

WF288 Beacon Gateway Application Note

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1. WF288 Gateway

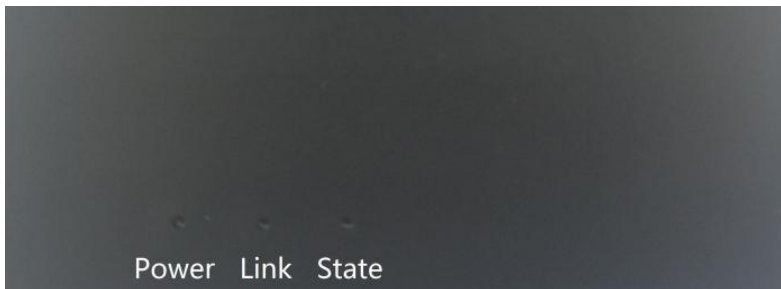
1.1. Overview



The WF288 Gateway (WF288-MG) is a compact, multi-function gateway that combines Wi-Fi Mesh networking, BLE tag reading, and MQTT cloud connectivity in a single product. It functions as a Wi-Fi Mesh gateway and WAN bridge while also serving as a BLE150-TAG reader, with alternative software installed, collecting BLE tag data and forwarding it to cloud applications through Ethernet or Wi-Fi using the MQTT protocol.

2. Product Introduction

2.1. Layout



- Power: When powered on, this indicator light will light up.
- Link: When the system is fully started, this indicator light will light up.
- State: Indicates Wi-Fi Mesh network connection status.



- Reset: Reset button.
- Power: Power input.
- LAN: Ethernet socket.

2.2. Key Features

- Supports IPV6
- 802.11 a/b/g/n, dual band
- Mesh networking with WF88
- Supports Mesh Gateway
- WPA3 security enabled
- Supports MQTT
- Supports TCP
- DC5V/1A Input

2.3. Cable Connections

A USB to Type-C data cable provides the voltage input connection. Insert the Type-C connector of the data cable into the Type-C power interface of WF288 BLE Reader, and the other end into the DC5V/1A adapter. The “Power” indicator light of WF288 BLE Reader is on. Insert the Ethernet cable into the LAN interface of WF288 BLE Reader, and the other end into devices such as switches or routers. The yellow and green indicator lights on the Ethernet socket of WF288 BLE Reader indicate the network status.

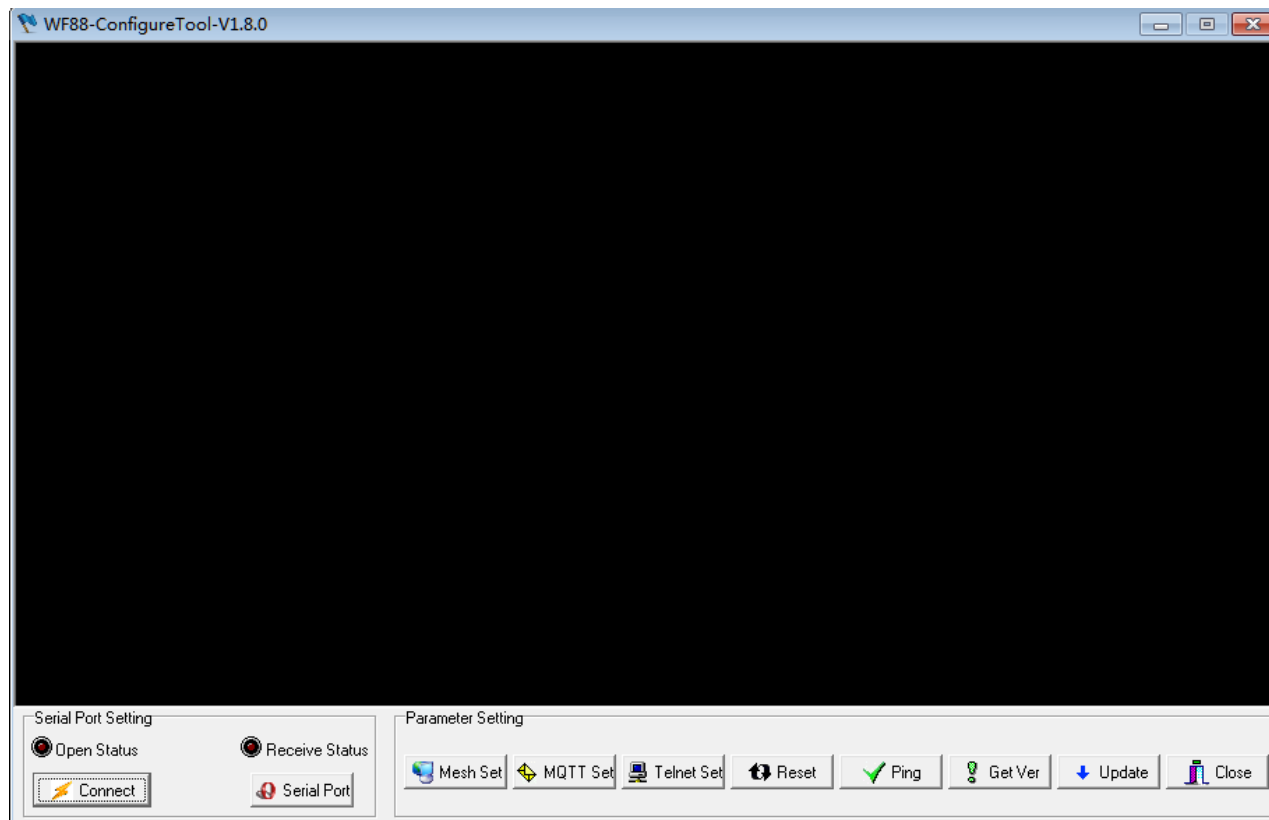
3. Parameter Setup

3.1. COM Port

Plug the USB to Type-C data cable into the computer's USB interface. The Ethernet cable does not need to be plugged in. In the Windows operating system, under Control Panel -> Administrative Tools -> Computer Management -> Device Manager -> Ports (COM and LPT), find the “Silicon Labs CP210x USB to UART Bridge (COMx)” device.

3.2. Run configuration tool software

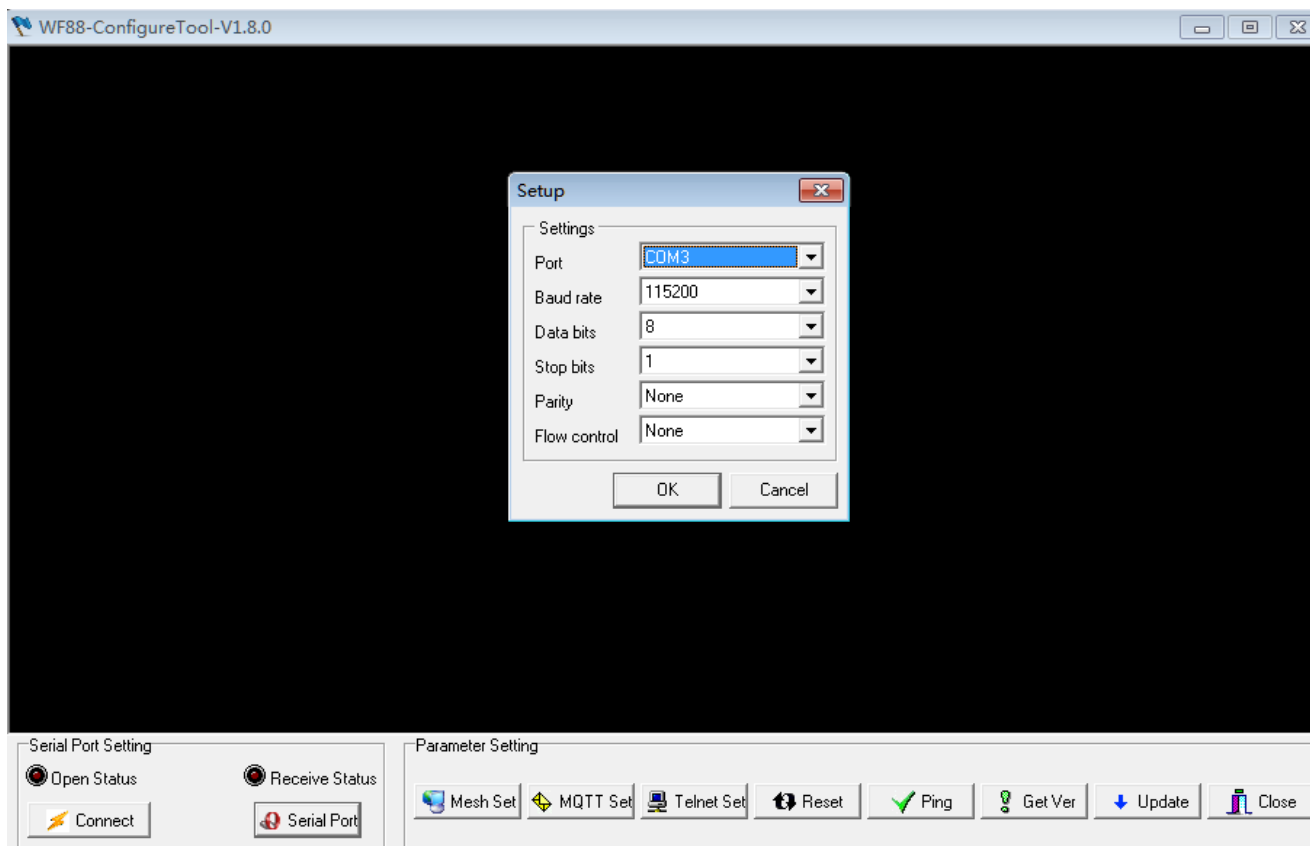
Run “WF88-ConfigureToolPro-Vx.x.x.exe” configuration tool software, as shown below:



Configuration tool software main window

3.2.1. Port Setup

click the "Serial Port" button, and a serial port settings dialog box will pop up, as shown below:

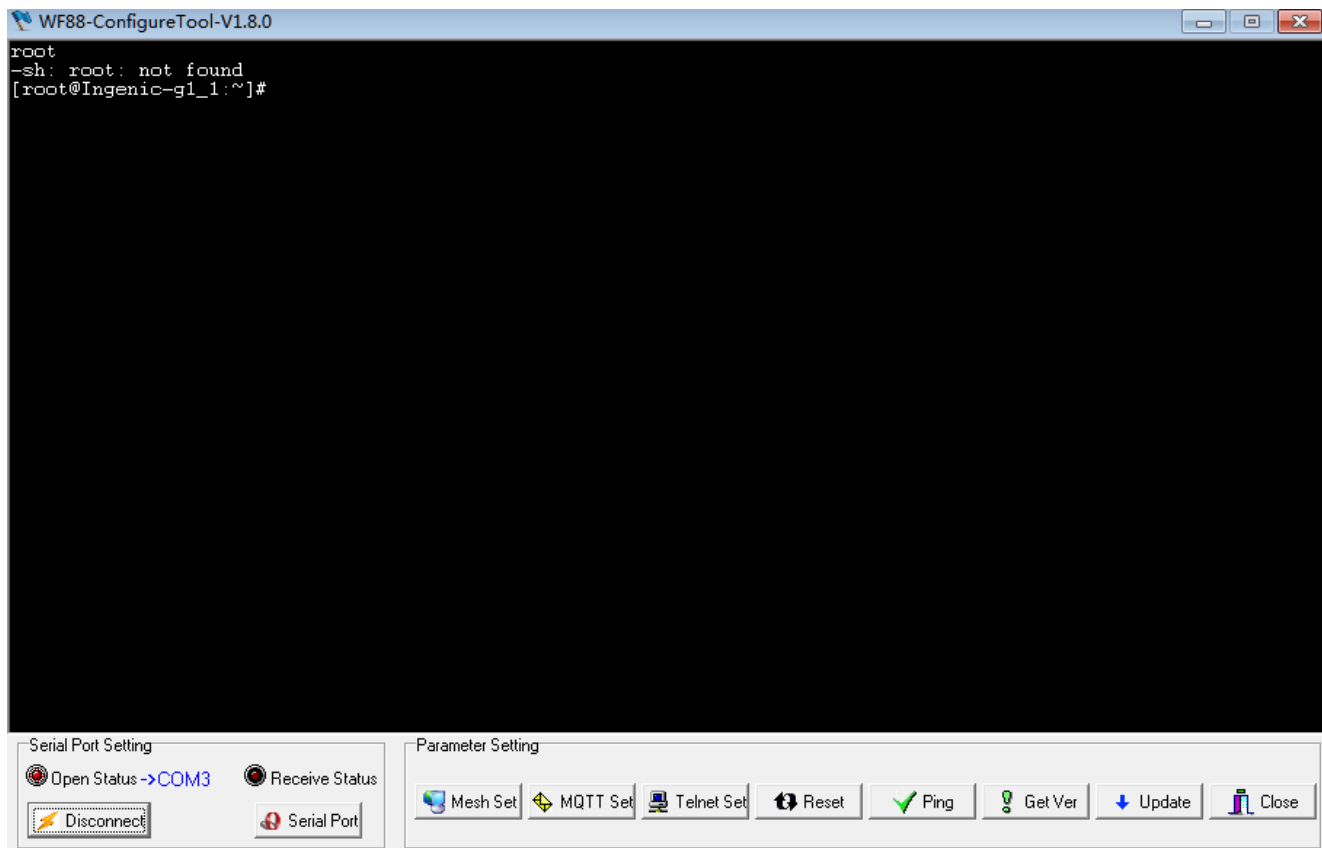


Serial port settings dialog box

In the serial port settings dialog box, Select the corresponding COMx port from the Port dropdown list box, where the COMx port number is consistent with the serial port number recognized in the Device Manager above. Then, click the “OK” button.

3.2.2. Connect

In the main window, click the “Connect” button to open the serial port.



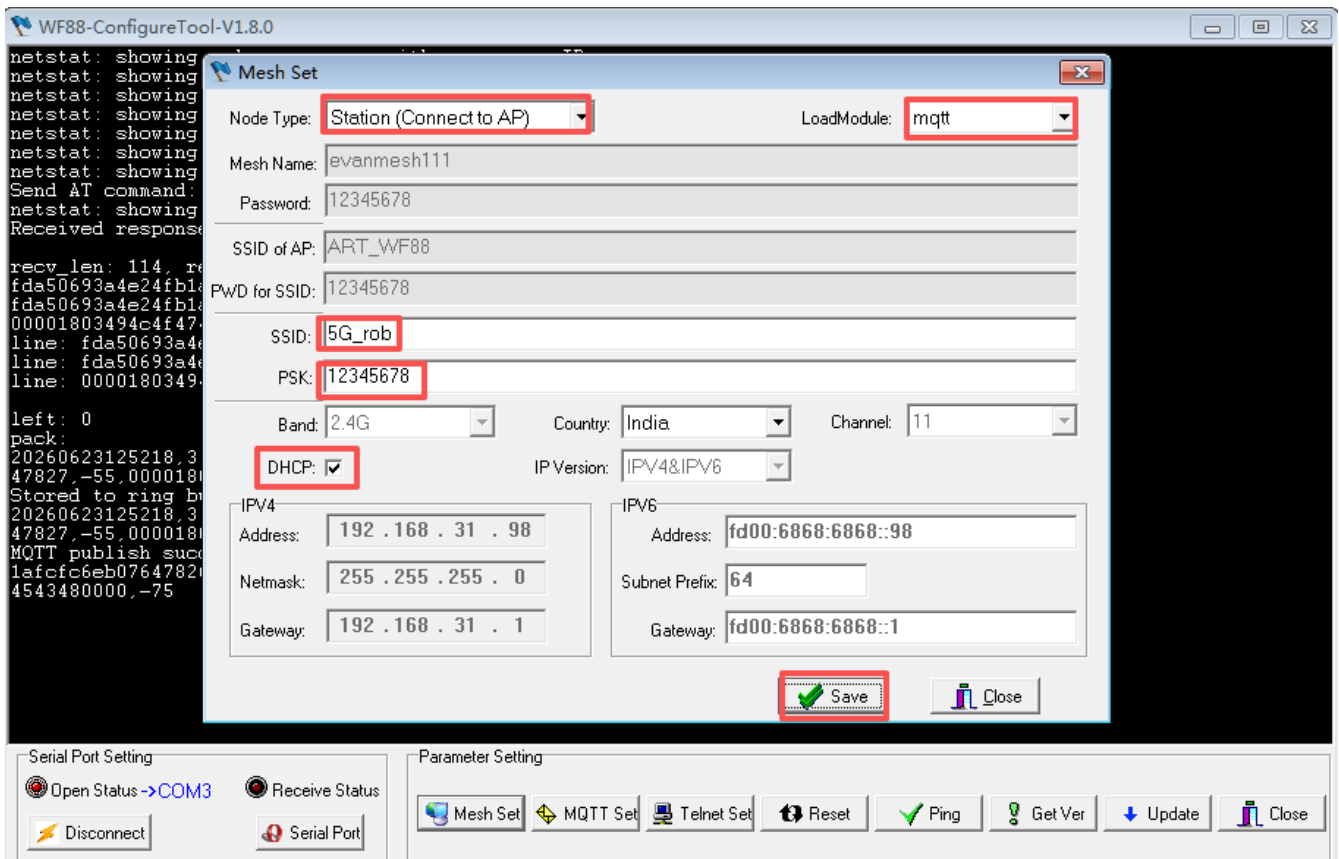
Open the serial port

4. Wifi network parameter setup

MQTT over a wifi network, mesh or directly to STA.

4.1. Station(connect to AP) Settings

Click the "Mesh Set" button to open the Mesh Set dialog box:

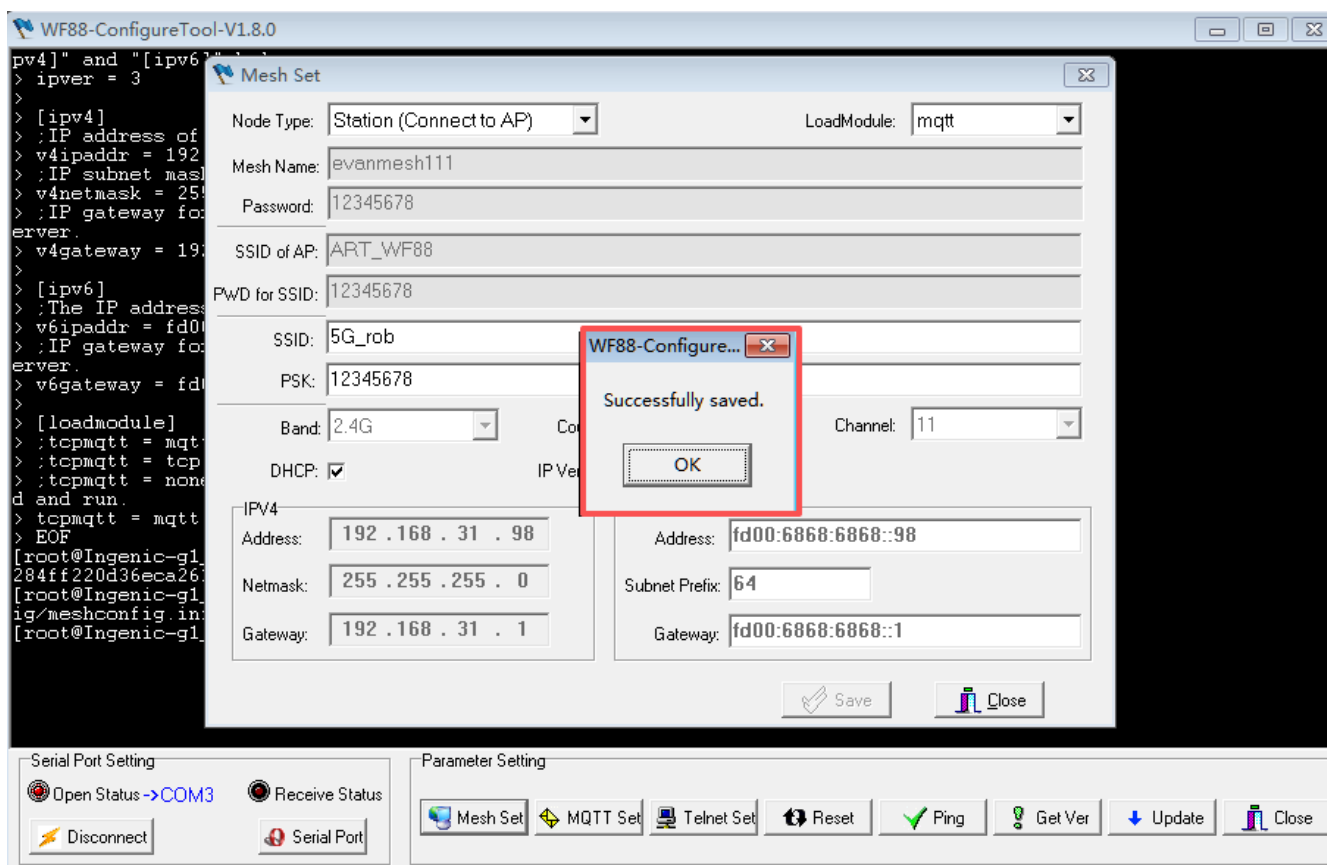


Set dialog box

Typical settings are:

- Node Type: must select "Station(Connect to AP)",
- LoadModule: must select "mqtt"
- SSID: "AP with Internet access"
- PSK: "The correct password for AP"
- DHCP: need to be selected

After completion, click the "Save" button to save the settings. The "Successfully saved" dialog box will pop up, as shown below:

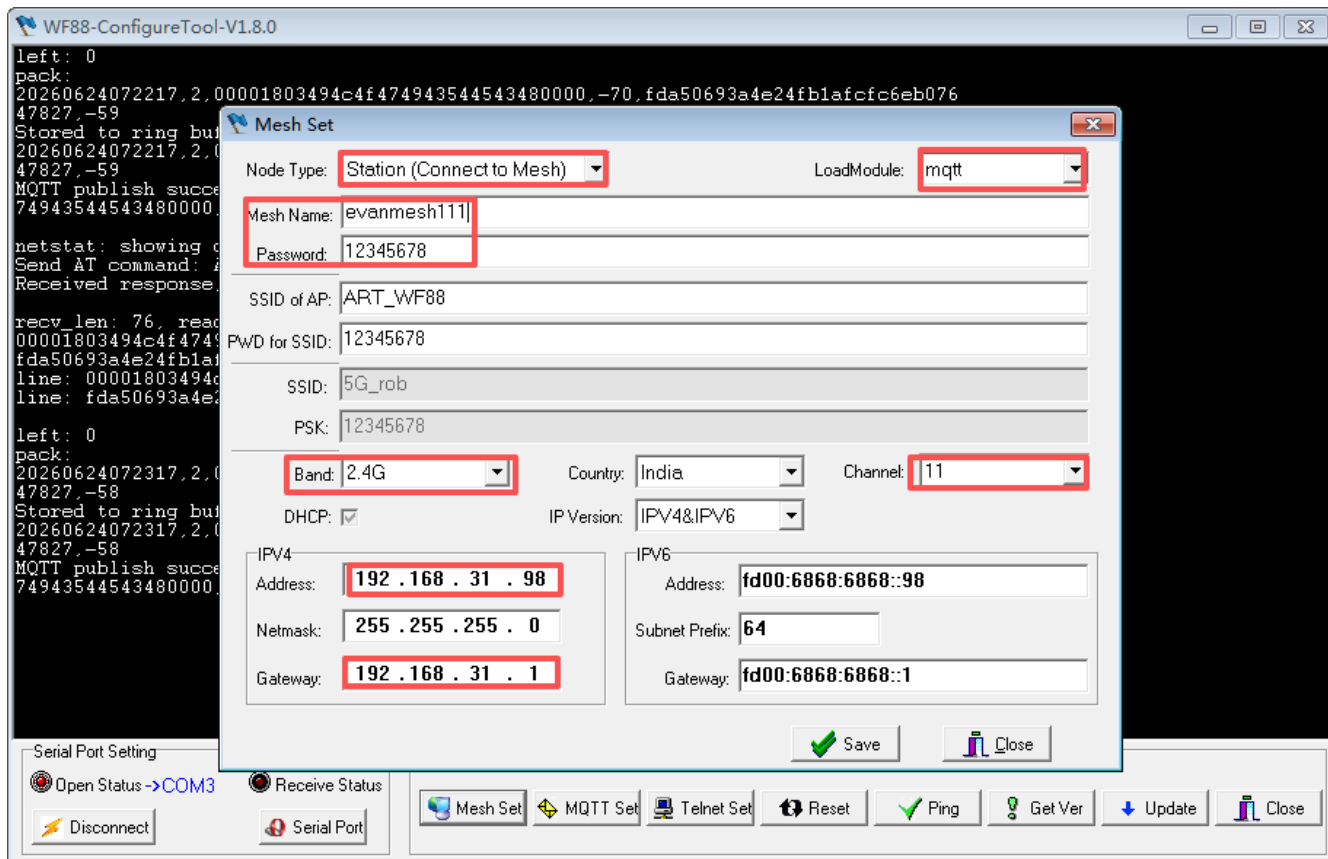


In the "Successfully saved" dialog box, click "OK" button, complete parameter settings.

Note: In the main window, click the "Reset" button to restart WF288 BLE Reader for the settings to take effect.

4.2. Station(Connect to Mesh) Settings

Click the "Mesh Set" button to open the Mesh Set dialog box:



Set dialog box

Typical settings are:

- Node Type: must select "Station(Connect to Mesh)",
- LoadModule: must select "mqtt"
- Mesh Name: Mesh Name with Internet access
- Password: The correct password for mesh
- Band: mesh band
- Channel: mesh channel
- Address: correct IP
- Gateway: correct IP

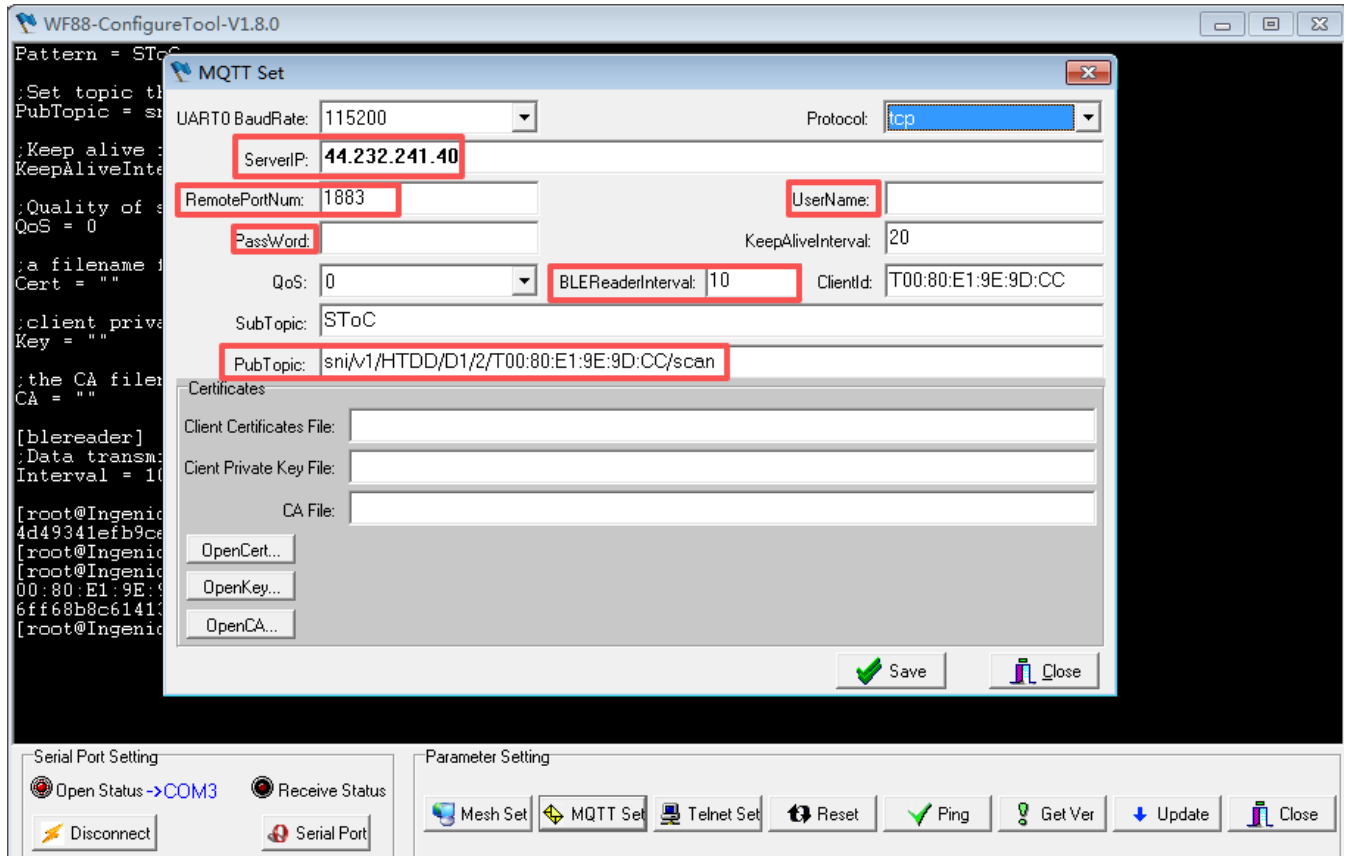
After completion, click the "Save" button to save the settings. The "Successfully saved" dialog box will pop up,

In the "Successfully saved" dialog box, click "OK" button, complete parameter settings.

Note: In the main window, click the "Reset" button to restart WF288 BLE Reader for the settings to take effect

5. MQTT parameter setup

Click the “MQTT Set” button to open the MQTT Set dialog box:



Set dialog box

Typical settings are:

- ServerIP: Your local server IP, we tested with public server
- RemotePortNum: correct port of server
- UserName: correct name requested by the server, if no, does not need to fill
- Password: correct Password requested by the server, if no, does not need to fill
- BLEReaderInterval: MQTT data transmission interval, between 10s and 3600s
- PubTopic: set “PubTopic” according to the format shown in the figure.

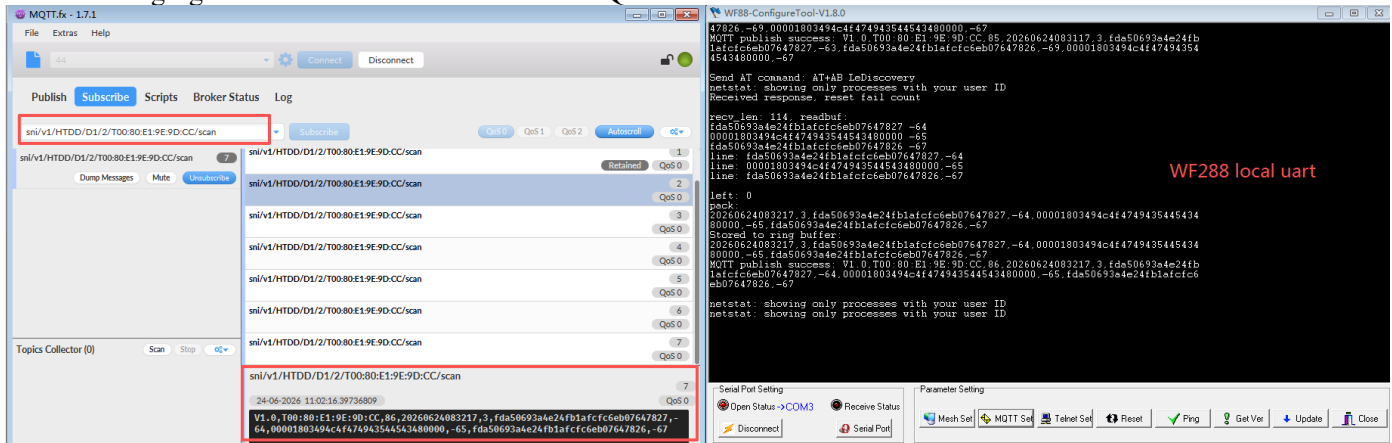
After completion, click the "Save" button to save the settings. The "Successfully saved" dialog box will pop up.

In the "Successfully saved" dialog box, click “OK” button, complete parameter settings.

Note: In the main window, click the “Reset” button to restart WF288 BLE Reader for the settings to take effect

6. Data transmission to a MQTT server in STA or Mesh mode

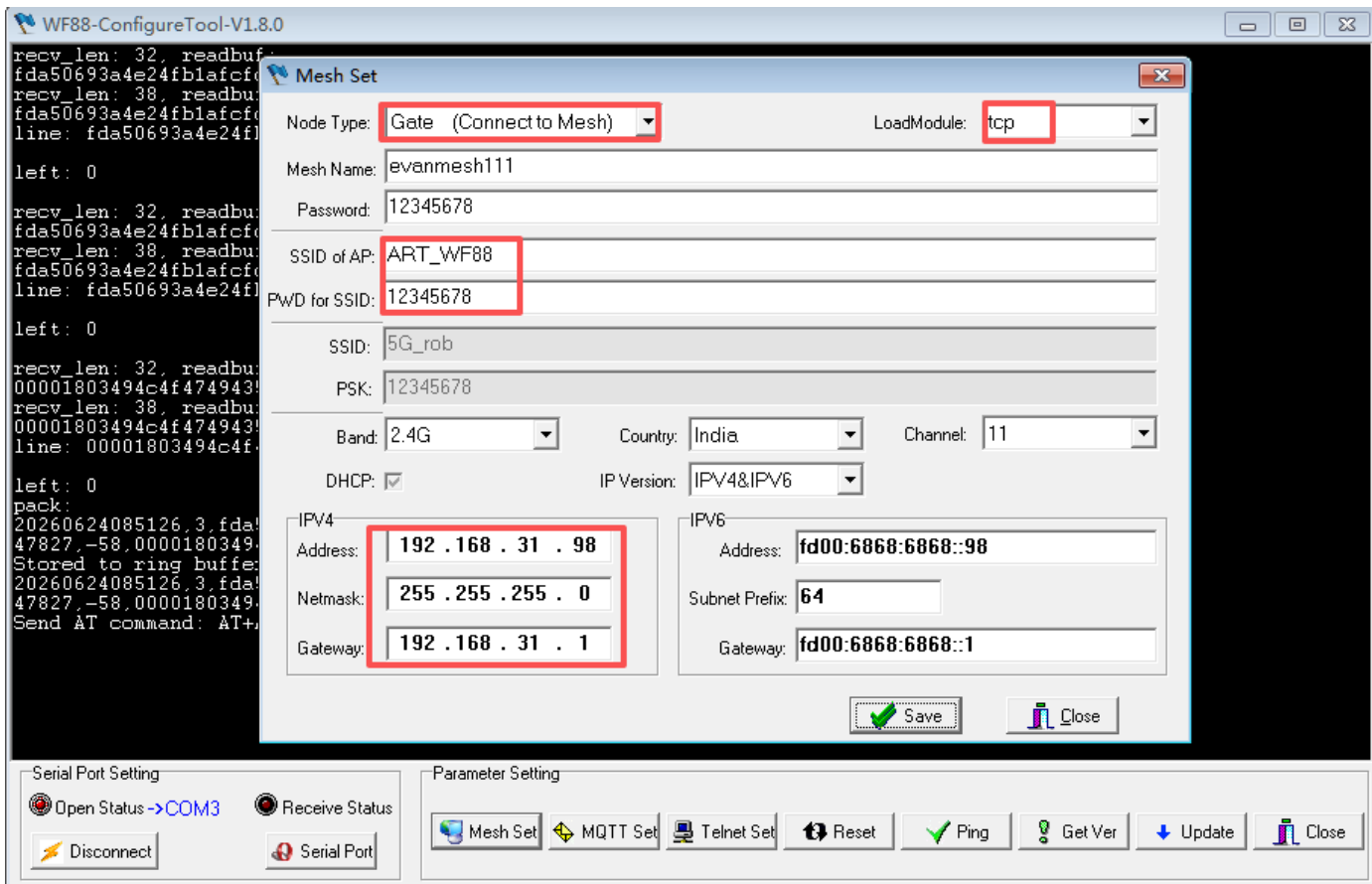
The following figure shows Data transmission to a MQTT server in STA or Mesh mode



7. Transmitting data through TCP in AP mode

7.1. AP mode settings

Click the “Mesh Set” button to open the Mesh Set dialog box



Set dialog box

Typical settings are:

- Node Type: Gate (Connect to mesh)
- LoadModule: tcp
- SSID of AP: default ART_WF88_XXXX
- PWD for SSID: default 12345678
- IPV4: set the corresponding IP address of eth0 to ensure that Ethernet can access the Internet normally.

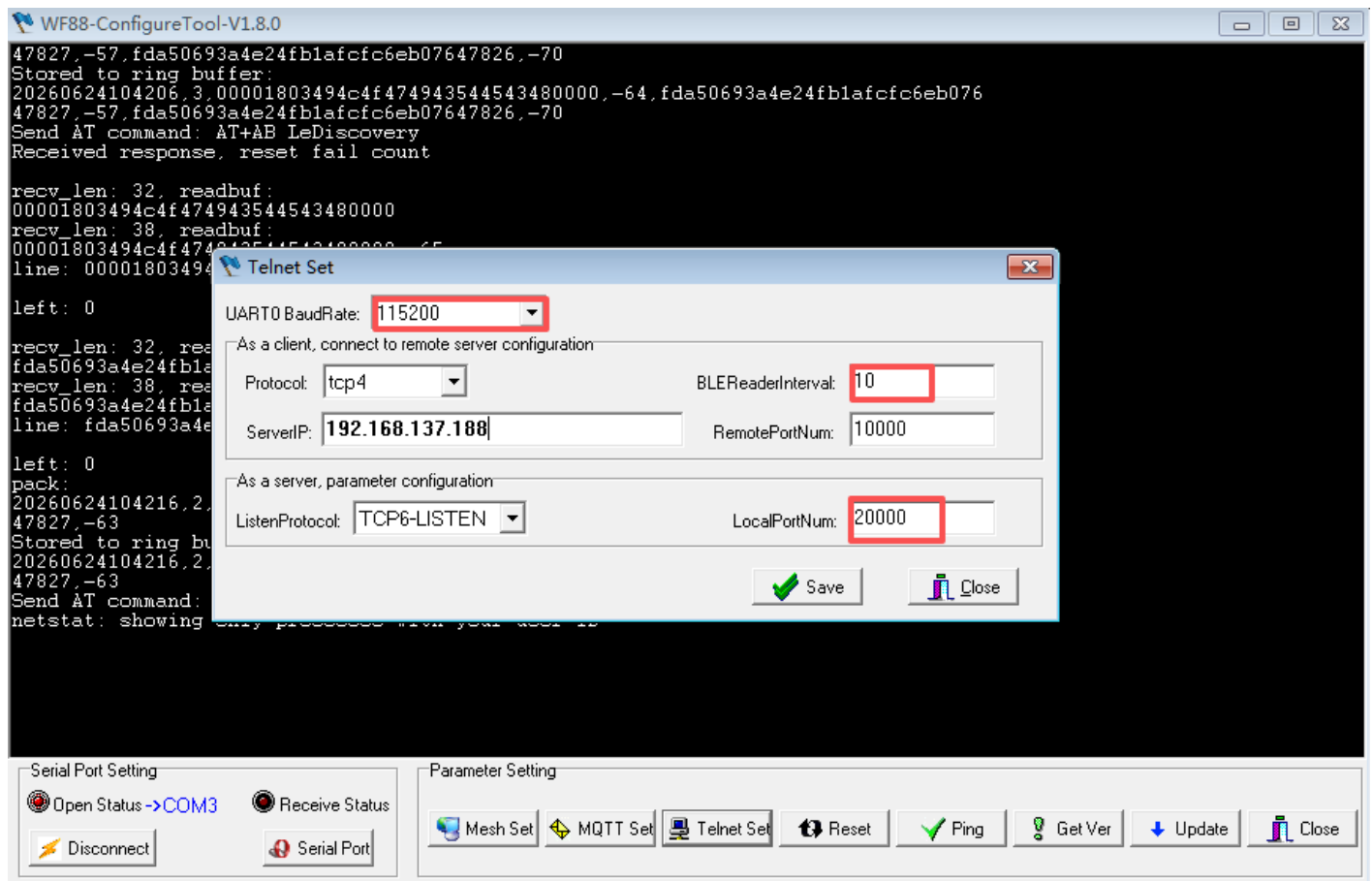
After completion, click the "Save" button to save the settings. The "Successfully saved" dialog box will pop up.

In the "Successfully saved" dialog box, click "OK" button, complete parameter settings.

Note: In the main window, click the "Reset" button to restart WF288 BLE Reader for the settings to take effect.

7.2. TCP parameter setup

Click the "Telnet Set" button to open the Set dialog box:



Connect the WF288 BLE Reader(AP Mode) using a PC or phone, Use TCP client connects to the WF288 server.

WF288 default IP 192.168.10.10, Their default TCP server listening port is 20000.

The following figure shows a remote client connecting to a TCP server in AP mode.

