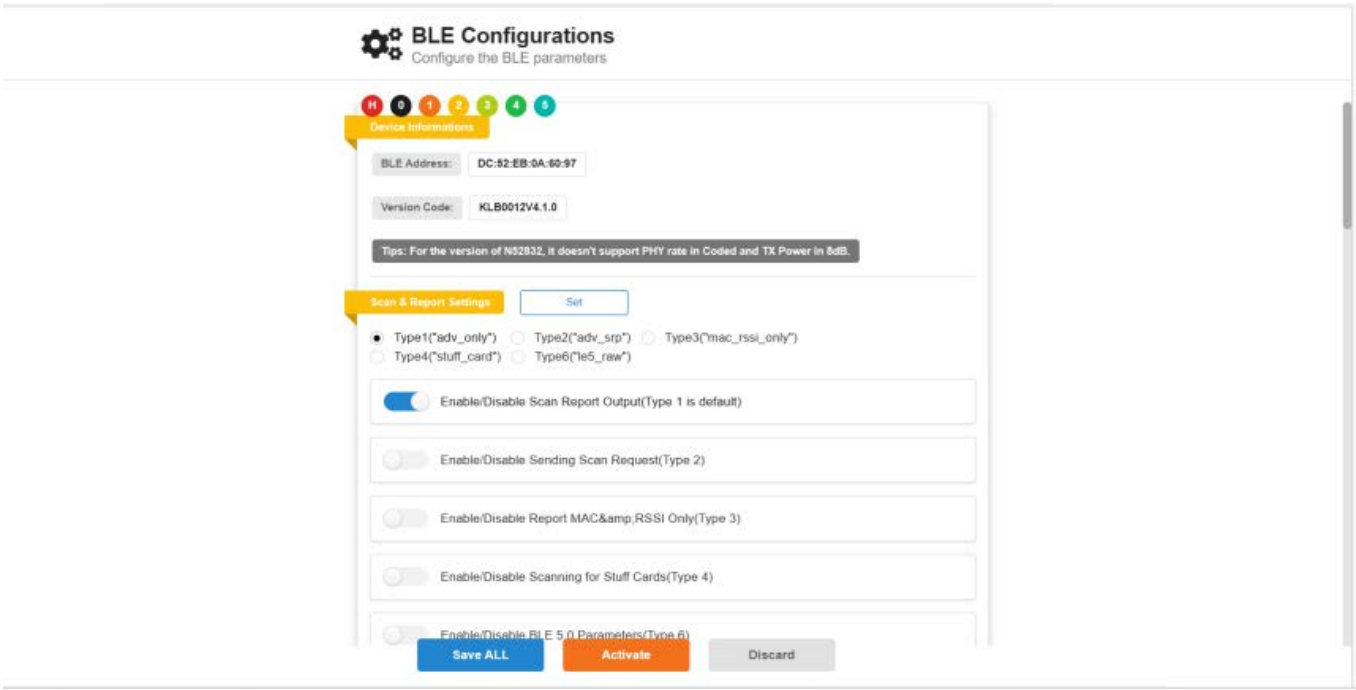
1. Choose Bytearray or JSON string format;
2. There are corresponding document protocols for different formats. Please refer to the

specific protocol documents provided by the manufacturer.



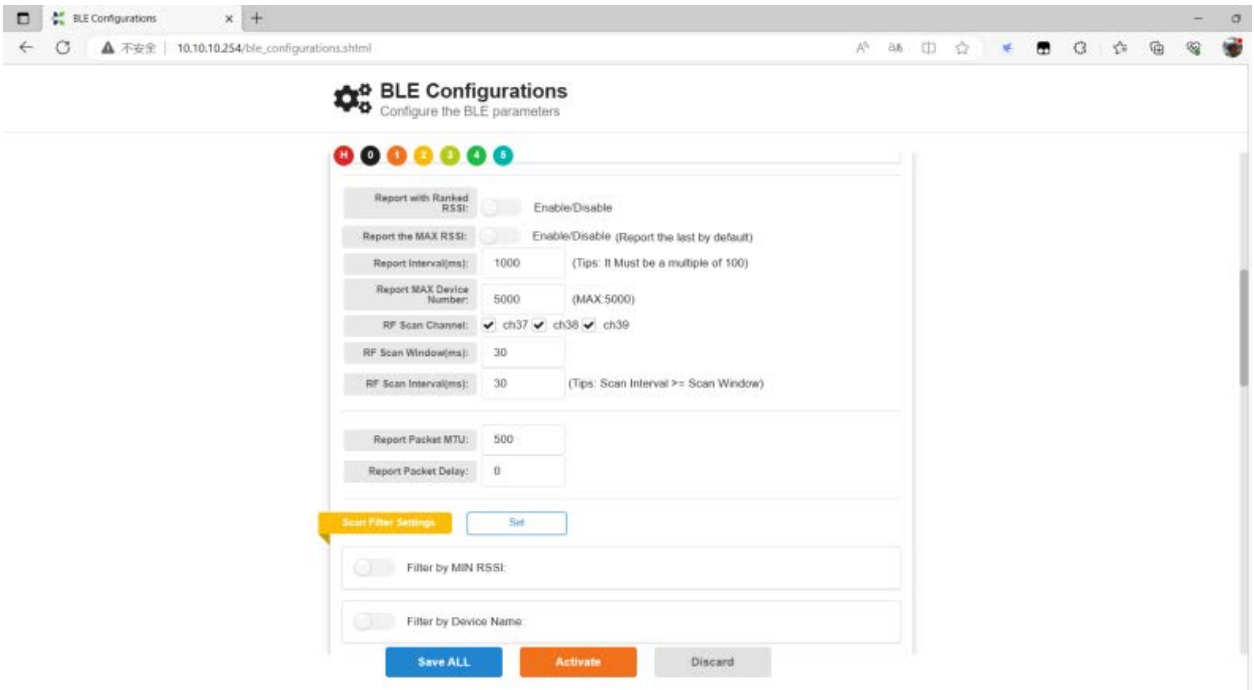
Setting Data Content

1. Type 1: Only scan and report surrounding Bluetooth broadcast packets;
2. Type 2: Add a scanning report response package and report it together with Type 1;
3. Type Only scan and report device MAC and RSSI values; 3.8.4 Type
4. Only scan and report specific Bluetooth work card devices; 3.8.5 Type
5. scan and report BLE devices;
6. Click on “Save All”and then click on “Activate” to take effect.



Setting Scan Parameters

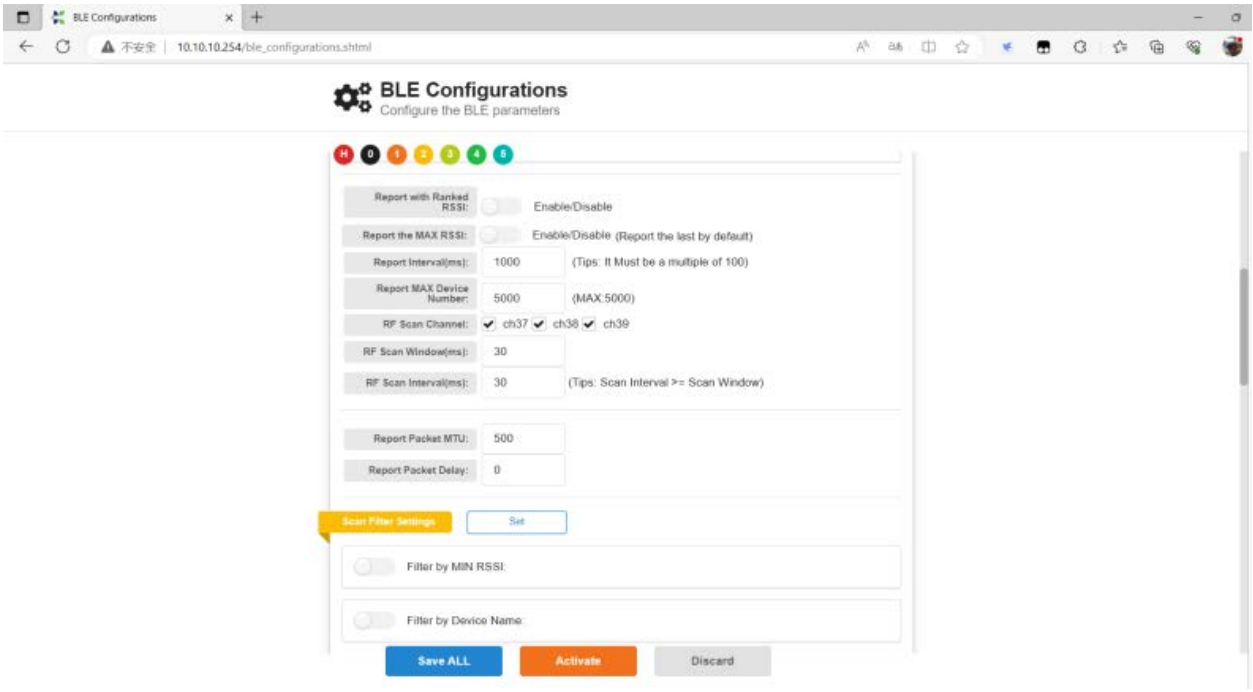
1. Reporting cycle interval, default to once every 1 second; Indicates the centralized reporting of devices scanned within one second.
2. Maximum cache, default maximum value of 5000, with a maximum cache of 5000 devices in one cycle;
3. Scanning channel: default to fully open37/38/39channels, full scan;
4. Scan interval/scan window: default 30ms.Indicatesscanning once every 30ms, with each scan lasting for 30ms, and scanning continuously. If it is 100/50ms,it means scanning once every 100ms, lasting 50ms time, and not scanning for the remaining 50ms.
5. Number of devices per packet: default to 500. If 1000 devices are scanned within one second, the data packet will be sent in two batches of 500 each.



Setting Scan Filtering

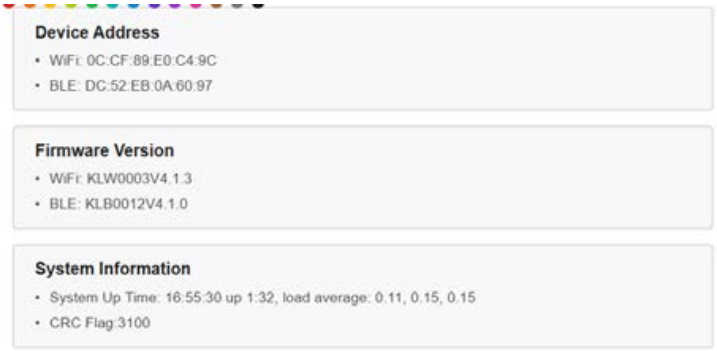
1. Support multiple sets of UUID filtering;
2. Support signal strength filtering;
3. Support filtering of multiple sets of device names;
4. Support Beacontype filtering.
5. Support filtering of multiple sets of Company IDs;
6. Support multi-group serviceUUID filtering;

7. Support MAC address range filtering.

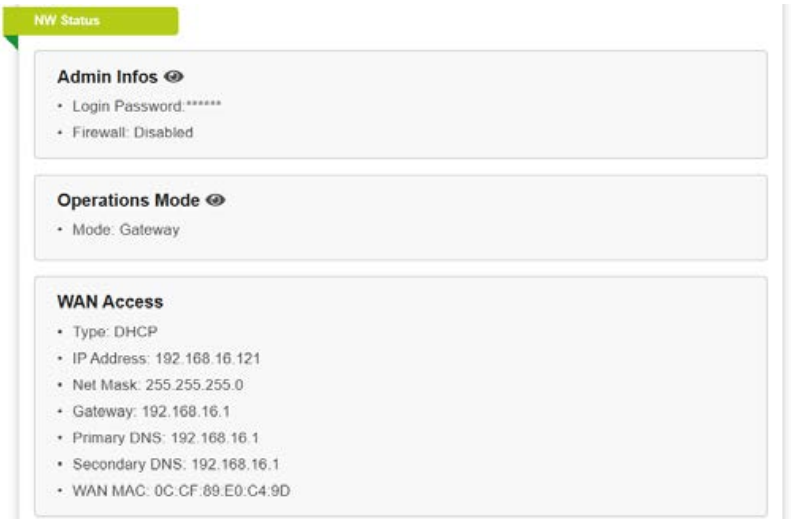


Gateway Status

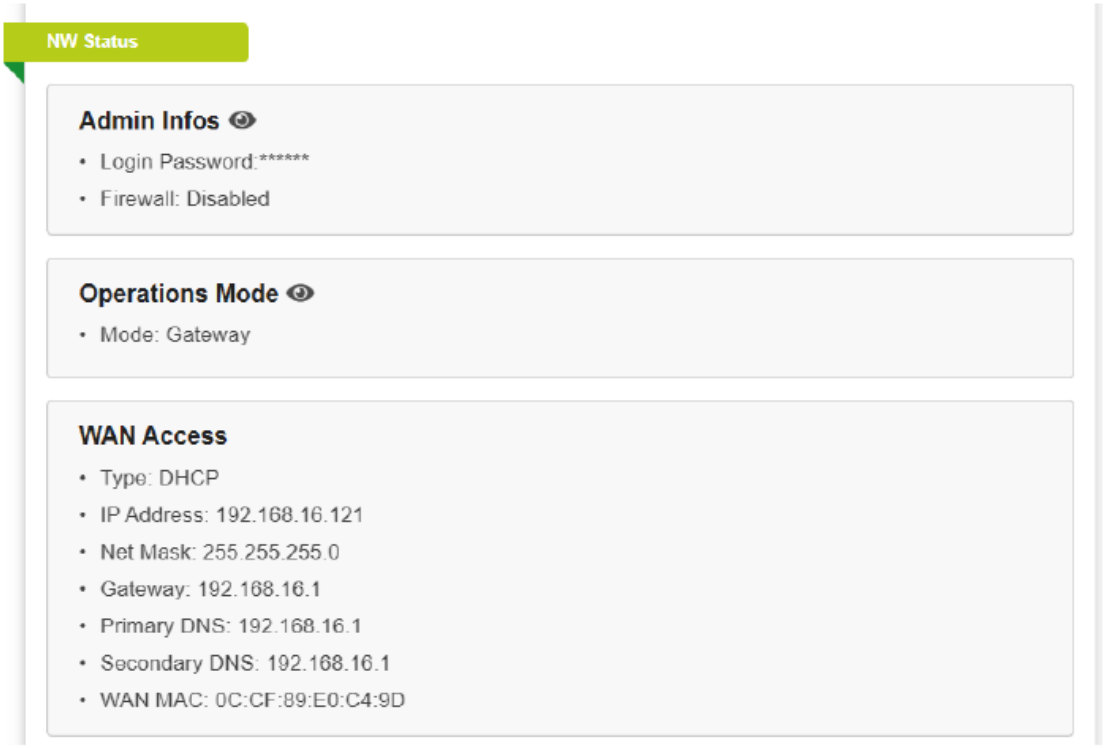
1. In the running status interface, you can see all the statuses of the gateway;
2. Gateway firmware version and MAC information



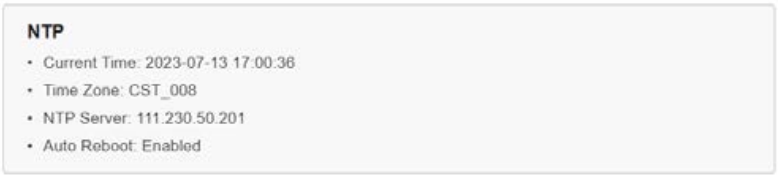
3. Distribution Network Status



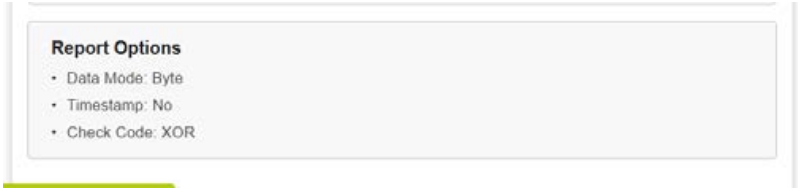
4. Gateway Time Synchronization Status



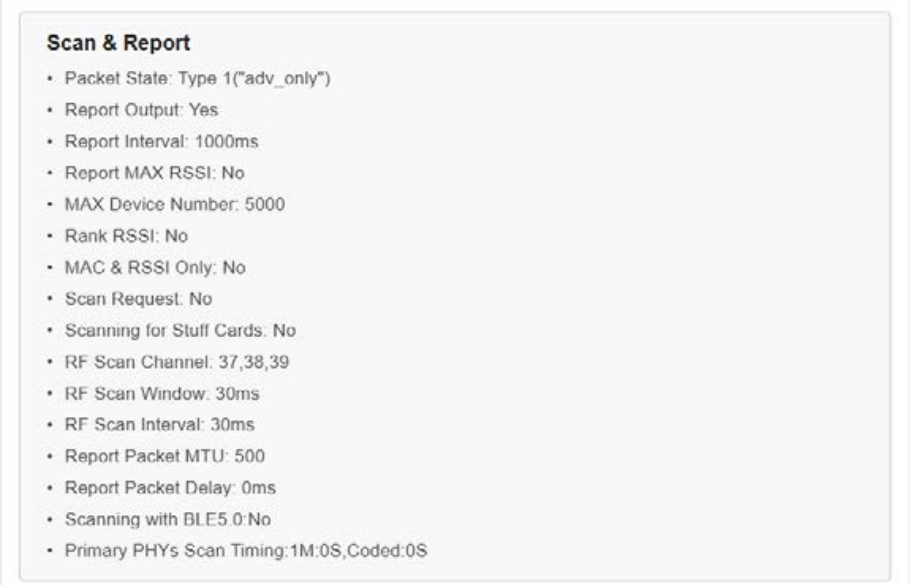
5. Target Server Connection Status



6. Gateway Data Format
7.

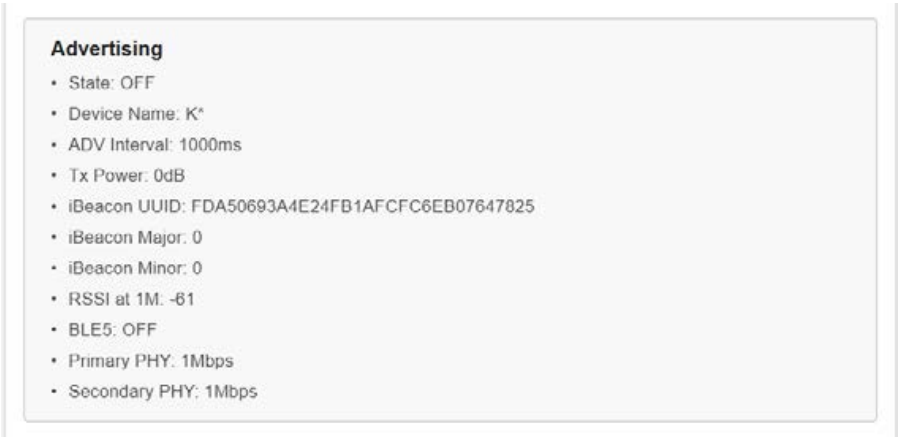


Gateway Scan Parameters and Report Data Types

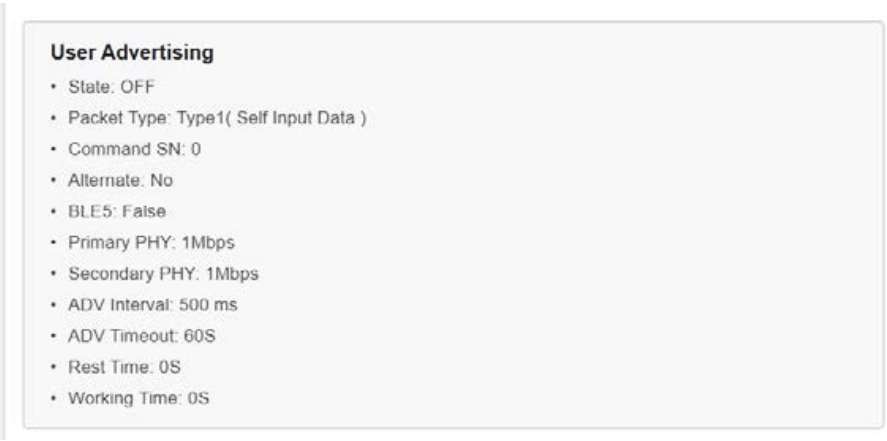


8. Gateway Scan Filter Parameters

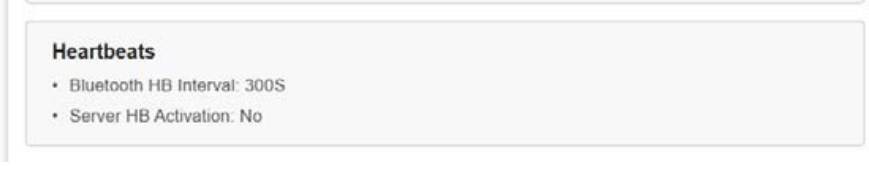
9. Gateway Beacon Broadcast Parameters



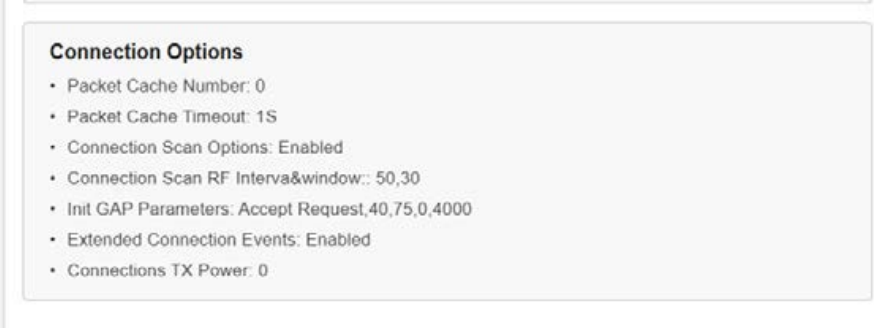
10. Gateway Custom Broadcast Parameters



11. Network care packet skip interval
12.

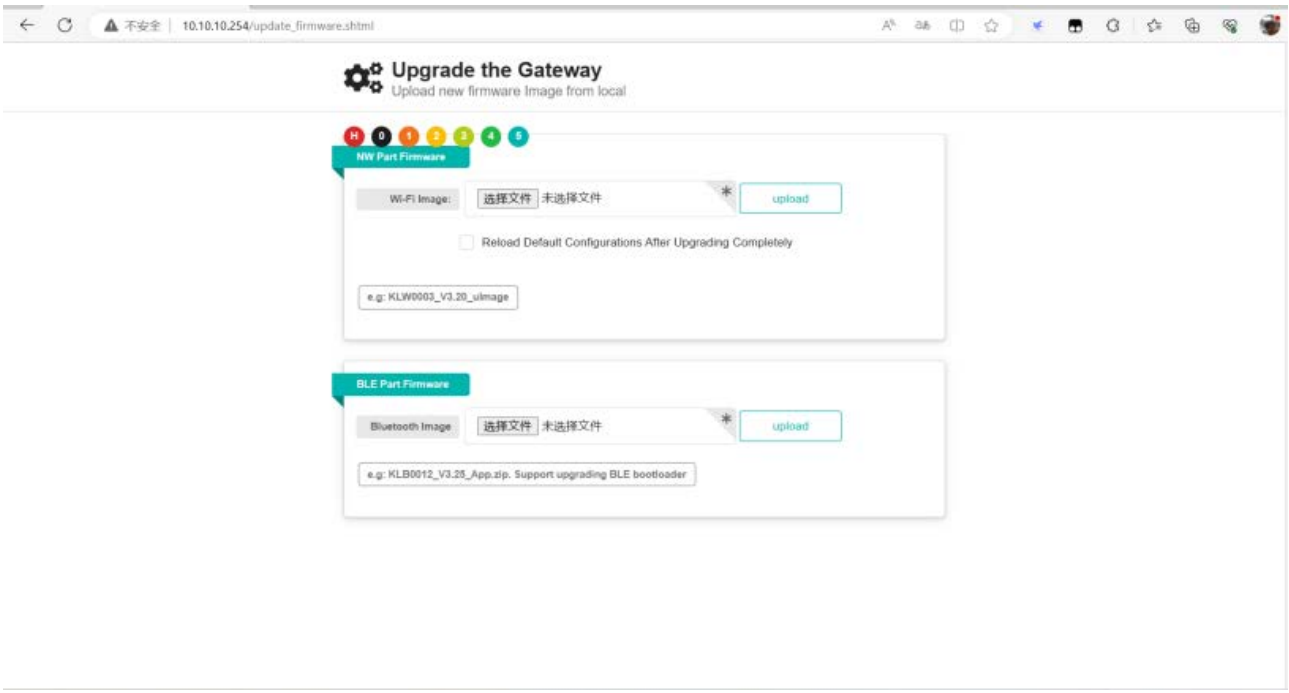


Gateway Connection BLE Device Parameters



Firmware Upgrade

1. Support Wi-Fi firmware upgrade, firmware provided by the manufacturer, file name format: KLW00x_Vxxx_UImage;
2. Support Bluetooth firmware upgrade. Firmware provided by the manufacturer, file name format: KLB00xx_Vxxx_App_App_ App. zip.



Server and Bluetooth Gateway Business Logic

1. The Bluetooth gateway can be connected to a router through a network cable or Wi-Fi;
2. Configure the server address and port on the Bluetooth gateway configuration interface, with data protocols such as TCP,UDP, and MQTT, and data formats such as HEX array or JSON.
3. Server monitoring to obtain raw scan data reported by the Bluetooth gateway;
4. The server analyzes and scans the data, and according to the actual configuration of the Bluetooth gateway, refer to the data protocol HCBG01Gateway

BluetoothJSONFormat Protocol 5.7V2.01. docx and HCBG01 Gateway Bluetooth Hexadecimal Format Protocol V2.01. docx;

5. The server obtains the gateway's unique MAC address (Bluetooth MAC address)from the data as the gateway unique identifier;
6. The server analyzes the Bluetooth device signals and device broadcast data around the Bluetooth gateway based on the reported data, and implements relevant business logic such as asset management, personnel positioning, and data collection.
7. The server analyzes the Bluetooth devices around the Bluetooth gateway based on the reported data and issues instructions as needed to connect the devices. After establishing the connection, the server can send data or instructions to the Bluetooth devices through the Bluetooth gateway, such as causing the Bluetooth bracelet to vibrate and the Bluetooth light to light up, and other business logic.
8. If necessary, the server issues a disconnect command, requiring the gateway to disconnect from surrounding Bluetooth devices to avoid occupying internal resources of the gateway;

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.
   This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur

in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with a minimum distance between 20cm the radiator your body: Use only the supplied antenna.

Frequently Asked Questions

Q: What should I do if I encounter connection issues?
A: If you encounter connection issues, ensure that all devices are powered on and correctly configured as per the user guide. Check network settings and passwords for accuracy.

Documents / Resources

	HoneyComm HCBG01 Bluetooth Gateway [pdf] User Guide HCBG01, 2BHYQ-HCBG01, 2BHYQHCBG01, HCBG01 Bluetooth Gateway, Bluetooth Gateway, Gateway

References

- User Manual

HoneyComm

2BHYQ-HCBG01, 2BHYQHCBG01, Bluetooth Gateway, gateway, HCBG01, HCBG01 Bluetooth Gateway, HoneyComm

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