



# ESP32-G Gateway User Manual

Version V1.1

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## Document Revision History

<b>Version</b>	<b>Date</b>	<b>Description of Changes</b>	<b>Authored by</b>	<b>Approved by</b>
V1.0	2020.09.30	First edition	Huang Fangke	Xu Hong
V1.1	2026.04.09	Modified power supply mode	Huang Fangke	Xu Hong

## 1 Product Overview

The Ai-Thinker Wi-Fi Home Smart Gateway (ESP32-G) is designed and developed by Ai-Thinker Technology. It enables functions such as system information collection, information input, information output, centralized control, remote control, and linkage control. The device supports Wi-Fi LAN functionality (802.11b/g/n) and is equipped with one LAN port. In a local area network, it supports STA/AP/STA+AP operating modes and supports one-click network configuration via SmartConfig/AirKiss, providing users with high-speed, secure, and reliable service.

It can be widely used in applications such as automatic meter reading, home and building automation, security systems, and remote irrigation systems.

## Features

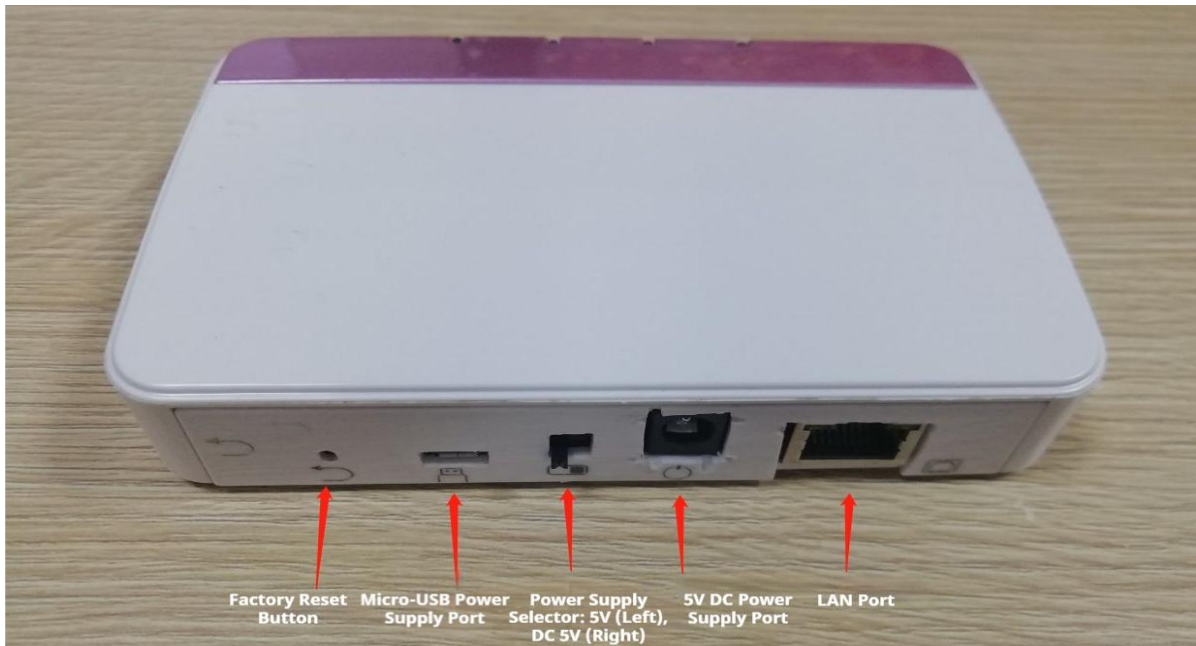
- Compact size, flexible, simple, and customizable
- Adopts a low-power dual-core 32-bit CPU with a main frequency of 240MHz, computing capacity up to 600DMIPS, and built-in 520KB SRAM
- Supports STA/AP/STA+AP operating modes
- Supports one-click network configuration via Smart Config/AirKiss
- Supports remote firmware upgrade (FOTA), with embedded LwIP and FreeRTOS for secondary development
- Supports USB (5V) power supply or power adapter (5V) power supply

## Main Parameters

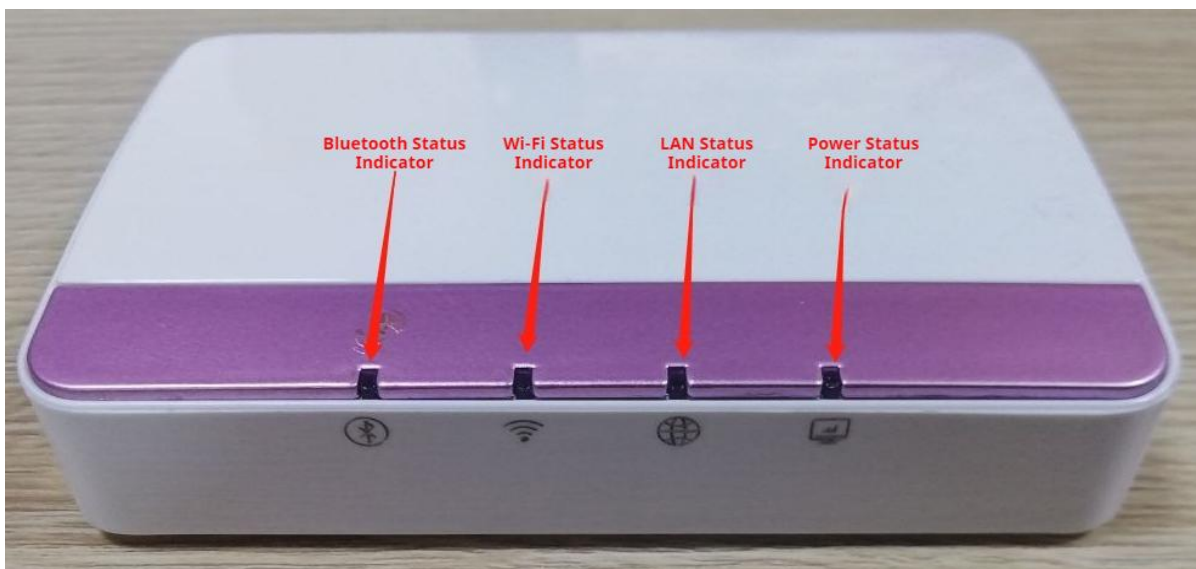
**Table 1 Main Parameters Specification**

<b>Model</b>	ESP32-G
<b>Dimensions</b>	118mm × 79mm × 26mm
<b>Antenna Type</b>	Built-in antenna
<b>Frequency Range</b>	Wi-Fi: 2412-2484MHz
<b>Networking Mode</b>	Ethernet/Wi-Fi
<b>Operating Temperature</b>	-20–85°C
<b>Storage Conditions</b>	-40–85°C
<b>Power Supply Range</b>	DC 5V, 1A
<b>Power Consumption</b>	< 1.5W
<b>Protection</b>	IP66 (The standard configuration is only suitable for indoor use. If used outdoors, please replace it with a waterproof antenna.)
<b>Housing Material</b>	Plastic
<b>Indicators</b>	Power, Wi-Fi, WAN port, and network connection indicators
<b>Buttons</b>	Hardware reset and factory reset button
<b>Ethernet/Wi-Fi</b>	10/100M WAN port

## 2 Product Interfaces and LED Indicators Description



Name	Description
LAN Port	Connect Ethernet cable to access the external network
5V Power	Connect 5V/1A power adapter
Power DIP Switch	Switch between 5V USB input and DC 5V input
Micro-USB	5V USB power supply port
Factory Reset Button	Restore the gateway to factory settings



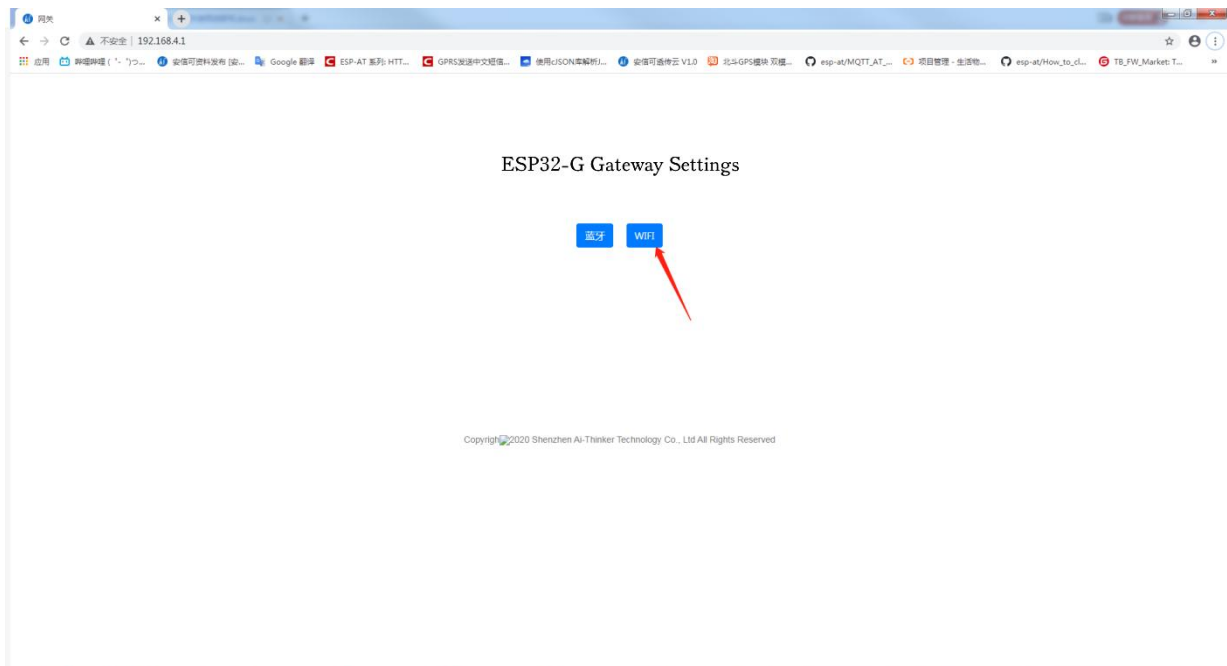
### 3 Wi-Fi Gateway Usage

#### (1) Restore Factory Settings

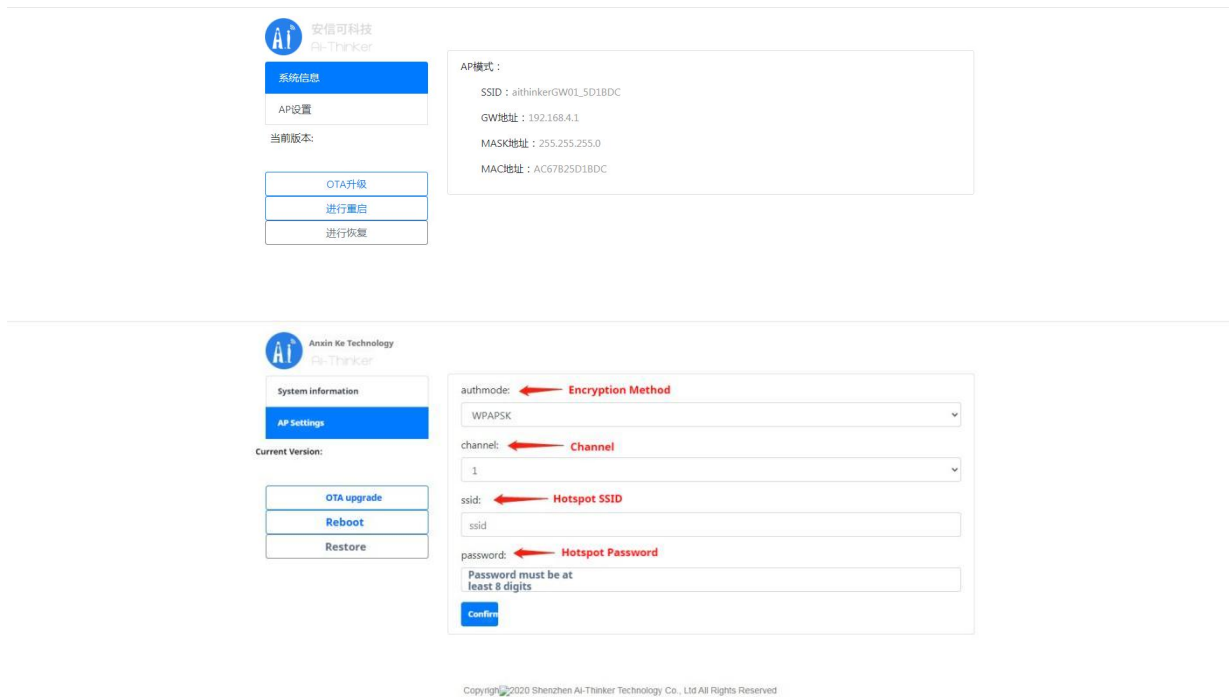
Long-press the factory reset button for 5 seconds. Release the button after the power status indicator starts flashing. The indicator light will turn off. Wait for the indicator to turn solid, and the gateway will reboot and clear all network configuration information.

#### (2) Access the Web Server

After the gateway is restored to factory settings, a hotspot named aithinkerGW01\_ (the last 3 digits of the MAC address) will appear. After connecting to it with a computer, enter 192.168.4.1 in the browser to access a web page, as shown below.



Click the WIFI option in the gateway to view the screenshot below.



After completing the AP settings, click Confirm. The configured parameters will be permanently saved to the gateway. Then click the Reboot button, and the gateway will reboot and operate according to the configured parameters.

### Wi-Fi Gateway Usage Notes

- (1) The gateway can connect to a maximum of 8 terminal devices (including mobile phones, PCs, and device-side terminals).
- (2) The gateway's average wireless throughput is 22Mbit/s, and the average wired throughput is 58Mbit/s.

## 4 Bluetooth Gateway Usage

After the gateway is restored to factory settings, a hotspot named aithinkerGW01\_ (the last 3 digits of the MAC address) will appear. After connecting to it with a computer, enter 192.168.4.1 in the browser to access a web page, as shown below.



Click the Bluetooth option in the gateway to view the screenshot below.



### ESP32-G Gateway Settings



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系统信息

AP设置

当前版本:

OTA升级

进行重启

进行恢复

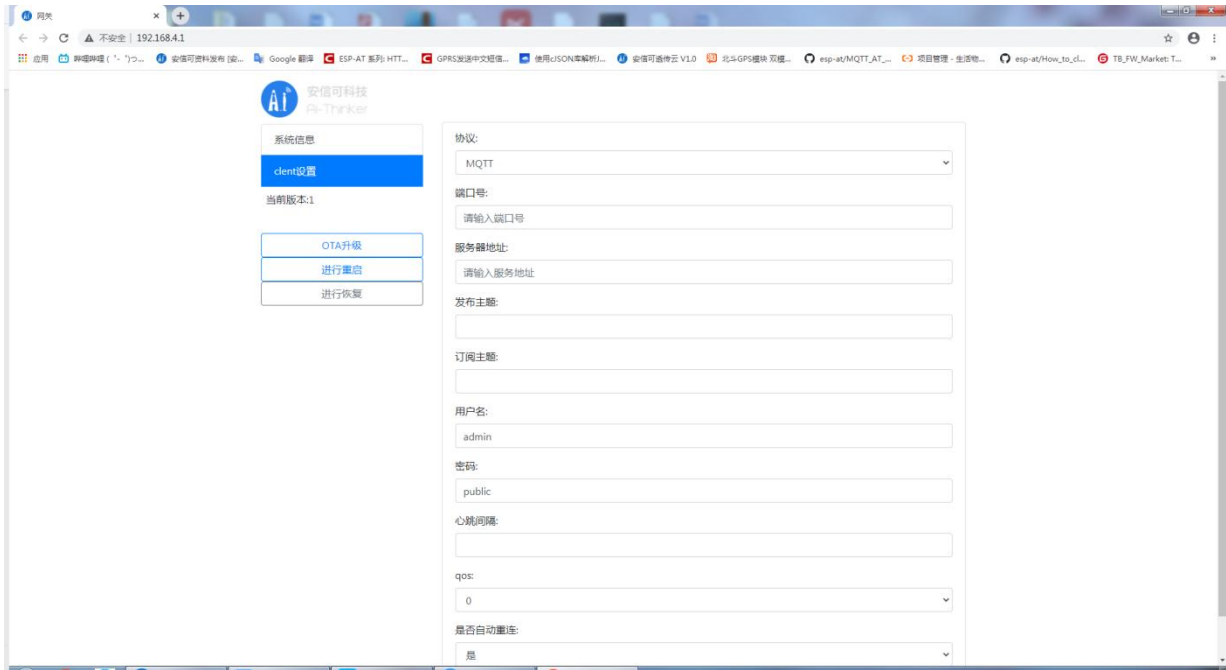
AP模式:

SSID : aithinkerGW01\_SD18DC

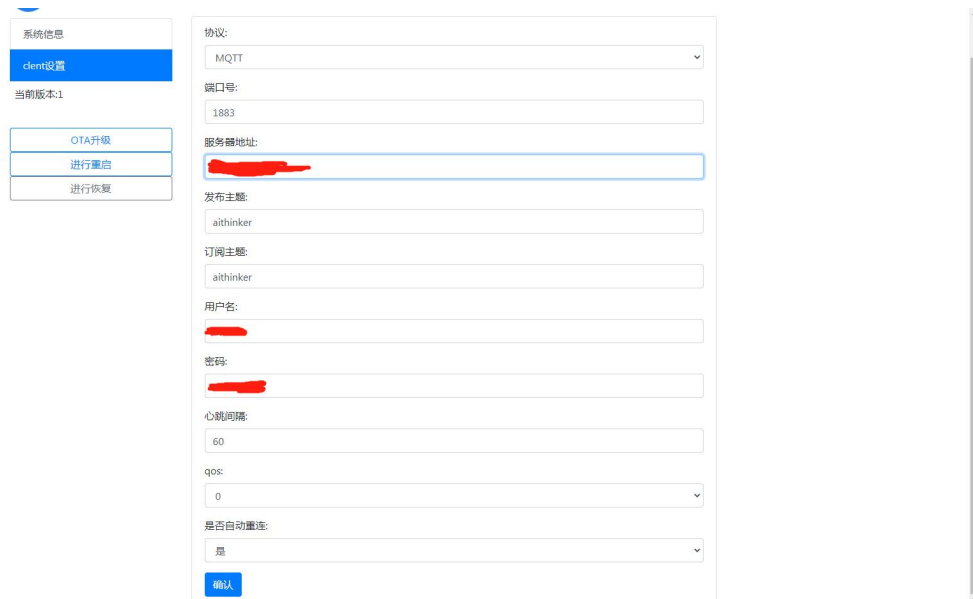
GW地址 : 192.168.4.1

MASK地址 : 255.255.255.0

MAC地址 : AC67B25D18DC



Click client to configure the MQTT parameters. The main parameters to set include: MQTT Port Number, Server Address, Publish Topic, Subscribe Topic, Username, and User Password. After configuration, click Confirm to enable data exchange between the Bluetooth gateway and the MQTT server. The detailed screenshot is shown below.



**Clients**

Client ID  Username  Node  🔍 Search | 🔄 Reset | ⌵

🚫 Kick Out
🔄 Refresh

<input type="checkbox"/>	Client ID	Username	Status	IP Address	Keepalive	Clean Start	Session Expiry Interval	Connected At
<input type="checkbox"/>	D4E9F4B30CF8	admin	Connected	120.234.24.230:26219	60	true	0	2026-04-15 15:30:10
<input type="checkbox"/>	ESP32-948766		Connected	219.131.10.245:53332	15	true	0	2026-04-15 15:20:21
<input type="checkbox"/>	b83dfb87cfeb	aLrd01_01	Connected	120.229.99.6:18806	120	true	0	2026-04-15 14:54:42
<input type="checkbox"/>	emqx_MDUxNz	112233	Disconnected	119.137.2.179:35068	60	false	Never Expire	2025-11-24 16:41:10
<input type="checkbox"/>	mqttjs_5f43d4aa		Disconnected	124.236.212.235:24283	60	false	2 hours	2026-04-15 13:38:32
<input type="checkbox"/>	mqttjs_b401cef0		Connected	223.160.214.57:58282	60	true	0	2026-04-15 15:34:06

Click Websocket to configure the MQTT parameters, as shown in the screenshot below.

**WebSocket Client**

Default +

---

**Connection**

Host	Port	Path
<input type="text" value="wx.ai-thinker.com"/>	<input type="text" value="8083"/>	<input type="text" value="/mqtt"/>
Client ID	Username	Password
<input type="text" value="emqx_Nj0Mz"/>	<input type="text"/>	<input type="text"/>
Keepalive	Clean Start	Session Expiry Interval
<input type="text" value="60"/>	<input type="text" value="true"/>	<input type="text" value="0"/> s
TLS	ProtocolVersion	
<input type="text" value="false"/>	<input type="text" value="MQTT 5"/>	

Disconnect
Connect

**Subscription**

Topic  QoS  Subscribe

Topic	QoS	Time	Actions
aithinker	0	2026-04-15 15:39:33	Cancel

**Publish**

Topic  Payload  QoS   Retain Publish

**Received**

Topic	QoS	Payload	Time
aithinker	0	<pre>{"addr":"0005","opcode":"d18888"}</pre>	2026-04-15 15:40:10
aithinker	0	<pre>{"addr":"0005","opcode":"d18888"}</pre>	2026-04-15 15:40:04
aithinker	0	Retain <pre>2901</pre>	2026-04-15 15:39:33

**Published**

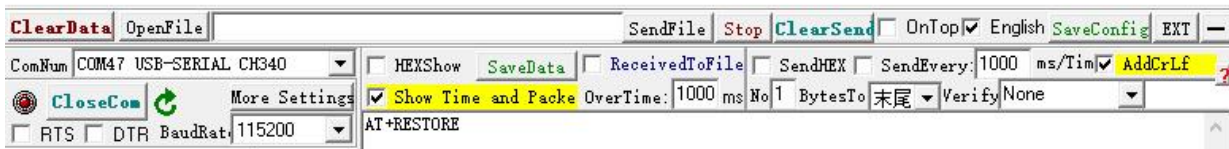
Topic	QoS	Payload	Time
aithinker	0	<pre>{"addr":"0005","opcode":"d18888"}</pre>	2026-04-15 15:40:10
aithinker	0	<pre>{"addr":"0005","opcode":"d18888"}</pre>	2026-04-15 15:40:04

The following example demonstrates how a TB series Bluetooth module sends data to an MQTT server through a Bluetooth gateway.

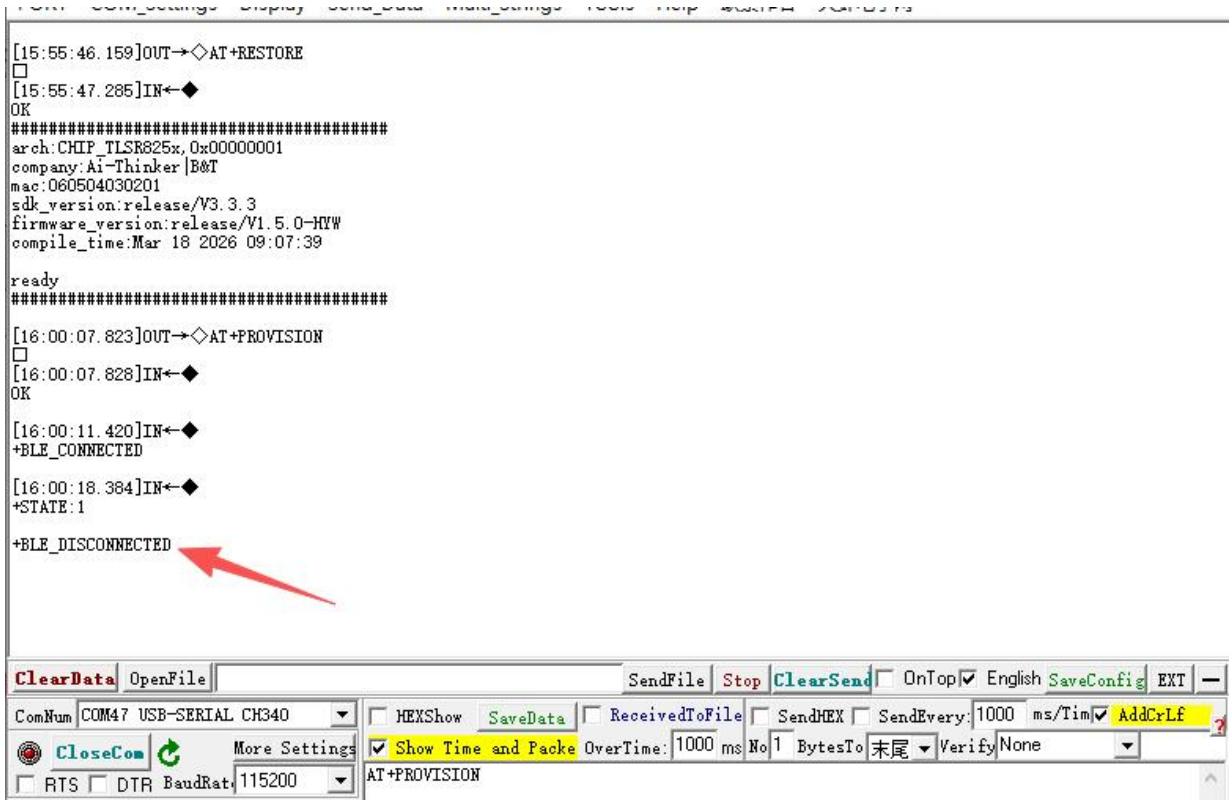
(1) Prepare a TB series module and send AT+RESTORE to restore factory mode, as shown below.

```
[15:55:46.159]OUT->◇AT+RESTORE
[15:55:47.285]IN<-◆
OK
#####
arch:CHIP_TL825x,0x00000001
company: Ai-Thinker |B&T
mac:060504030201
sdk_version:release/V3.3.3
firmware_version:release/V1.5.0-HYW
compile_time:Mar 18 2026 09:07:39

ready
#####
```



(2) Send AT+PROVISION to connect to the Bluetooth gateway. After the connection is successful, the Bluetooth module will print +BLE\_CONNECTED, as shown below.



(3) Send AT+MESHSEND=0001,d18888,0102030405 to transmit data to the gateway. After receiving the data, the Bluetooth gateway forwards it to the MQTT server, as shown below.

```

mac:060504030201
sdk_version:release/V3.3.3
firmware_version:release/V1.5.0-HYW
compile_time:Mar 18 2026 09:07:39

ready
#####

[16:00:07.823]OUT->◇AT+PROVISION
[16:00:07.828]IN<-◆
OK

[16:00:11.420]IN<-◆
+BLE_CONNECTED

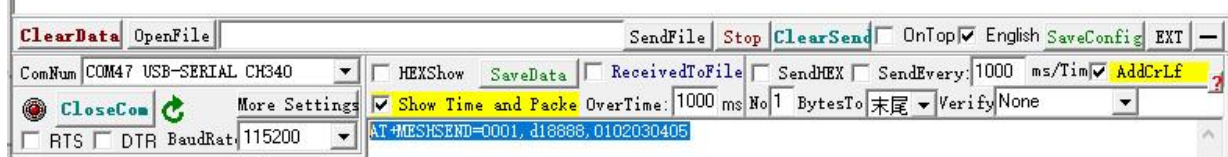
[16:00:18.384]IN<-◆
+STATE:1

+BLE_DISCONNECTED

[16:00:20.517]IN<-◆
{"mesh_data":
{"daddr":"0005","saddr":"0001","opcode":"D18888","data_len":0,"data":""}}

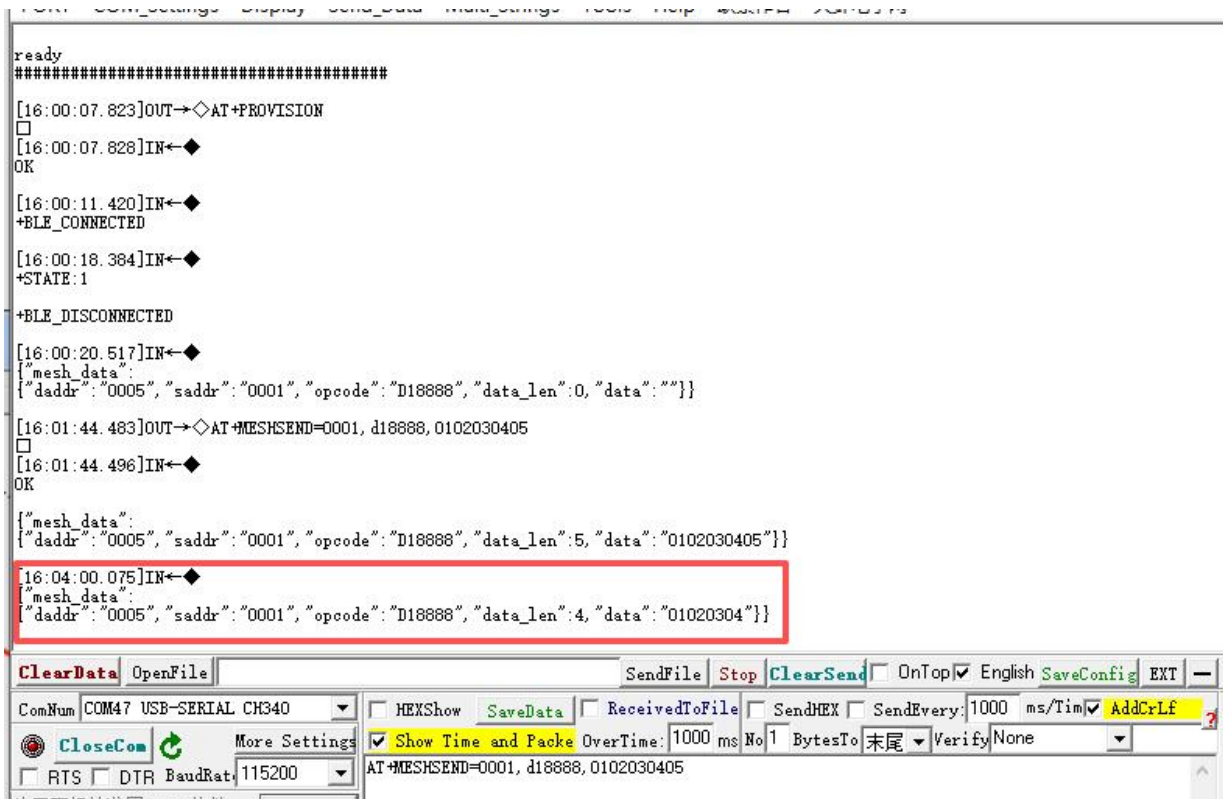
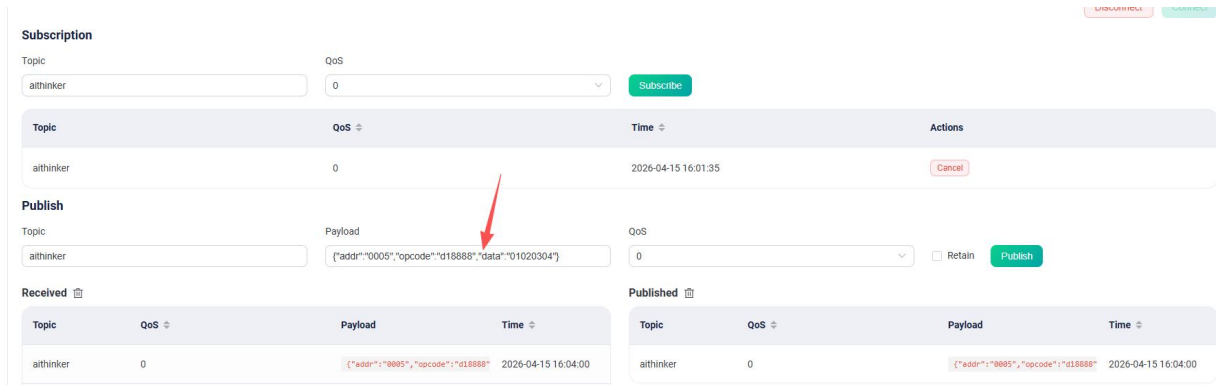
[16:01:44.483]OUT->◇AT+MESHSEND=0001,d18888,0102030405
[16:01:44.496]IN<-◆
OK

{"mesh_data":
{"daddr":"0005","saddr":"0001","opcode":"D18888","data_len":5,"data":"0102030405"}}
    
```



The screenshot shows a serial terminal window with the following settings: ComNum: COM47 USB-SERIAL CH340, BaudRate: 115200. The terminal displays the AT command execution process, including the successful execution of AT+MESHSEND=0001,d18888,0102030405. The resulting MQTT message is shown in the 'Received' section of the MQTT client interface, with the 'data' field highlighted in a red box. The message payload is {"addr":"0005","opcode":"d18888","data":"0102030405"}.

(4) The MQTT server sends {"addr":"0005","opcode":"d18888","data":"01020304"} to the Bluetooth gateway. The Bluetooth gateway then forwards the data to the Bluetooth module, and the Bluetooth module successfully receives the data, as shown below.



### Bluetooth Gateway Usage Notes

- (1) The Bluetooth gateway must be configured with the correct MQTT parameters to ensure that the gateway's MAC address can be found in the client ID on the MQTT backend.
- (2) The broadcast data format of the Bluetooth module node is AT+TEST=01,d18888,01020304. where: 01: target address; d18888: opcode; 01020304: broadcast data. The currently supported opcodes are: get: d08888; set: d18888; ack: d38888; delete: d48888.

## 5 Contact Information

Official Website: <https://www.ai-thinker.com>

Development DOCS: <http://docs.ai-thinker.com>

Sample Purchase: <https://anxinke.taobao.com>

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