Bluetooth LE Gateway Datasheet

Model No.: JW1401GWV2

V1.0.3

Model	Description
JW1401GWV2	Bluetooth LE Gateway, 2.4GHz WiFi, USB powered, Upload data to server, LAN and Internet, Black color.

The Bluetooth LE Gateway JW1401GWV2 is a Bluetooth® Low Energy gateway device, it is designed to scan nearby bluetooth iBeacon and thermometer devices. It parses advertising package and uploads data to specified server. It can be used for asset/people/pet tracking, sensor data collecting, SOS button signal collecting, etc.

FEATURES

- -91 dBm sensitivity
- 150 mA peak current
- 2.4GHz WIFI
- Easy to print the logo

SPECIFICATION

Compatibility

- BLE 4.2, Compatible with all Bluetooth® 4.0 and above BLE advertising devices;

No battery, powered by USB port

- The USB port provide power;

OTA and J-Link

- Upgrade via Over-The-Air supported;
- Reserved J-Link port on the board for programming;

Configurable Parameters

Gateway password, WIFI SSID and password, Server IP and port, network protocol (UDP/TCP /MQTT).

Transmission Power Level

- 0 dBm.

Security

- AES HW encryption

Install

- Plug into 5V1A power adapter.

Working Mode

- Always scan nearby BLE advertising package and report to computer.

ACTIVATE JW1401GW

- JW1401GW Bluetooth LE Gateway activates once powered.

COMMUNICATION PROTOCOL

- 'G2S' means Gateway sends to Server.
- 'S2G' means Server sends to Gateway.

MQTT			
ID	**Topic**	**Msg Data**	**Description**
1	G2S_GS/	%s	Gateway report itself status to server.
2	G2S_BSE/	%d|%s|%s|%s|%s	Gateway report scan event data to server. %d = Data type. %s = Gateway mac. %s = Beacon mac. %s = Beacon rssi. %s = Beacon adv data.
3	S2G_CB_%s/ (%s = gateway mac)	%s (%s = beacon mac)	Server ask specified gateway to connect specified beacon.

UDP/TCP			
ID	**Msg name**	**Msg Data**	**Description**
1	CC_G2S_ ScanReport_RawData	0x0400 RAW_DATA_LEN (1 byte) RAW_DATA...	Gateway report beacon's raw adv data.
2	CC_G2S_ ScanReport_iBeacon	0x0402 Following byte count 34（1 byte） gateway mac（6 bytes） Beacon mac（6 bytes） UUID（16 bytes） Major（2 bytes） Minor（2 bytes） rssi@1meter/ battery percent(1 byte) rssi(1 byte)	Gateway report iBeacon data.
3	CC_G2S_ ScanReport_TSensor	0x0403 Following byte count (1 byte) byte0 byte1 ...	Gateway report T-Sensor data.
4	CC_G2S_ ScanReport_GSensor	0x0404 Following byte count (1 byte) byte0	Gateway report G-Sensor data.

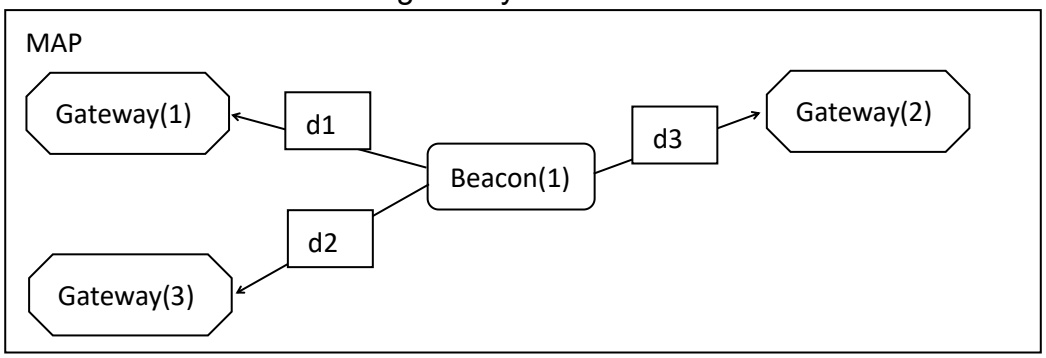
		byte1 ...	
5	CC_G2S_ ScanReport_MCWP	0x0405	Gateway report milk caw worker badge adv data.
6	CC_G2S_ ScanReport_MCC	0x0406	Gateway report milk caw collar adv data.
7	CC_G2S_ ScanReport_MCEL	0x0407	Gateway report milk caw ear label adv data.
8	CC_G2S_ ScanReport_DecimelMeter	0x0408	Gateway report environment noise decibel value.
9	CC_S2G_ ScanReport_ACK	0X04FF	Server send response to gateway once received scan report from gateway.

Example code to calculate rssi value from rssi byte:

```
int rssiByte = receiveBytes[rssiByteIndex];
int rssiSign = (rssiByte & 0x80) == 0x80 ? (-1) : (1);
int rssiABS = (~rssiByte) & 0x7F;
Int rssiValue = rssiSign * rssiABS;
```

How to calculate beacon location in map via gateway

You should install at least 3 gateways to scan beacon's advertisement.



All gateways will report UDP package to your server with rssi value, your server calculates distances(d1, d2, d3) via rssi value to determine Beacon(1)'s location. Please note that all gateways are installed in fixed location, their locations are used as parameters to calculate beacon's location. If you have only 3 gateways, they should not be placed in the same line.

CONFIG WORKING PARAMETERS

1	You can tell us desired default Gateway password, WIFI SSID name and password, your target server IP & port, network protocol. We use these parameters for bulk production.
2	You can change gateway working parameters by Android app ‘Joyway Beacon’. Scan to download: Note: (1) Install apk on Android smart phone, which supports bluetooth 4.0+. (2) Turn on Bluetooth and Locating service. (3) Do NOT pair device in bluetooth setting page. (4) Start ‘Joyway Beacon’ app, accept all required permissions. (5) Click ‘SCAN’ to scan all nearby BLE devices. (6) Click ‘CONNECT’ to connect device and configure its working parameters. (7) Click ‘DFU’ to update all nearby ble devices’ firmware, which are advertising specified name. App will decide which firmware to use by Product Name.
3	You can update gateway firmware by Android app ‘Joyway Beacon’.

GATEWAY SCAN & ADV PARAMETERS

1	Adv interval	1000ms
2	Scan interval	1000ms
3	Scan window	600ms
4	Min net report interval by UDP	100ms
5	Min net report interval by TCP/MQTT	300ms

ELECTRONIC PARAMETERS

Item	Value	Remarks
Case Color	Black	
Battery Model	No battery	
Operation Voltage	5V	DC
Transmission Current	150mA(Max.)	
Transmission Range	1-1000 meters	Depend on beacon transmitting power.
Antenna	50ohm	
Net Weight	26g	
Size	10.5x2.5x5cm	

DECLARATION

The contents of this datasheet are subject to change without prior notice for further improvement. Joyway team reserves the right to explain all the terms of this datasheet.

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