

EW4XB_PW4XB_MW4XB_Wport-W70

Operation Guide

This document applies to the following series of products, please refer to the user manual for product hardware description.

	Elfin-EW4XB
	Protoss-PW4XB
	Meta-MW4XB



Wport-W70

1. INTRODUCTION	4
1.1. ELFIN-EW4XB EVK	4
1.2. ELFIN-EW40B 4PIN CONNECTOR	4
1.3. ELFIN-EW41B 4PIN CONNECTOR	4
1.4. ELFIN-EW42B 接 4PIN 端子	4
1.5. ELFIN-EW40B 8PIN CONNECTOR	5
1.6. ELFIN-EW41B 8PIN CONNECTOR	5
1.7. ELFIN-EW42B 接 8PIN 端子	5
1.8. ELFIN-EW40B/EW41B/EW42B RJ45 CABLE	5
1.9. EW40B INTERFACE CONVERSION CABLE	6
1.10. EW41B INTERFACE CONVERSION CABLE	7
1.11. EW42B INTERFACE CONVERSION CABLE	8
1.12. PROTOSS-PW4XB HARDWARE	8
1.13. META-MW4XB HARDWARE	9
1.14. WPORT-W70 HARDWARE	9
2. HARDWARE INTRODUCTION	10
2.1. POWER SUPPLY	10
2.2. POWER SUPPLY	10
2.3. INTERFACE CONNECTION	10
3. INITIAL SETUP	11
3.1. WEBPAGE SET	11
3.2. IOTSERVICE SET	16
4. SERIAL PORT SETTINGS	18
4.1. SERIAL PORT TOOL SECURECRT	18
4.2. SETTING SERIAL PORT PARAMETERS	18
4.3. CLI INSTRUCTION MODE	18
5. TEST EXAMPLE	21
5.1. AP WIRELESS NETWORKING	21
5.2. TCP SERVER TEST IN AP MODE	22
5.3. STA WIRELESS NETWORKING	26
5.4. TCP SERVER TEST IN STA MODE	29
5.5. STA TCP CLIENT TEST	31
5.6. STA HTTP CLIENT TEST	33
5.7. STA MQTT CLIENT TEST	36
5.8. FIRMWARE UPGRADE	38
5.9. RESTORE TO FACTORY SETTING	39
5.10. MORE APPLICATION CASE	39
APPENDIX A:REFERENCES	40
A.1. IOTSERVICE TEST TOOLS	40
A.2. SMARTBLELINK 软件	40

1. INTRODUCTION

Elfin-EW4XB, Meta-MW4XB, Protoss-PW4XB, Wport-W70 products software function is the same (integrate our HF-LPT270 module, talk to our sales if need modules only), but with different hardware interface and size. Here has a brief description of these products' hardware, and take EW for example of software introduction.

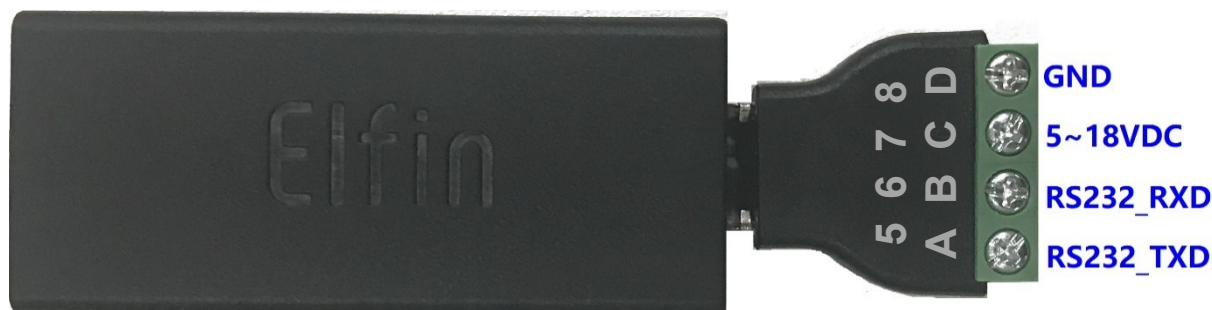
All tools can be download at following link:

http://www.hi-flying.com/index.php?route=download/category&path=1_4

1.1. Elfin-EW4XB EVK

Elfin-EW40B-0 is RS232 interface and Elfin-EW41B-0 is RS485 interface and Elfin-EW42B-0 is TTL interface.

1.2. Elfin-EW40B 4PIN Connector



1.3. Elfin-EW41B 4PIN Connector



1.4. Elfin-EW42B 接 4PIN 端子



1.5. Elfin-EW40B 8PIN Connector



1.6. Elfin-EW41B 8PIN Connector

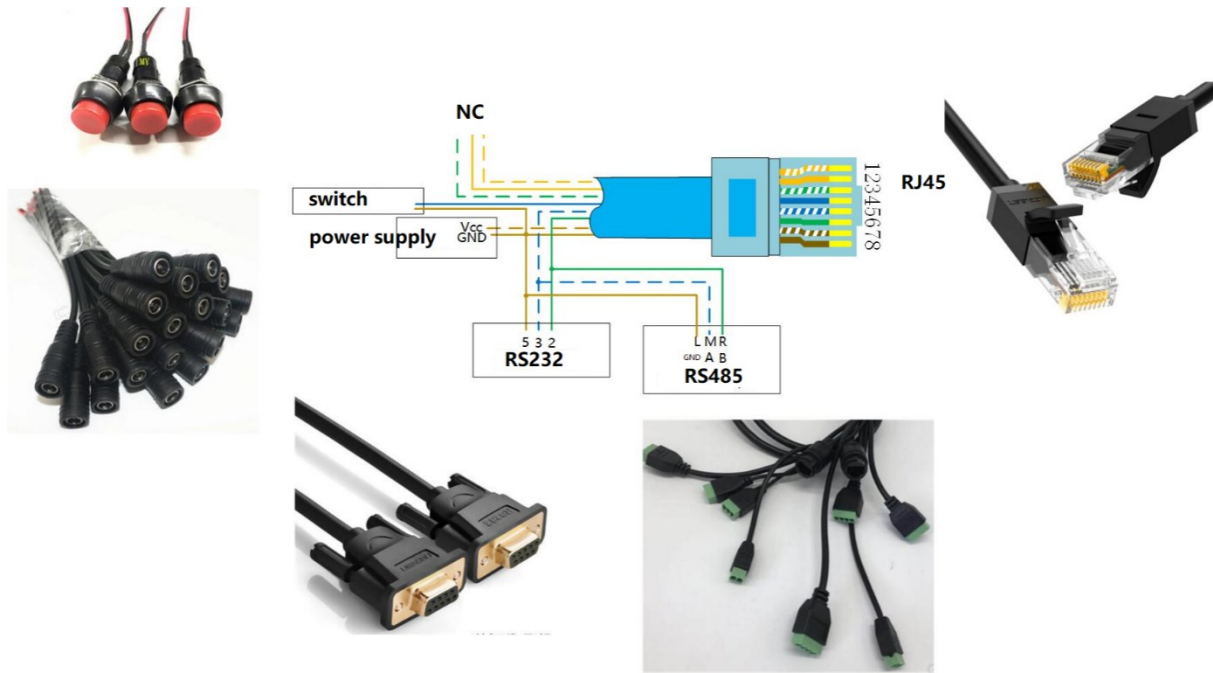


1.7. Elfin-EW42B 接 8PIN 端子



1.8. Elfin-EW40B/EW41B/EW42B RJ45 Cable

The RJ45 cable can be done as following picture.



1.9. EW40B Interface Conversion Cable



1.10. EW41B Interface Conversion Cable



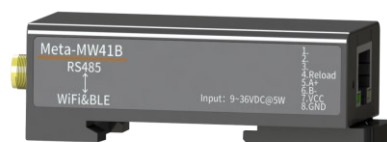
1.11. EW42B Interface Conversion Cable



1.12. Protoss-PW4XB Hardware



1.13. Meta-MW4XB Hardware



1.14. Wport-W70 Hardware



2. HARDWARE INTRODUCTION

2.1. Power Supply

- **EW4XB**

DC 5~36VDC.

Note: USB is not enough for power supply.

- **PW4XB**

-H AC Version, 100~240VAC

-M DC Version, 9~48VDC@1A

- **Elfin-EW4XB**

DC 5~36VDC

2.2. Power Supply

See products user manual.

2.3. Interface Connection

Please refer to the user manuals of each product for details.

3. INITIAL SETUP

HF Products provide multiple methods to config, webpage and IOTService tools.
Webpage is easy to use, but only for local setup and can not manage multiple device,
recommend to use IOTService tools.

Note: Due to EW4XB_ PW4XB_ MW4XB_ The WEB configuration and tool configuration of the Wport W70 series model are basically the same as those of the EW1X series, except for the addition of Bluetooth distribution network. Please refer to the product user manual for Bluetooth distribution network to download SmartBLELink distribution network. The following WEB and IOTService configurations can refer to the configuration instructions for EW1X and PW11.

SmartBLELink software download address:

<http://www.hi-flying.com/download-center-1/applications-1/download-item-smartblelink>

3.1. Webpage Set

Power on product:

- ♦ EW1X green LED will be repeat flash on 0.3s, then off 0.3s, indicate it works normally.
- ♦ PW1X Net LED will be repeat flash on 0.3s, then off 0.3s, indicate it works normally.

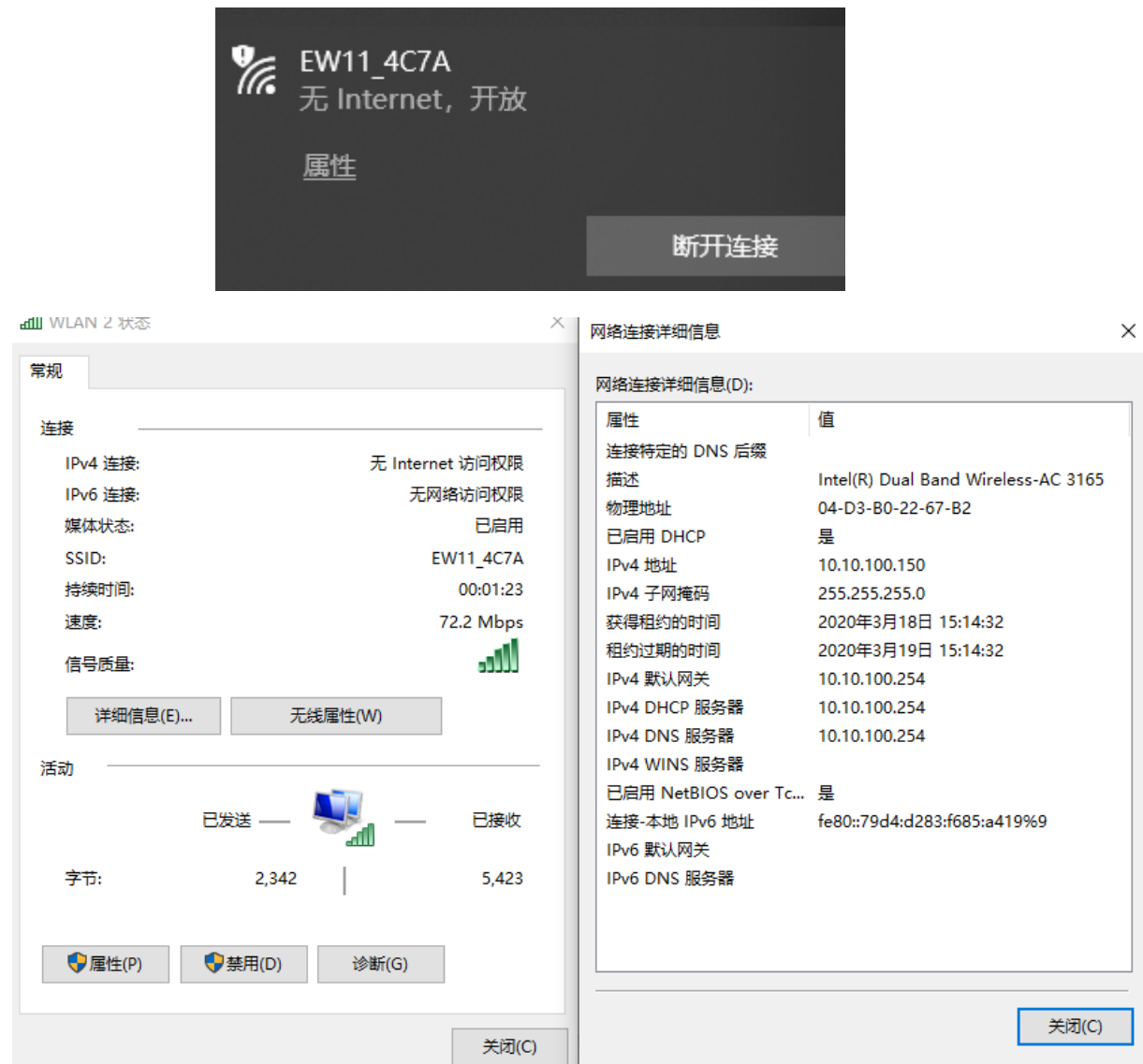
PC Wi-Fi to search AP, different products with different SSID, XXXX is the end 4 characters of MAC.

- ♦ EW1X SSID is EW1X_XXXX
- ♦ PW1X SSID is PW11_XXXX

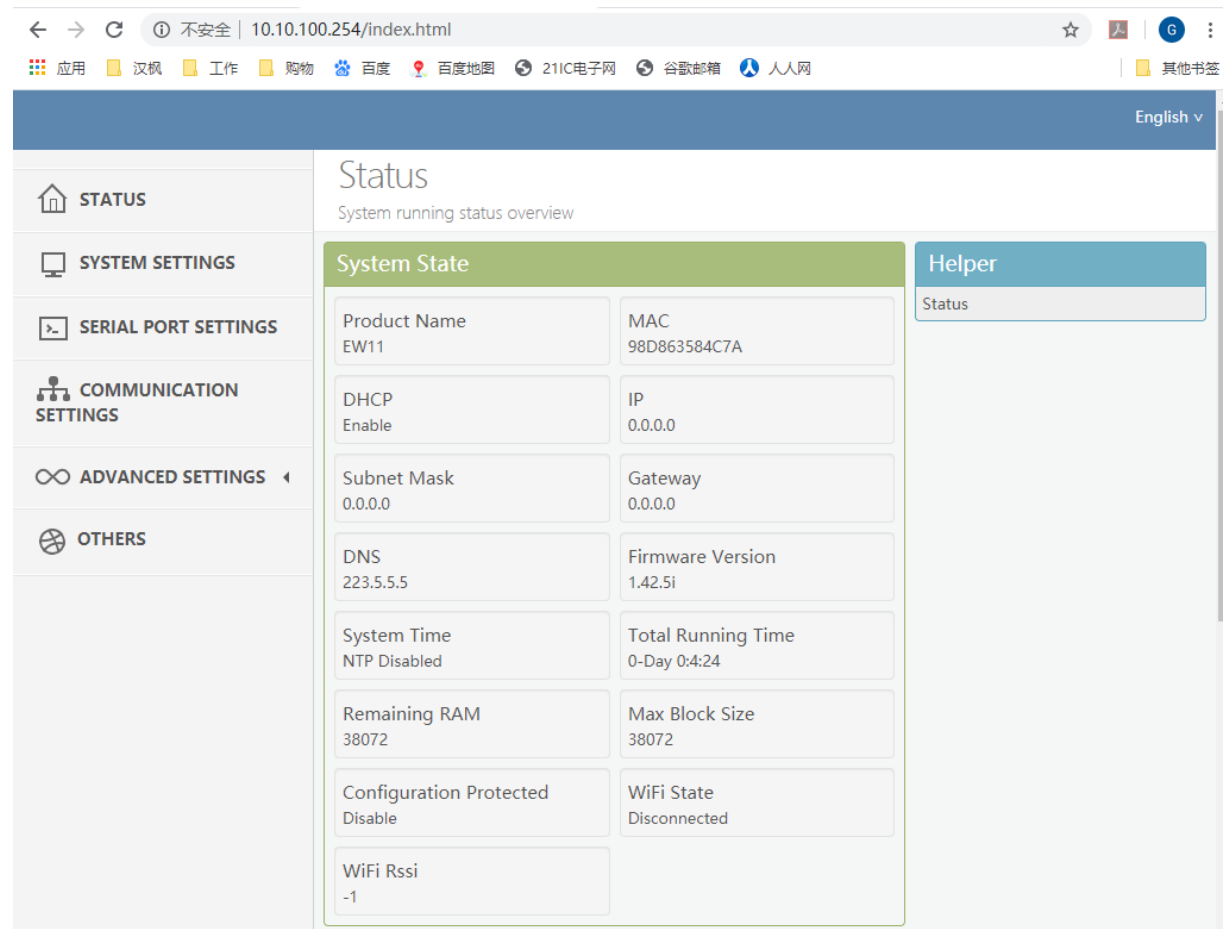
Set PC IP with Auto DHCP.



PC Wi-Fi connect to products and got IP as following picture



Brower input 10.10.100.254, input default user name and password with admin/admin to login in. The main page is as following.

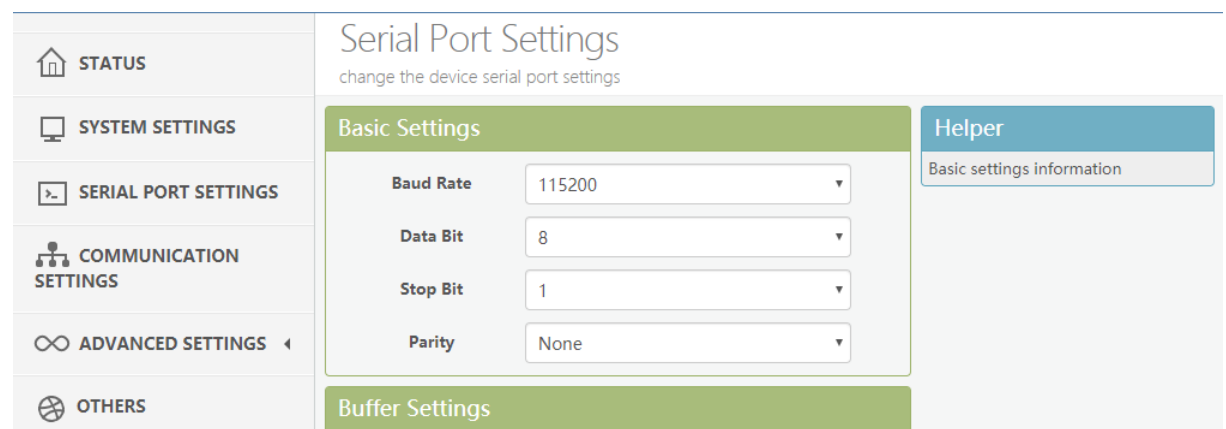


Status
System running status overview

System State	
Product Name EW11	MAC 98D863584C7A
DHCP Enable	IP 0.0.0.0
Subnet Mask 0.0.0.0	Gateway 0.0.0.0
DNS 223.5.5.5	Firmware Version 1.42.5i
System Time NTP Disabled	Total Running Time 0-Day 0:4:24
Remaining RAM 38072	Max Block Size 38072
Configuration Protected Disable	WiFi State Disconnected
WiFi Rssi -1	

Helper
Status

Default UART parameters is as following.



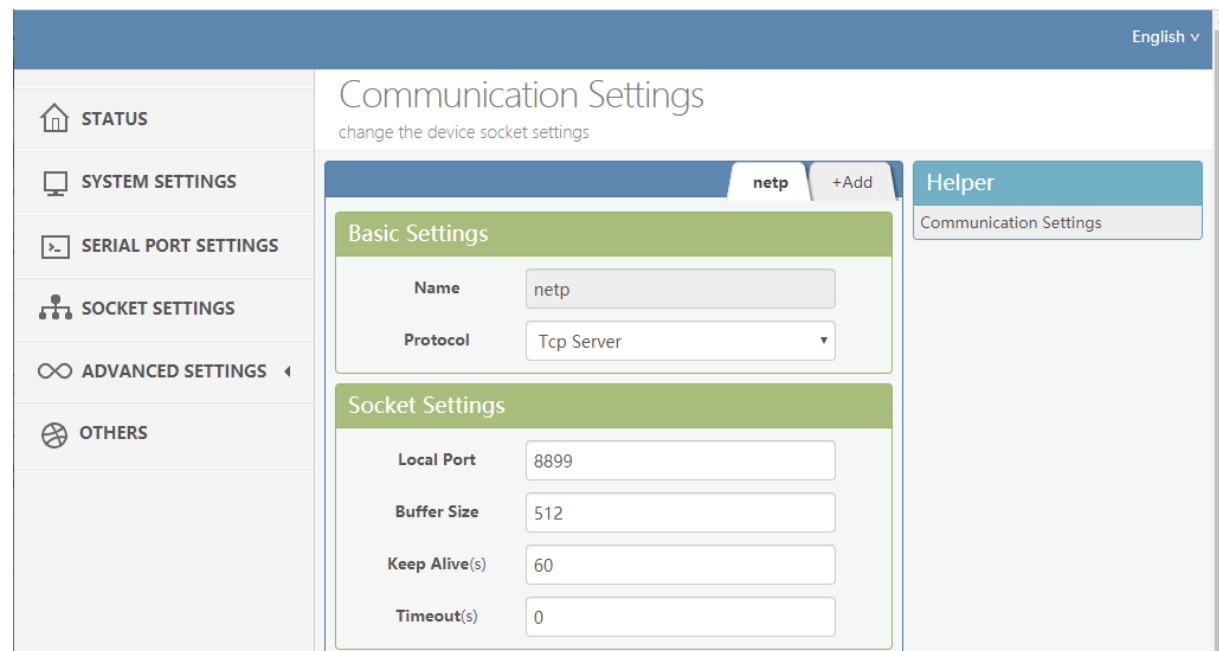
Serial Port Settings
change the device serial port settings

Basic Settings	
Baud Rate	115200
Data Bit	8
Stop Bit	1
Parity	None

Buffer Settings

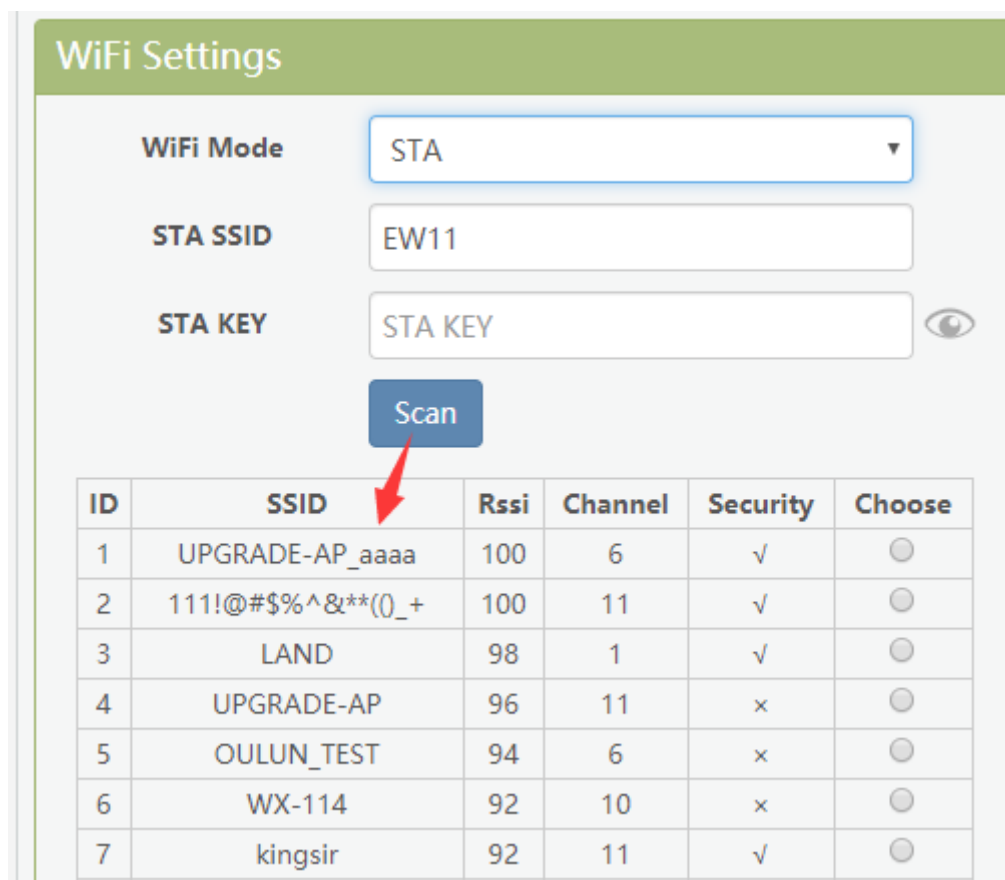
Helper
Basic settings information

Default socket parameters is as following.



Products by default works as AP mode, if need to set it connect to router, set it to STA or AP+STA working mode as following. Select the scanned list and input the router password.

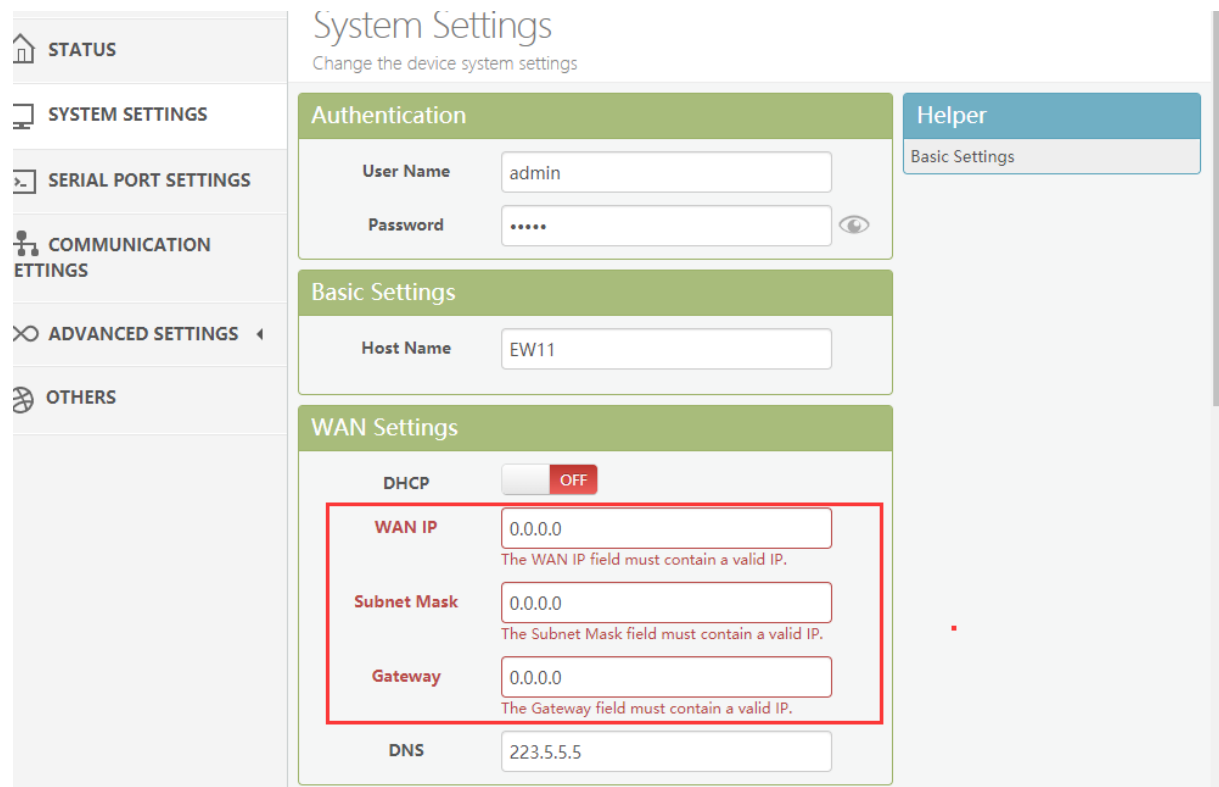
Note: setting is valid after reboot.



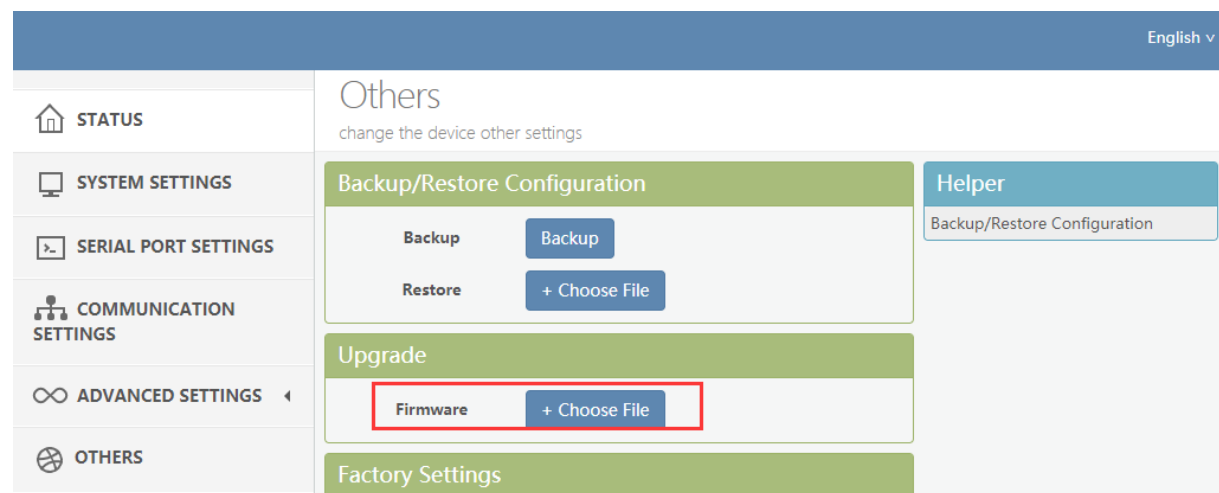
ID	SSID	Rssi	Channel	Security	Choose
1	UPGRADE-AP_aaaa	100	6	√	☐
2	111!@#\$%^&**()_+	100	11	√	☐
3	LAND	98	1	√	☐
4	UPGRADE-AP	96	11	×	☐
5	OULUN_TEST	94	6	×	☐
6	WX-114	92	10	×	☐
7	kingsir	92	11	√	☐

If need static IP in STA mode, set DHCP to off and input static IP.

Note: setting is valid after reboot.



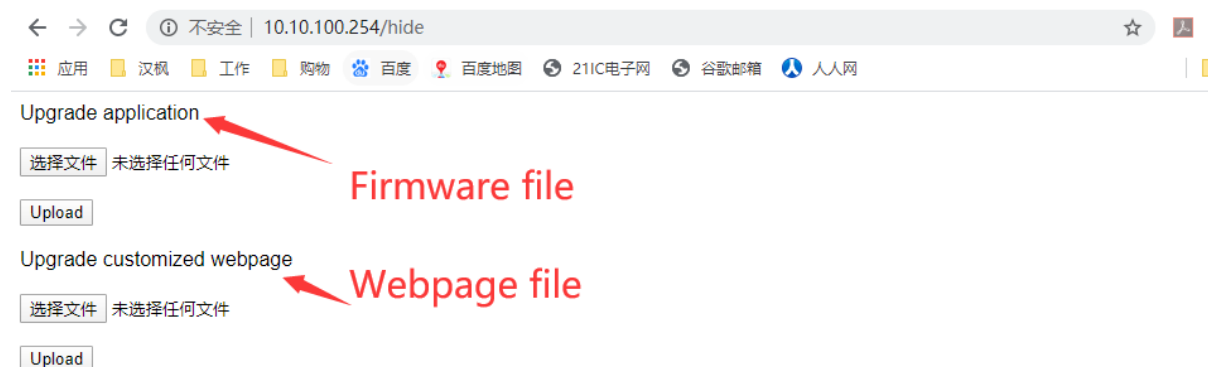
If upgrade firmware at the following position.



There is another internal webpage for upgrade the firmware and webpage (external config webpage as above, this source code is open at our website for customer to change). Login with IP/hide.

Webpage source file:

<http://www.hi-flying.com/download-center-1/application-notes-1/download-item-iot-device-webpage-source-code>



3.2. IOTService Set

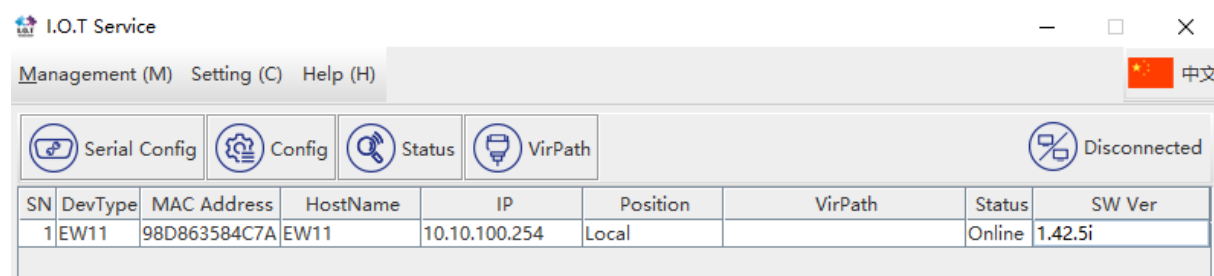
IOTService is simple to manage the products, config and even communicate with it.

Download address:

<http://www.hi-flying.com/download-center-1/applications-1/download-item-iot-service>

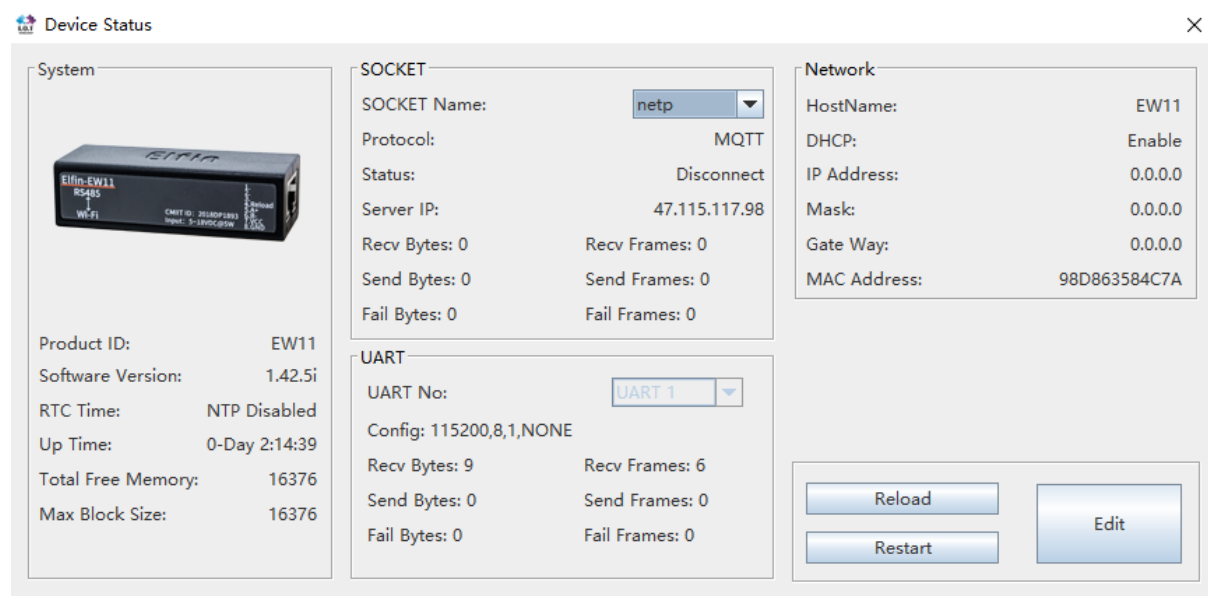
Install IOTService and register account in the IOTBridge cloud(<http://bridge.iotworkshop.com/>) according to that tools doc.

PC connect to products AP(Same as previous chapter), and open tools, The device will be shown in IOTService.



Note: See IOTService doc for more detailed usage, here just simply use it.

Double click the product list to see the device status.



Click Edit to change product setting.

Note: some setting need reboot to be valid. Better do restart operation after setting.

Device Setting

System
 User:
 Password:
 HostName:
 DHCP:
 IP Address:
 Mask:
 Gate Way:
 DNS:
 Network Mode:
 Longitude:
 Latitude:

SOCKET
 SOCKET Name:
 Protocol:
 Server Addr:
 Server Port:
 Local Port:
 Keep Alive:
 Time Out:
 Rout:
 Buffer Size:

WiFi
 Mode:
 AP SSID: ☐ Hide
 AP Key:
 AP Channel:
 STA SSID:
 STA Key:

UART
 UART No:
 Baudrate:
 Data Bits:
 Stop Bits:
 Parity:
 Flow Control:
 Buffer Size:

LAN
 IP Address:
 Mask:
 DHCP:
 Eth Wan:
☐ LAN Separate

Set to STA or AP+STA mode to make products connects to router, and may also set static IP.

Device Setting

System
 User:
 Password:
 HostName:
 DHCP:
 IP Address:
 Mask:
 Gate Way:
 DNS:
 Network Mode:
 Longitude:
 Latitude:

SOCKET
 SOCKET Name:
 Protocol:
 Server Addr:
 Server Port:
 Local Port:
 Keep Alive:

WiFi
 Mode:
 AP SSID: ☐ Hide
 AP Key:
 AP Channel:
 STA SSID:
 STA Key:

UART
 UART No:
 Baudrate:
 Data Bits:
 Stop Bits:
 Parity:
 Flow Control:
 Buffer Size:

LAN
☐ LAN Separate

Scan

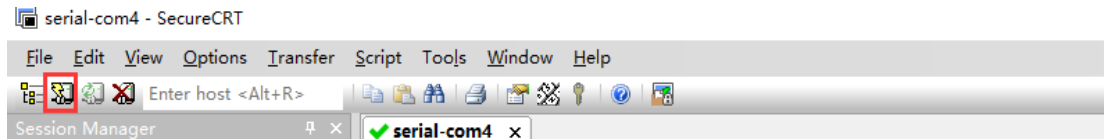
Select	Channel	SSID	MAC Address	RSSI	Has Key
☐	6	UPGRADE-AP_aaaa	C8:3A:35:54:B3:70	100	Yes
☐	11	111!@#%\$^&*()_+	78:44:FD:26:9A:7C	100	Yes
☐	1	LAND	3C:33:00:A8:35:2C	94	Yes
☐	10	WX-114	28:2C:B2:D2:E5:96	88	No
☐	5	HF-LPB130	A8:CF:23:FF:88:88	84	No
☐	1	UPGRADE-AP	04:4A:6C:70:9B:9C	80	No
☐	6	ChinaNet-xuanyin	78:44:FD:AB:73:76	64	Yes
☐	3	OPPO R15	D6:1A:3F:68:FB:DB	61	Yes
☐	13	tp_jiehui	94:D9:B3:73:37:39	59	Yes
☐	11	HF2211_A990	98:D8:63:11:A9:90	59	No
☐	11	yongheng	00:0E:E8:B6:57:2C	57	Yes
☐	6	HF-Demo-Specia	54:75:95:73:88:38	54	Yes
☐	13	JACK_2G	8C:AB:8E:66:85:F0	52	Yes
☐	1	zxz	24:69:68:7F:68:6E	49	Yes
☐	11	TP-LINK_4C6F	34:96:72:19:4C:6F	49	Yes
☐	8	zxz	E4:28:53:67:D2:FA	47	Yes

4. SERIAL PORT SETTINGS

4.1. Serial Port Tool SecureCRT

Open SecureCRT find an executable program, click Open.

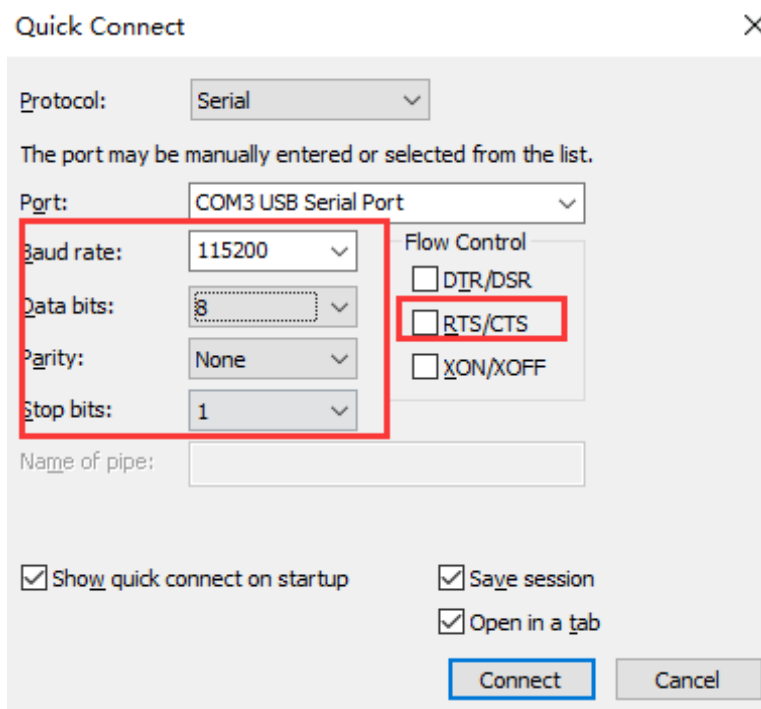
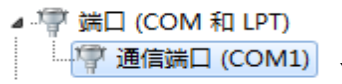
Click the Quick Connect button to create a connection.



4.2. Setting Serial Port Parameters

Protocol: Serial

Port: The port that the computer is actually connected to (see "My Computer"-> "Device Manager"-> "Ports (COM and LPT)", as shown in the figure.



Note: The default serial port data of the device is as shown in the figure above. Users can modify the working parameters of the product by using IOTService.

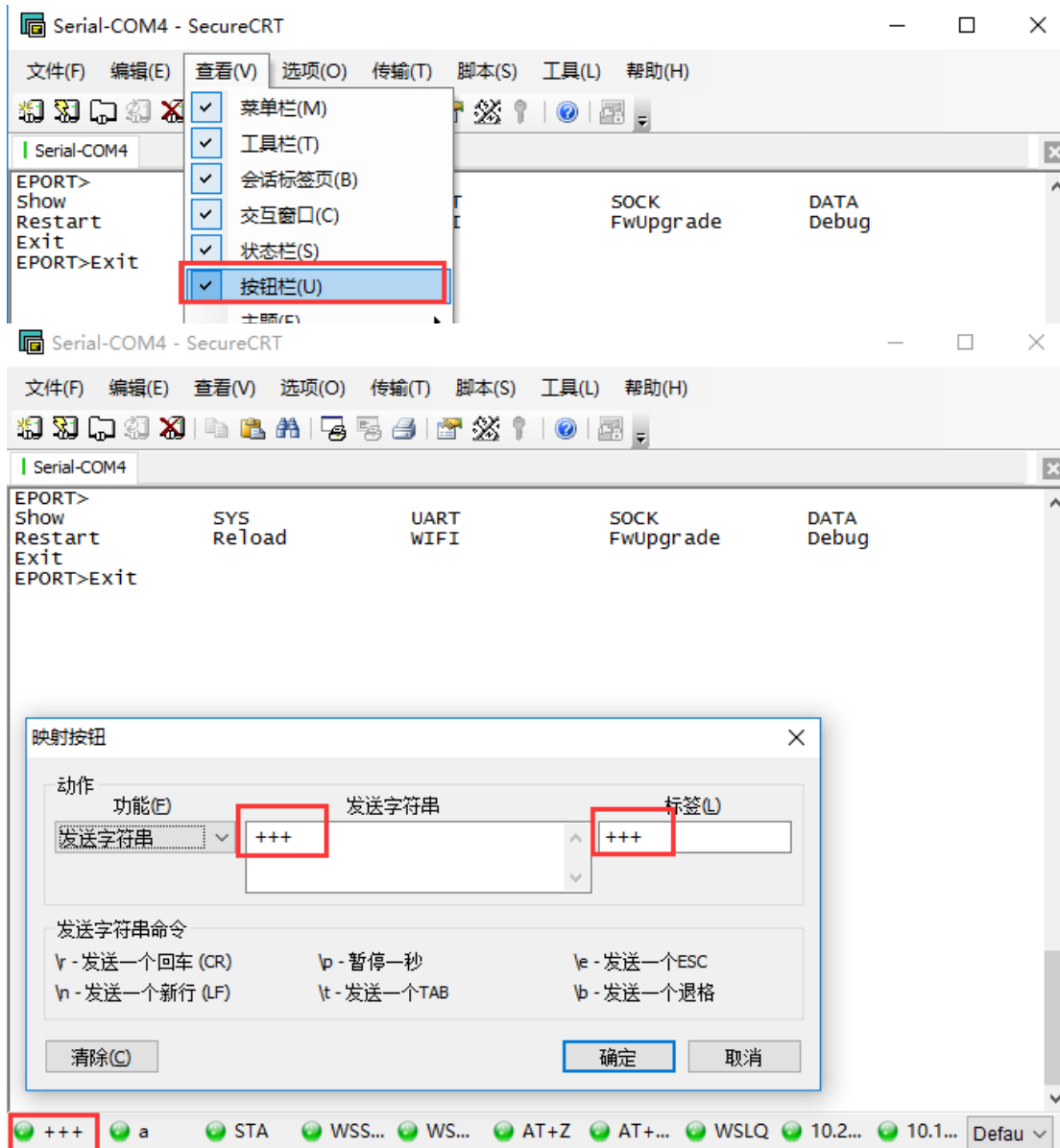
4.3. Cli Instruction Mode

Data transmission needs to be in the transparent transmission mode (the default transparent transmission mode upon power-on). If you need to enter the Cli command mode for configuration, you can do as follows.

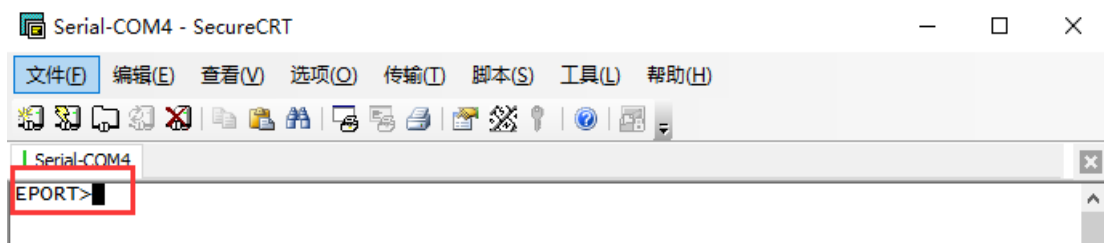
- Serial port mode.

Set the parameters of the SecureCRT serial port software according to the above.

Add "+++" button command to the button bar.



Click the button to send the corresponding data. When the interface displays "EPORT>", you have entered the CLI command mode.

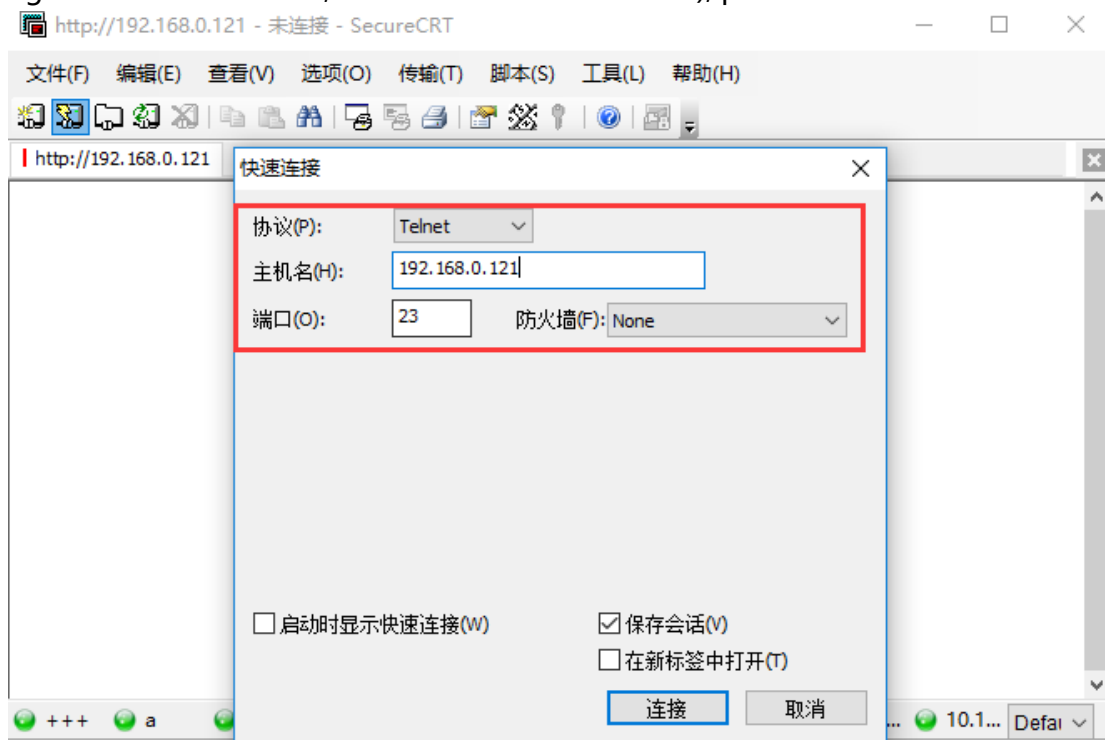


Note:

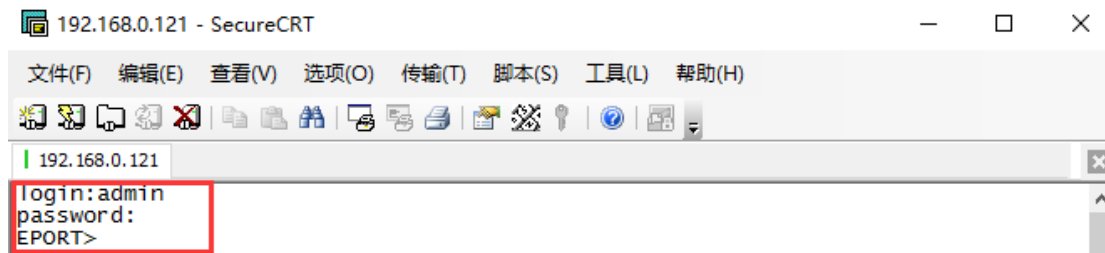
Any serial tool can do this. Sending "+++" must be a continuous package of data, and there can be no other data before and after (such as carriage return and line feed).

- Telnet mode.

Step 1: Enter the IP address of the device (the IP address can be obtained by searching through the IOTService tool, which will be detailed later), port 23.



Step 2: The default login name and password are both admin, then "EPORT>" is displayed, and you have logged in to the Cli command mode.

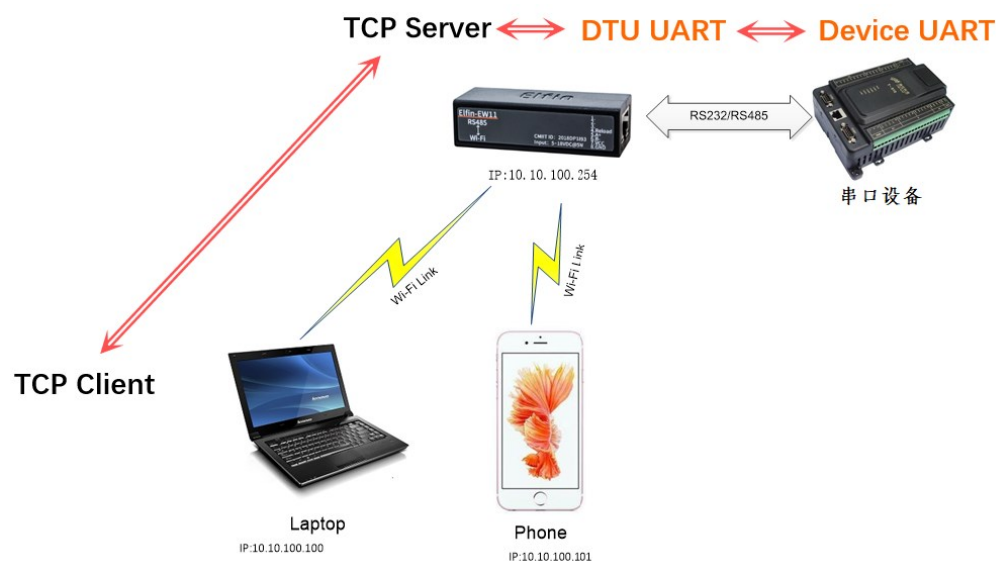


5. TEST EXAMPLE

Elfin-EW1X use TCP/IP protocol for communication. There is two main parameters one for IP address and another for port number.

5.1. AP Wireless Networking

Product works in AP mode. All other STA devices connect to product AP. (Product AP does not support route function, so the STA can not transfer data to each other) The structure is shown as below:



Step 1: The product default AP SSID is "EW1X_+MAC(last 4 characters)". It can also search by cli "Show" command. Figure is as below:

```

===WIFI Status===
Mode:STA
AP SSID:EW10_C69A
Hide AP SSID:off
Disconnected

STA SSID:upd
Connected,7C:B5:40:4F:B2:CD

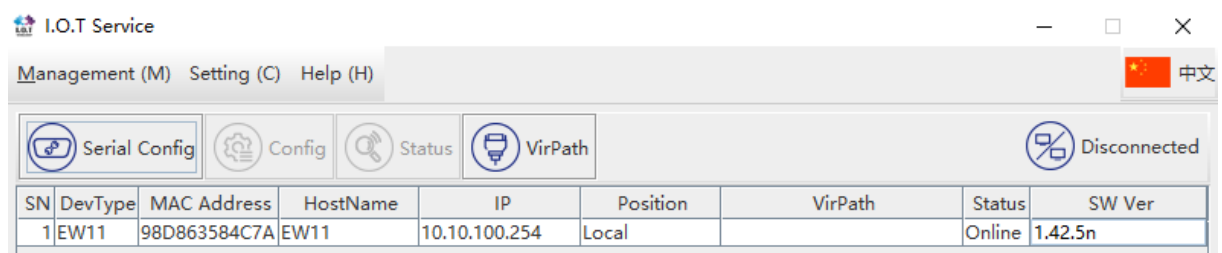
EPORT>

```

Step 2: Set PC IP to DHCP or static IP with (10.10.100.XXX, subnet:255.255.2550.0, gateway:10.10.100.254), PC connect to product AP as following picture.



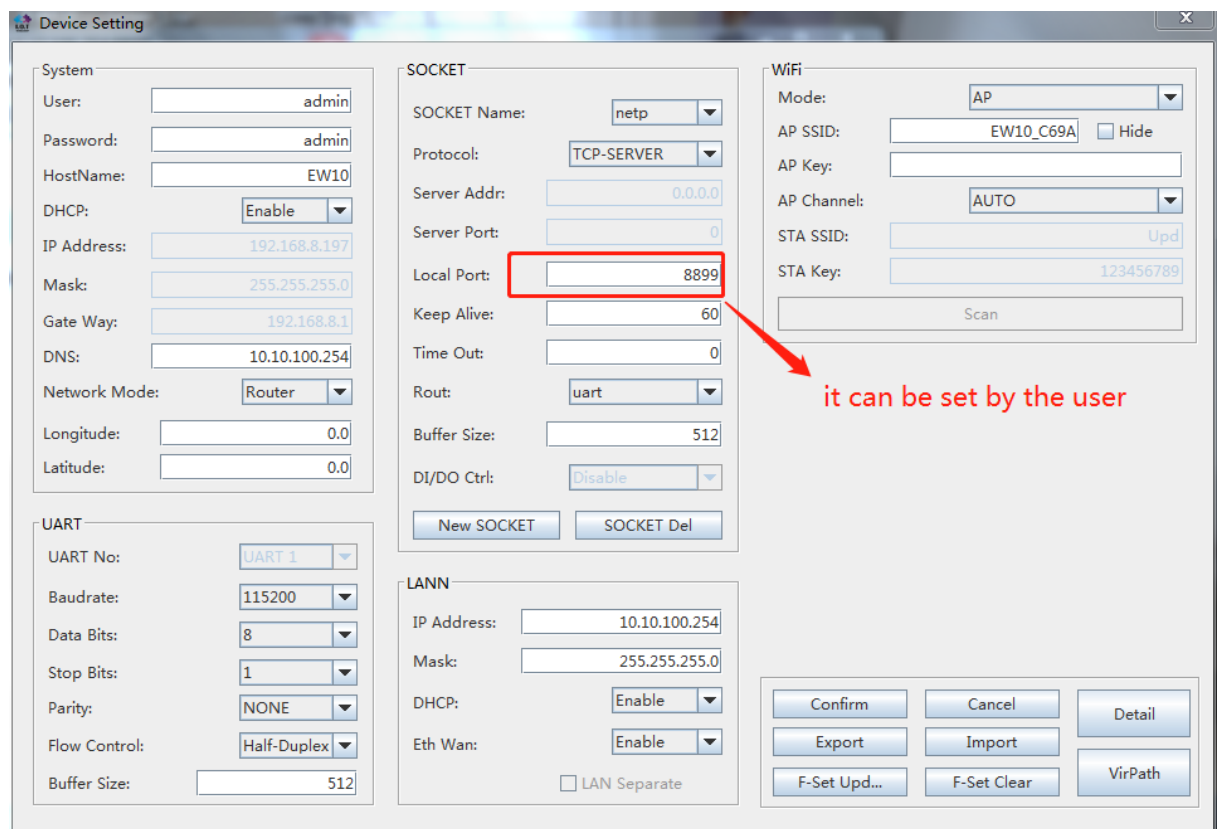
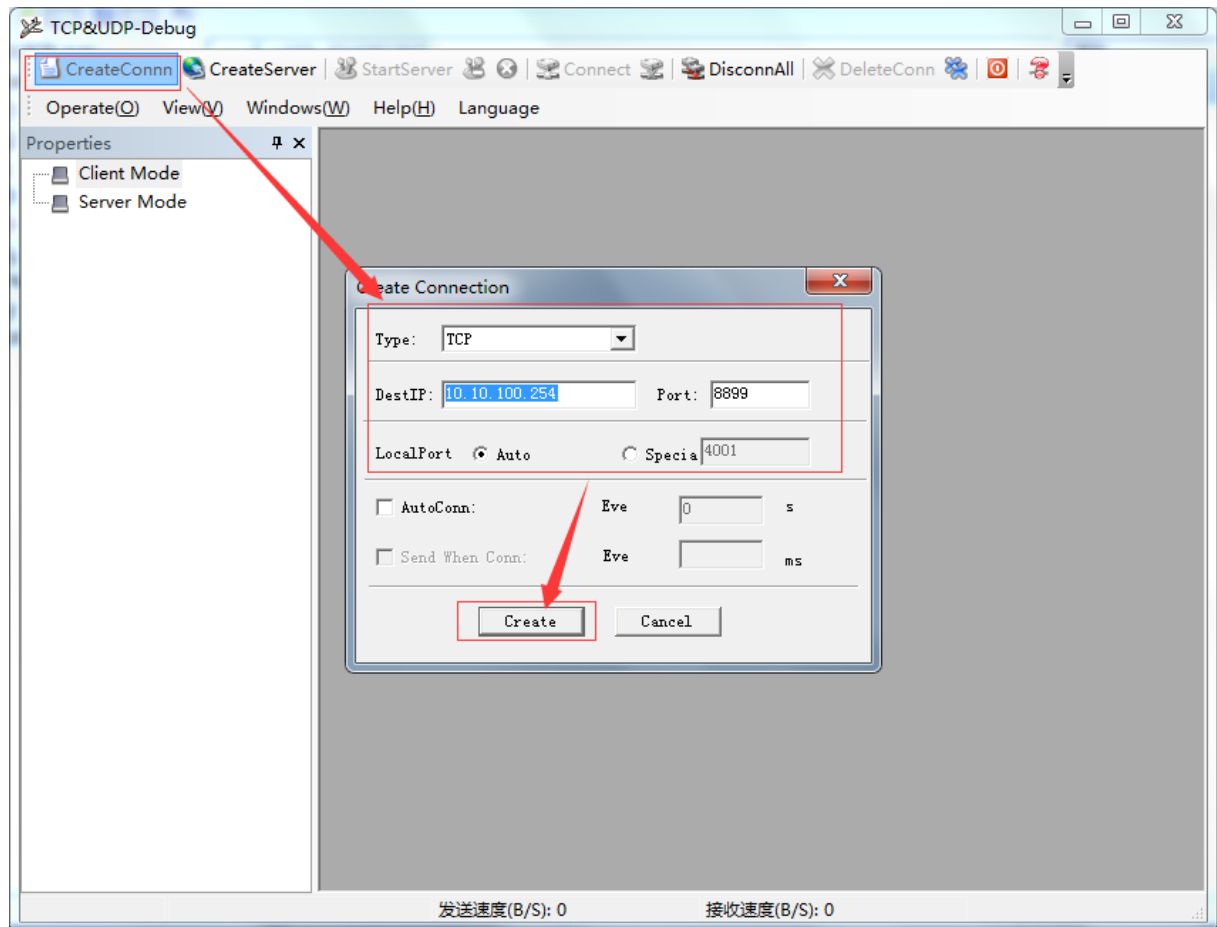
Step 3: Open IOTService and find the device. The device will allocate IP address to the STA connected. STA device IP address will be like 10.10.100.XXX.



5.2. TCP Server Test in AP Mode

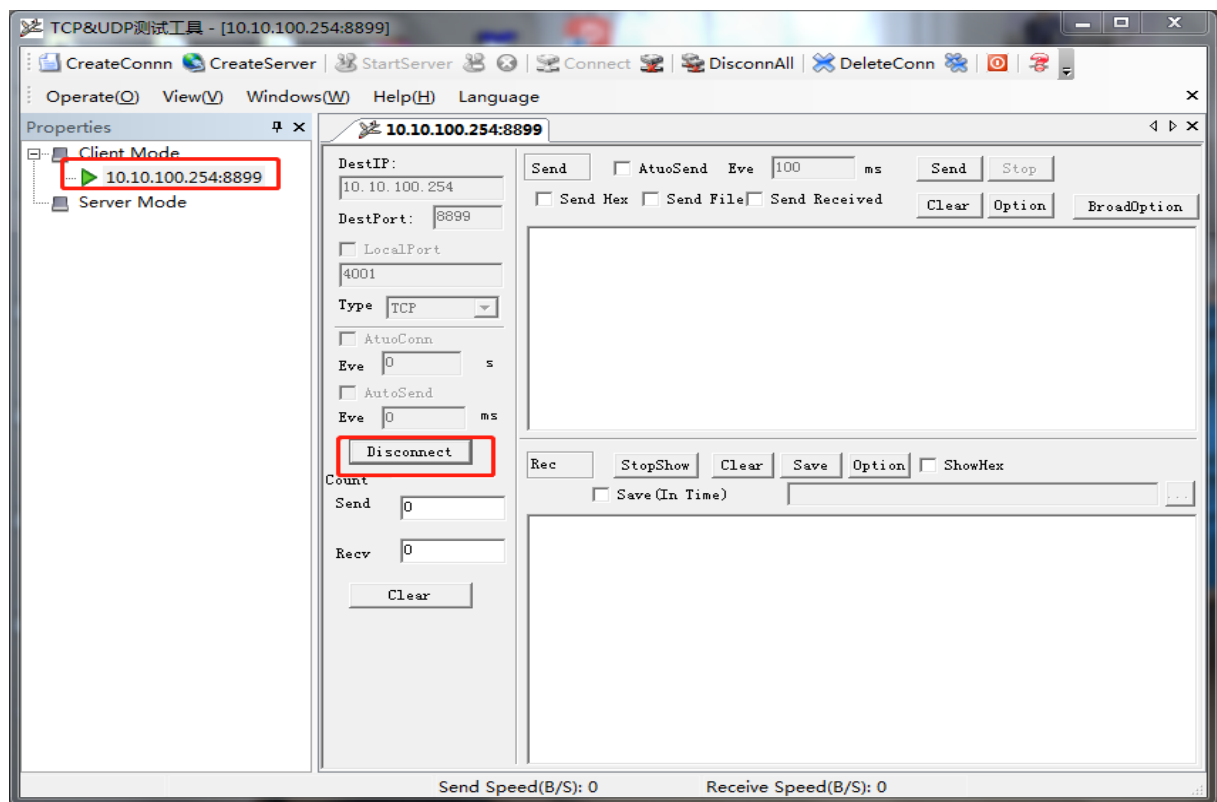
Step 1: Open TCP&UDP test tool and generate TCP connection as following steps. Device has already created a TCP Server (port 8899) for use. TCP&UDP test tool can be downloaded from our website:

- DestIP: IP address of device which can be found by IOTService.
- Port: Port of TCP Server which can be found by IOTService or set by users own.

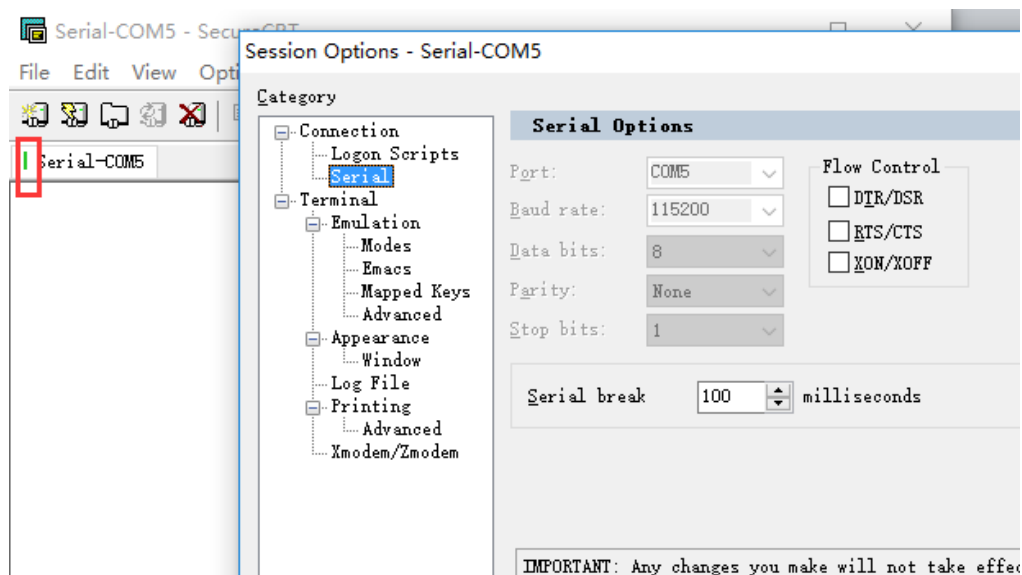


Step 2: Click Connection to generate TCP connection

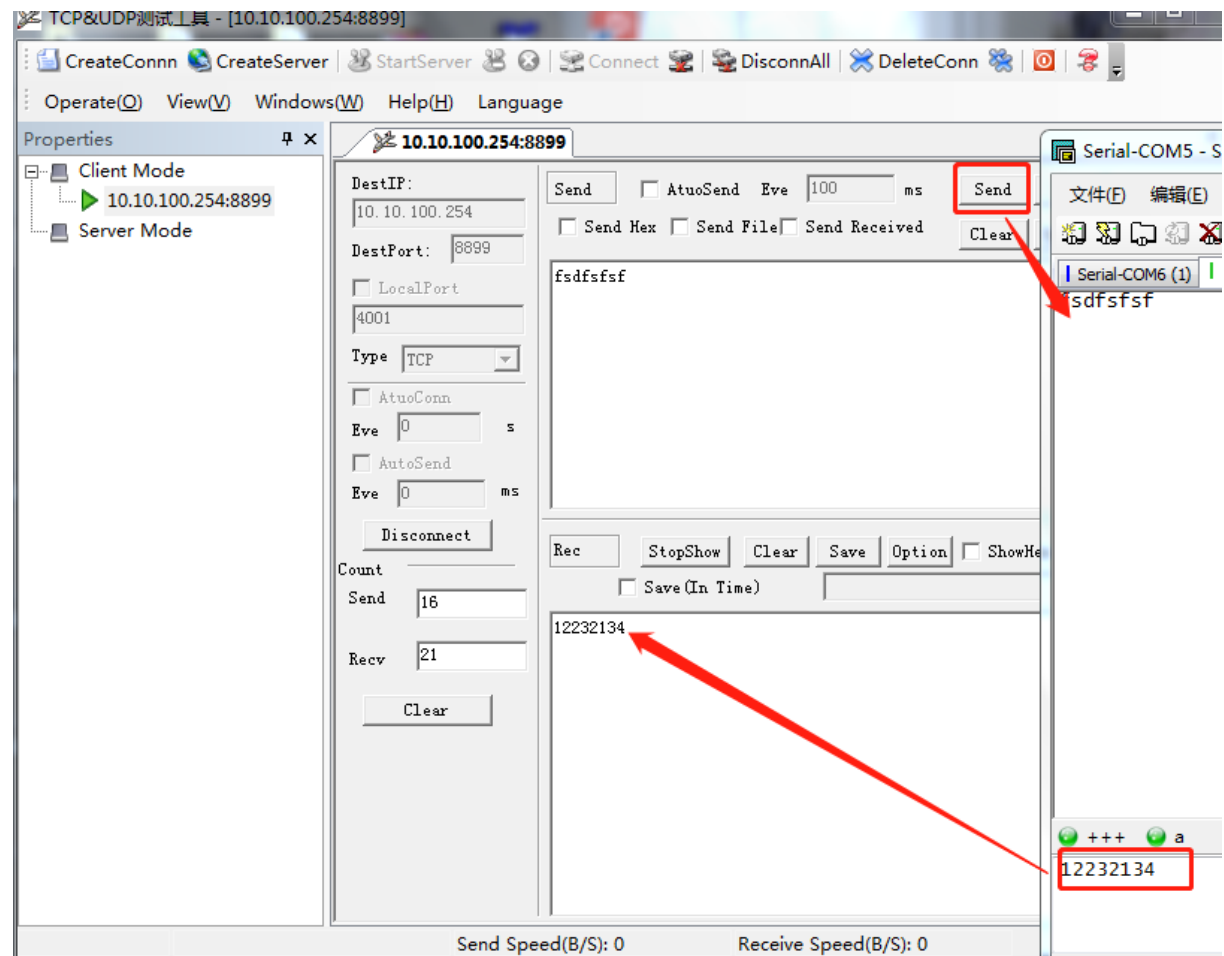
- After successful connection, the left turns to be green arrow, yellow if fails.



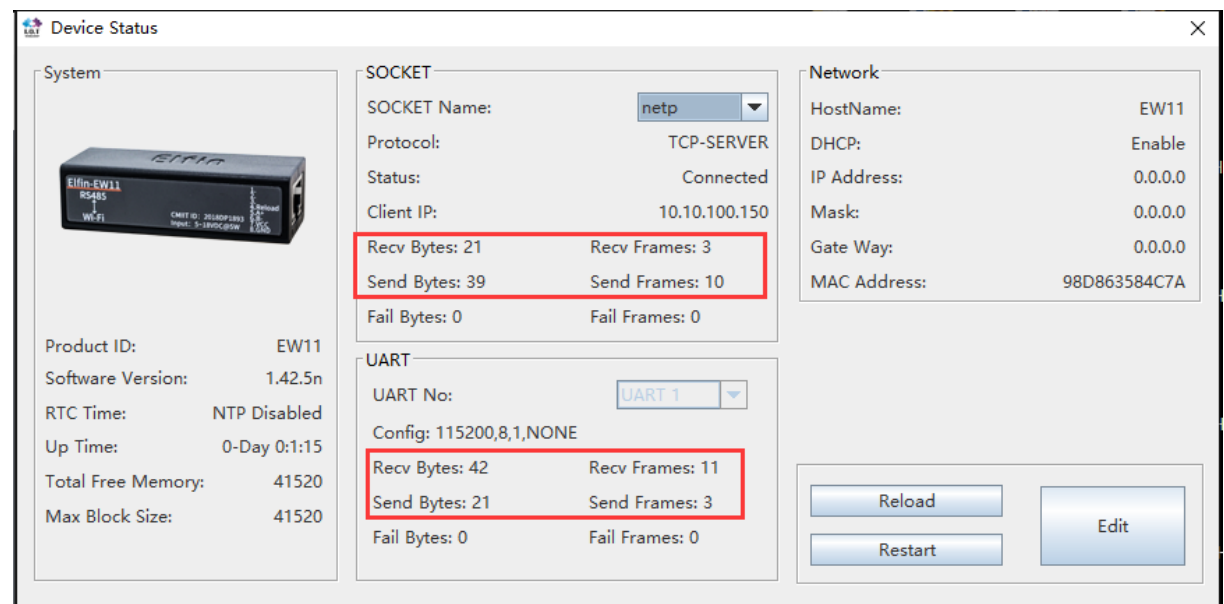
Step 3: Open serial tool according to following parameters (115200 baud rates as default)



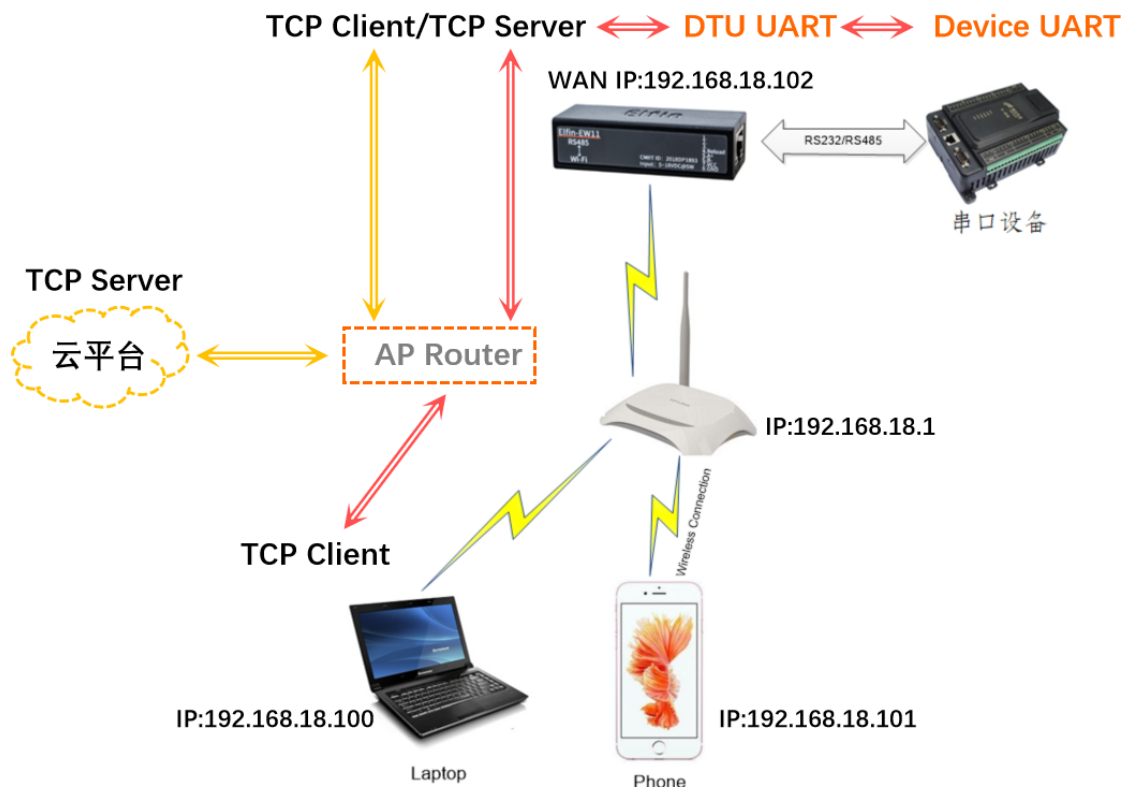
Step 4: Data transmission between TCP and UART is as following.



Step 4: Data count in following status.

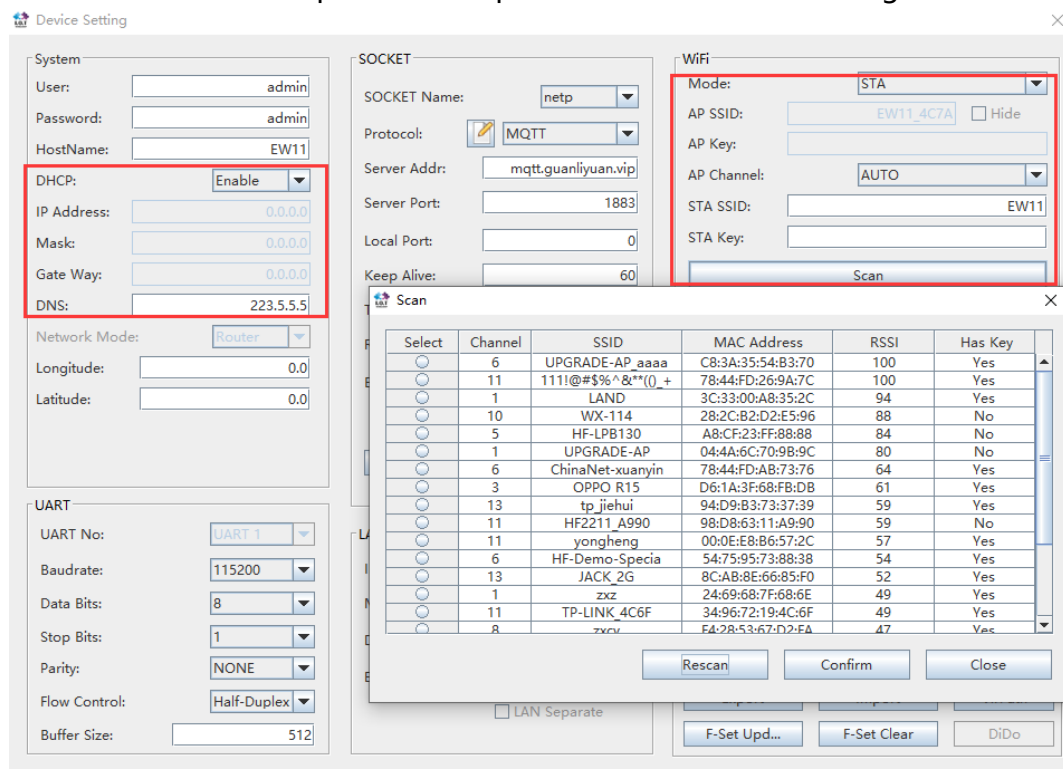


5.3. STA Wireless Networking



Elfin-EW1X is AP mode by default. If need to work in STA mode connecting to router. There are following ways. Recommend to set to STA mode only ,if AP is not used in mass application ,for test stage, may set to APSTA for convenience

- PC Wi-Fi connect to product AP, open IOTService tools to config.



Reboot after setting.

Device Setting

System

User:

Password:

HostName:

DHCP:

IP Address:

Mask:

Gate Way:

DNS:

Network Mode:

Longitude:

Latitude:

SOCKET

SOCKET Name:

Protocol:

Server Addr:

Server Port:

Local Port:

Keep Alive:

Time Out:

Rout:

Buffer Size:

WiFi

Mode:

AP SSID: ☐ Hide

AP Key:

AP Channel:

STA SSID:

STA Key:

UART

UART No:

Baudrate:

Data Bits:

Stop Bits:

Parity:

Flow Control:

Buffer Size:

LAN

IP Address:

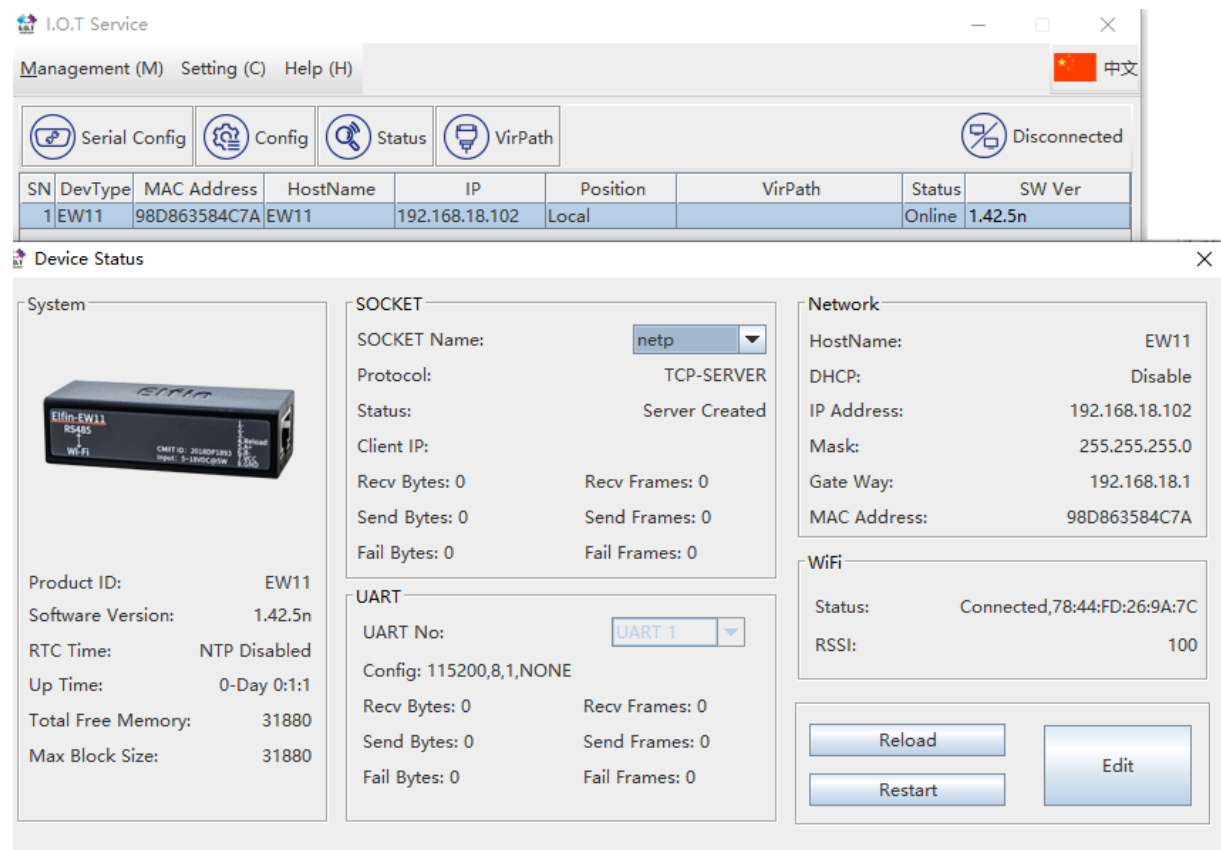
Mask:

DHCP:

Eth Wan:

☐ LAN Separate

PC also connect to the same router, and it will find the device with products STA WAN IP.



- PC Wi-Fi connect to product AP, login with 10.10.100.254, user and password input admin/admin, open its webpage to config.

WAN Settings

DHCP	☐ OFF
WAN IP	192.168.18.102
Subnet Mask	255.255.255.0
Gateway	192.168.18.1
DNS	223.5.5.5

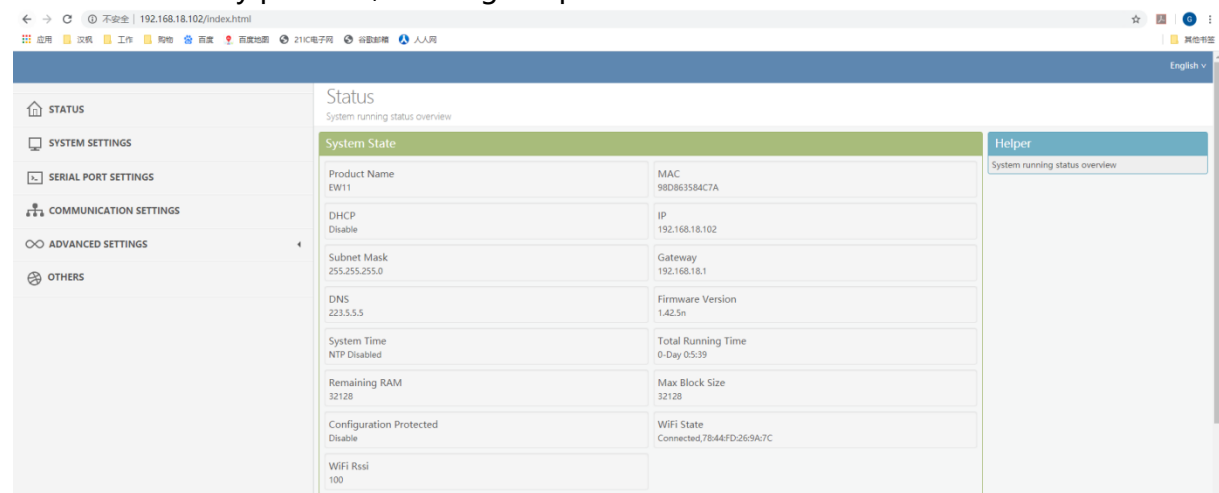
LAN Settings

LAN IP	10.10.100.254
Mask	255.255.255.0
DHCP Server	☐ ON

WiFi Settings

WiFi Mode	AP+STA
AP SSID	EW_XXXX
AP KEY	AP KEY
AP Channel	AUTO
STA SSID	Soneter1
STA KEY	Soneter1

After reboot, PC connect to router, and login with the product static IP to confirm connection. If any problem, reconfig the product with its AP.

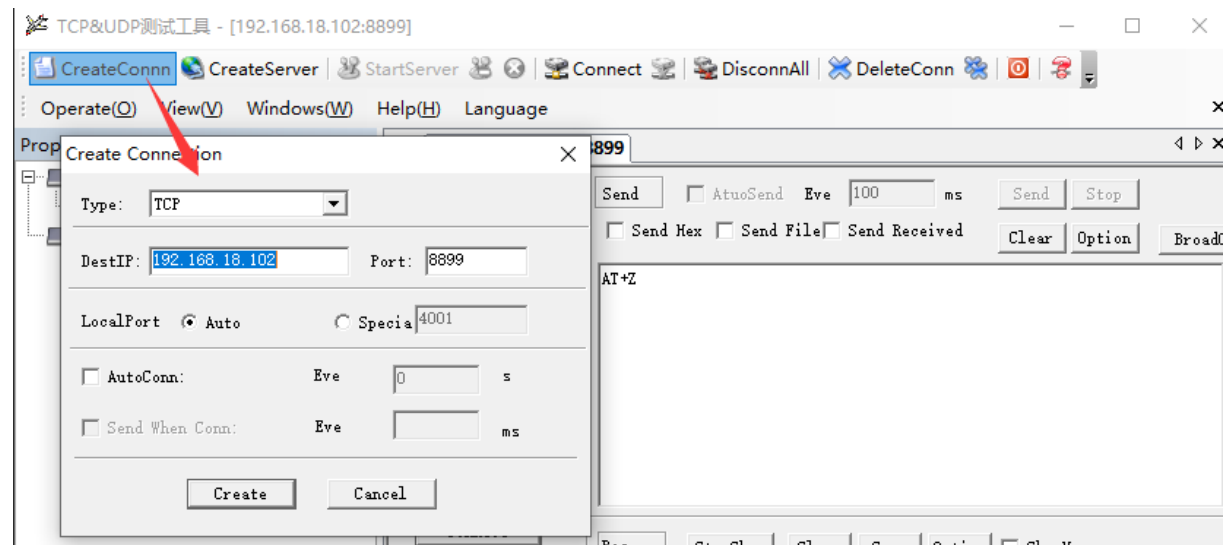


5.4. TCP Server Test in STA Mode

Open TCP&UDP test tool and generate TCP connection as following steps. Device has already created a TCP Server(port 8899) for use. TCP&UDP test tool can be downloaded from the website:

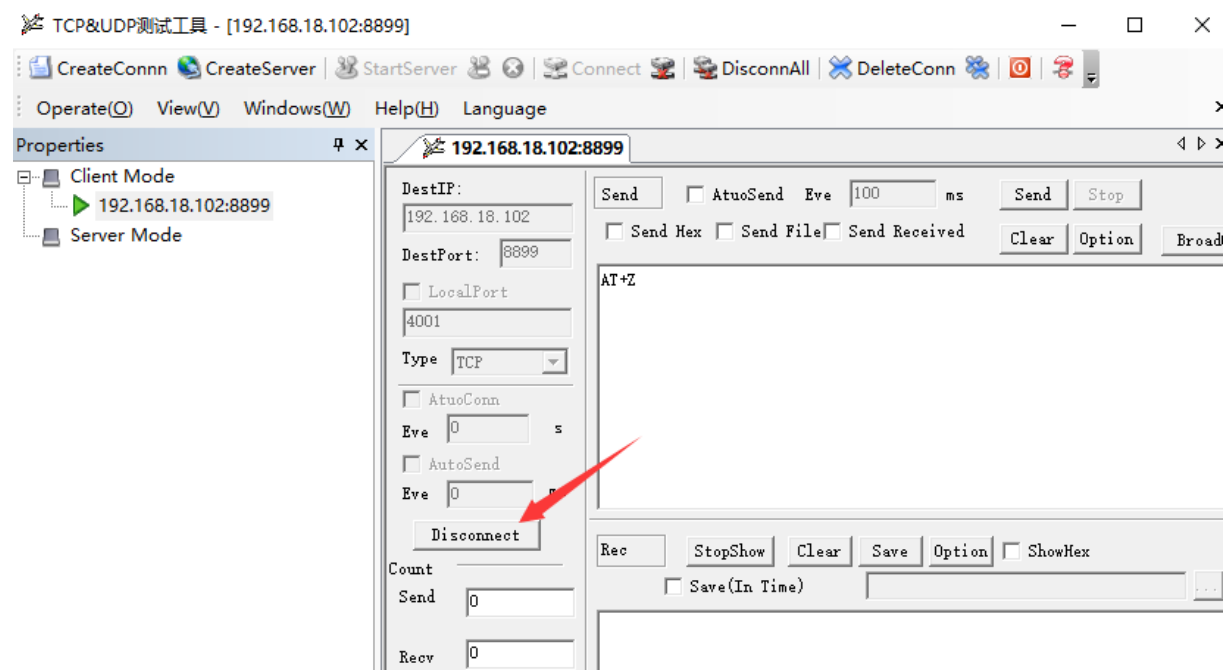
- DestIP: Destination IP address.

➤ Port: Destination Port.

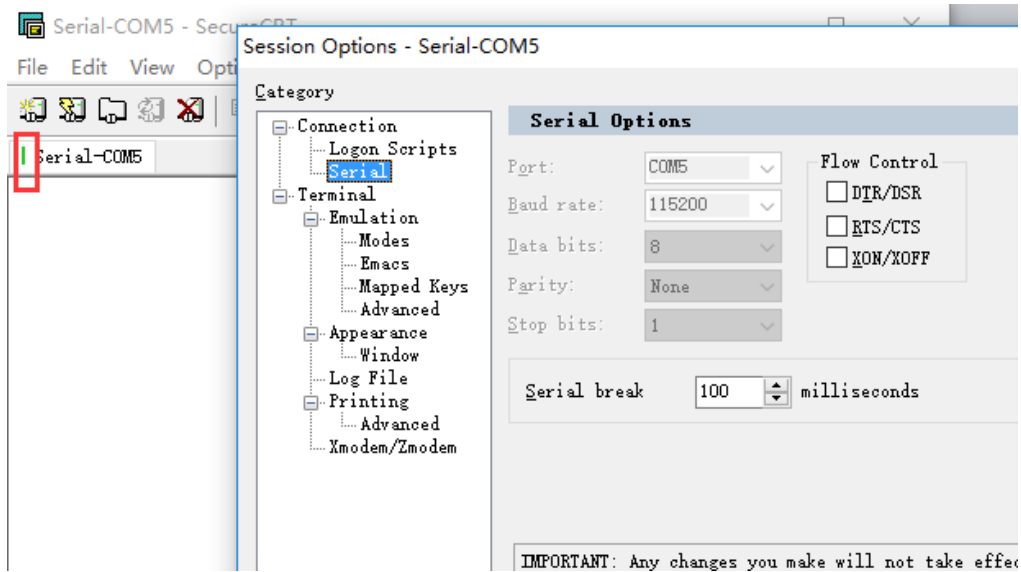


Click Connect to create TCP connection

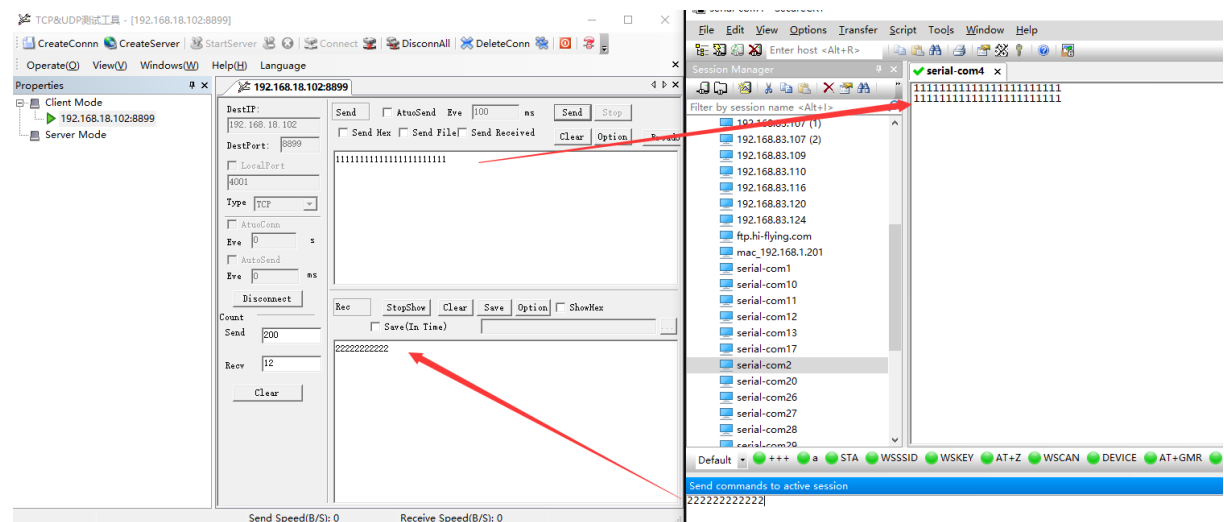
➤ After successful connection, the left turns to green arrow.



Open serial tool according to following parameters (115200 baud rate as default)



Data transmission between TCP and serial port.



5.5. STA TCP Client Test

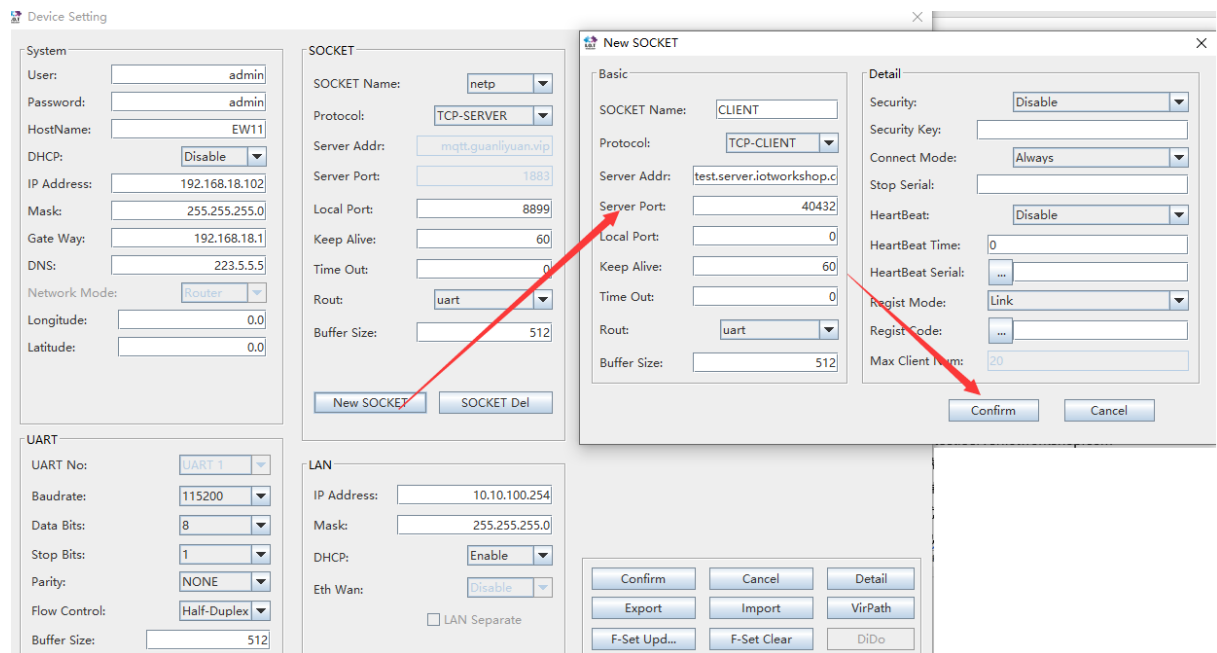
Products support 3 channel sockets, default netp socket works as TCP Server, here create another socket working as TCP client.

HF test server: test.server.iotworkshop.com

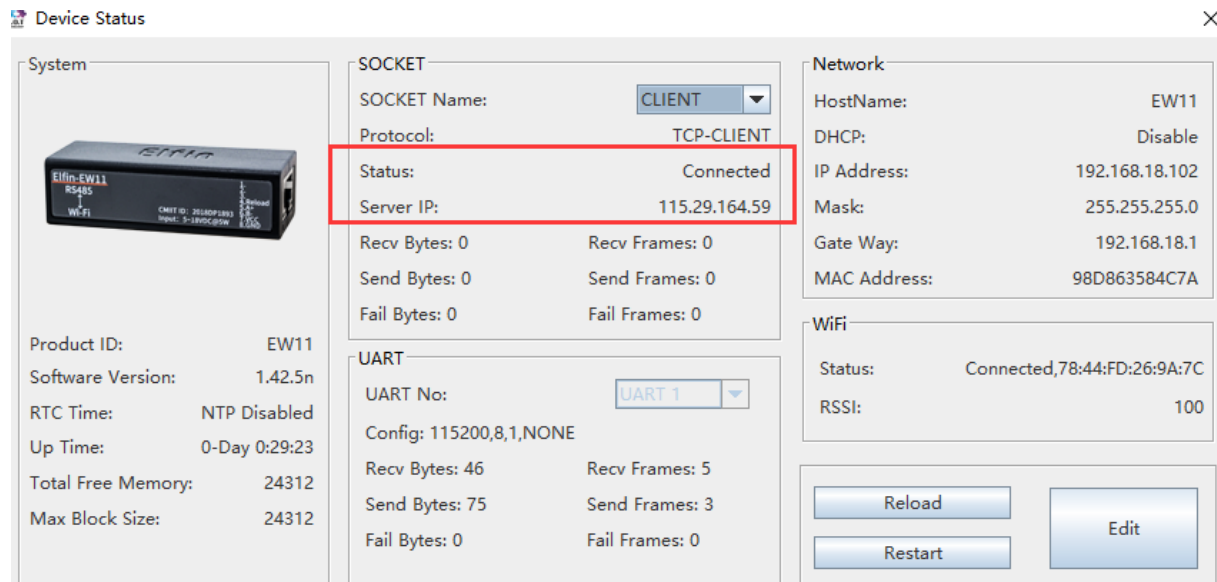
TCP Port: 40432

UDP Port: 40431

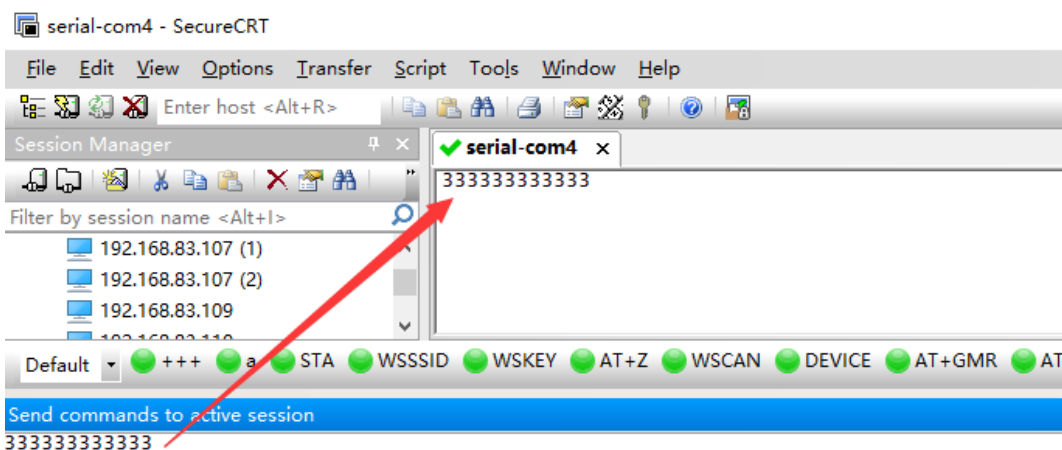
Our test server will send back the received data.

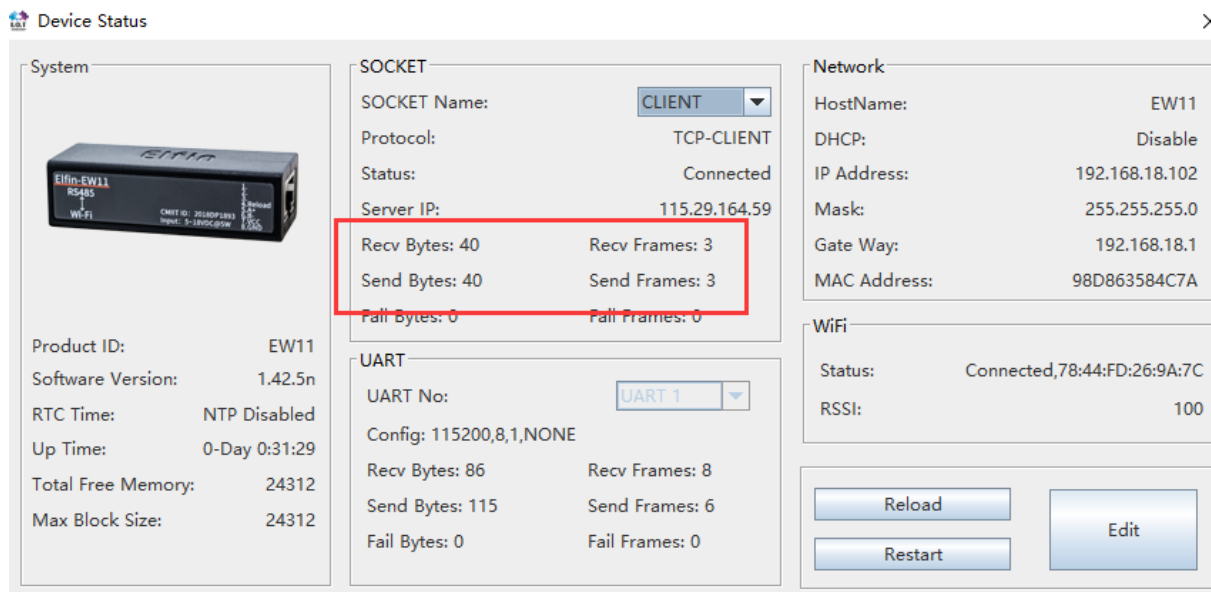


It shows connected.



UART received "333333333333" and send to server, the server sent back the packet, so the UART tools shows the received data.





Device Status

System

Product ID: EW11
Software Version: 1.42.5n
RTC Time: NTP Disabled
Up Time: 0-Day 0:31:29
Total Free Memory: 24312
Max Block Size: 24312

SOCKET

SOCKET Name: CLIENT
Protocol: TCP-CLIENT
Status: Connected
Server IP: 115.29.164.59

Recv Bytes: 40 Recv Frames: 3
Send Bytes: 40 Send Frames: 3
Fail Bytes: 0 Fail Frames: 0

UART

UART No: UART 1
Config: 115200,8,1,NONE

Recv Bytes: 86 Recv Frames: 8
Send Bytes: 115 Send Frames: 6
Fail Bytes: 0 Fail Frames: 0

Network

HostName: EW11
DHCP: Disable
IP Address: 192.168.18.102
Mask: 255.255.255.0
Gate Way: 192.168.18.1
MAC Address: 98D863584C7A

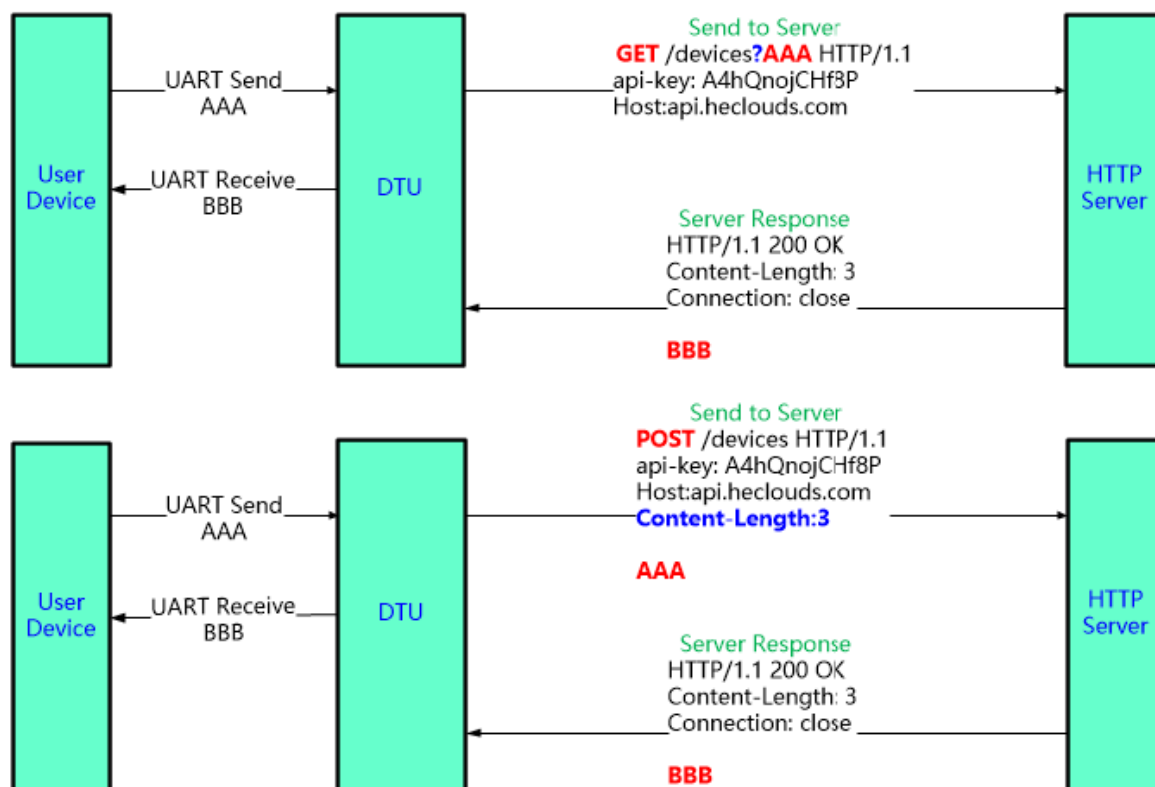
WiFi

Status: Connected,78:44:FD:26:9A:7C
RSSI: 100

Reload Edit
Restart

5.6. STA HTTP Client Test

HTTP data flow is as following.



● HTTP GET Test:

Test server address: 115.29.164.59

Test server port: 8432

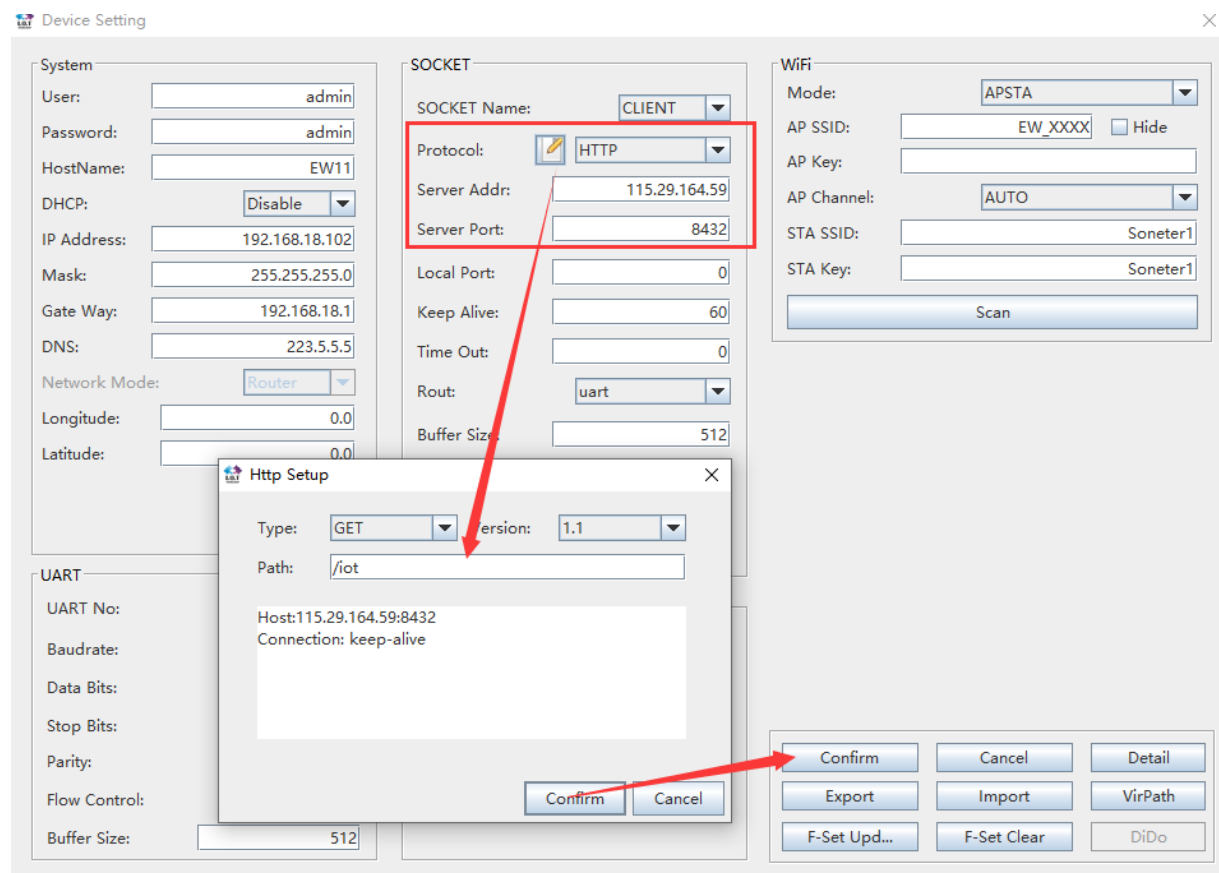
Path: /iot

Header:

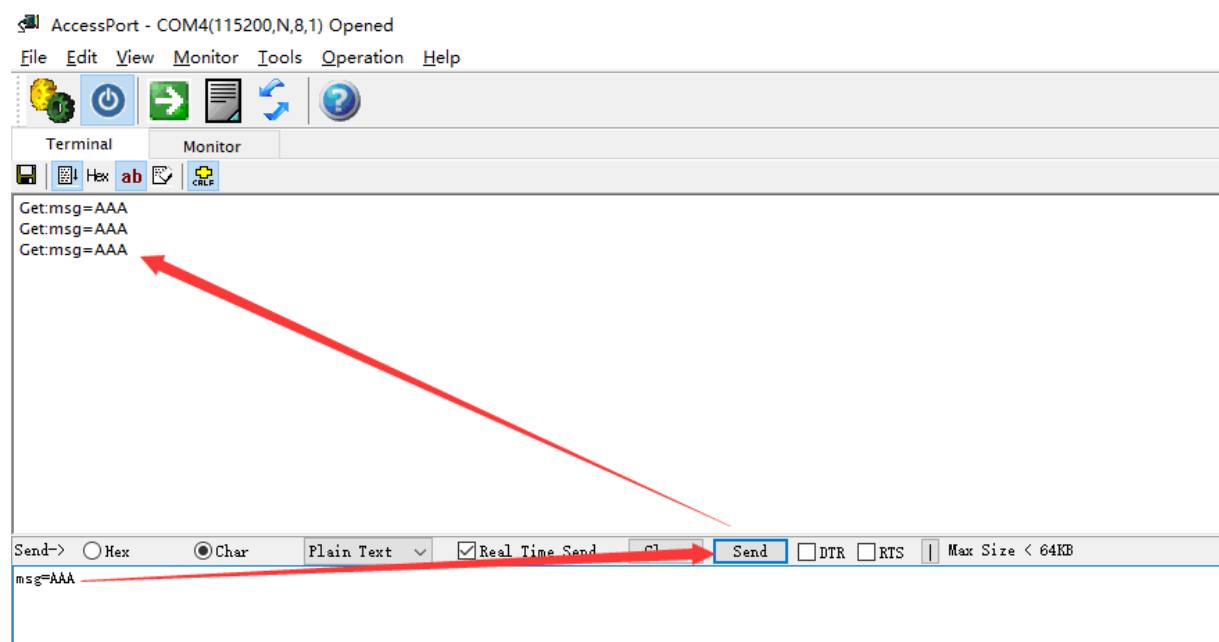
Host:115.29.164.59:8432

Connection: keep-alive

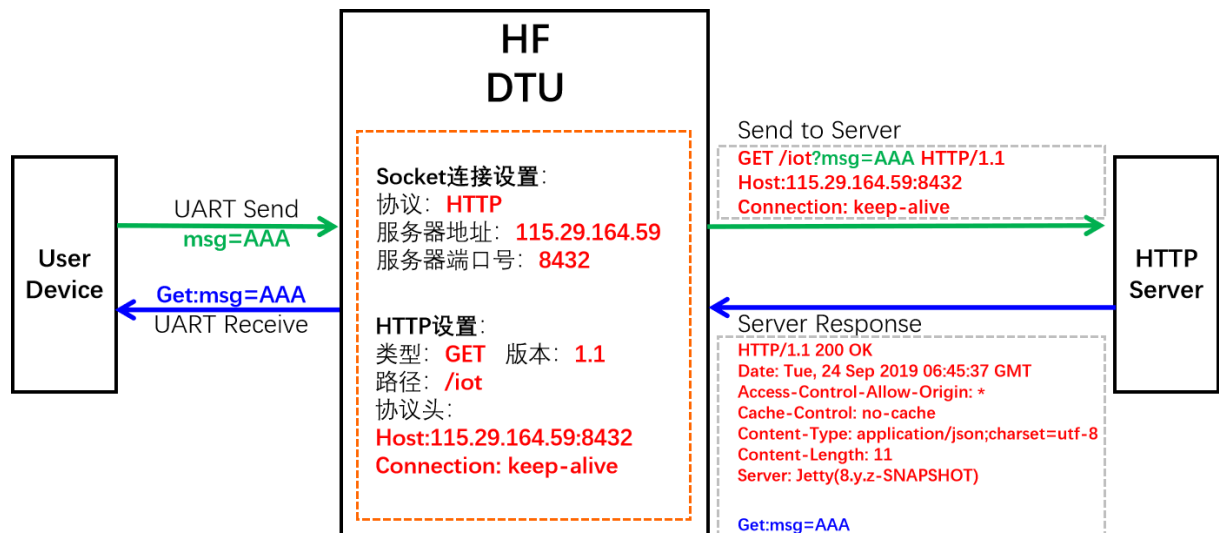
Products setting as following.



Server response back and products UART output packet. It filter the HTTP response header and only output the header.



Data flow is as following.



● HTTP POST Test:

Test server address: 115.29.164.59

Test server port: 8432

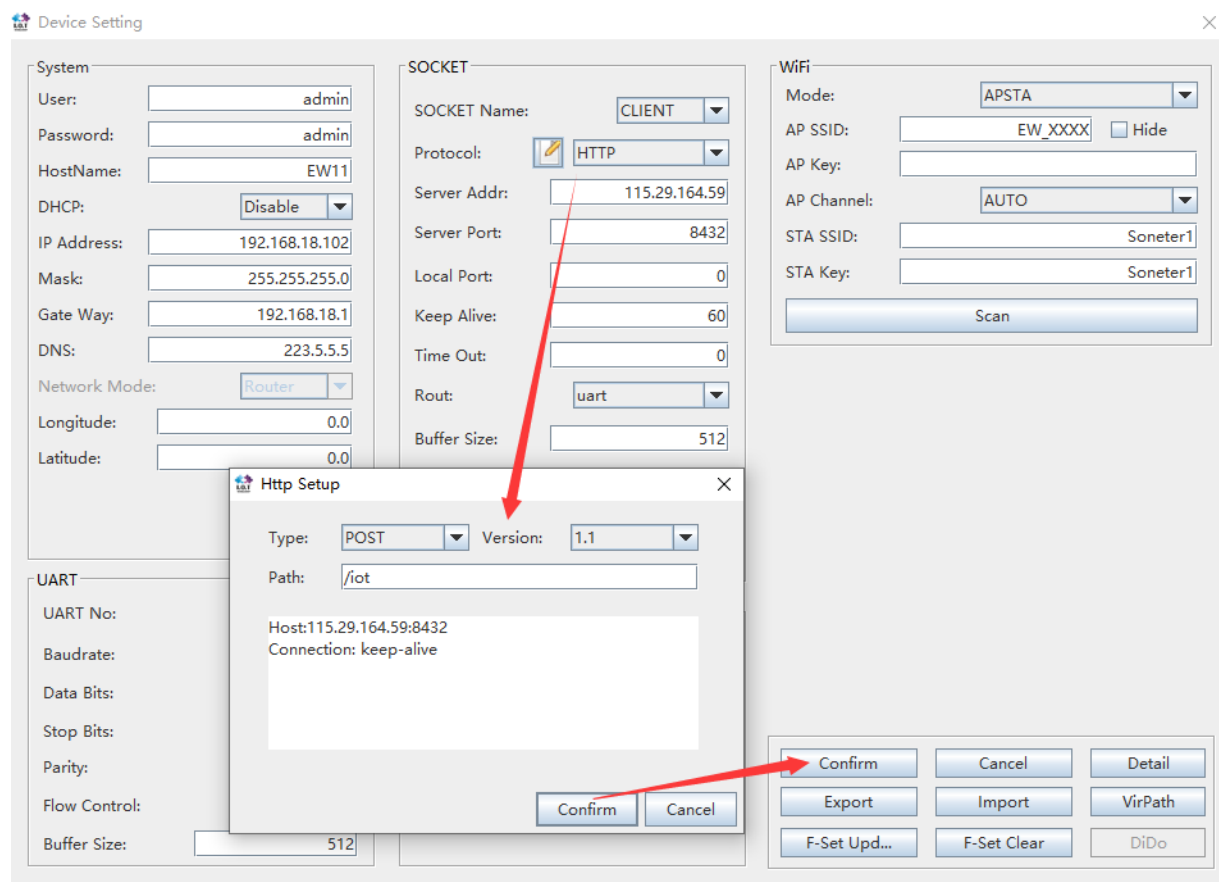
Path: /iot

Header:

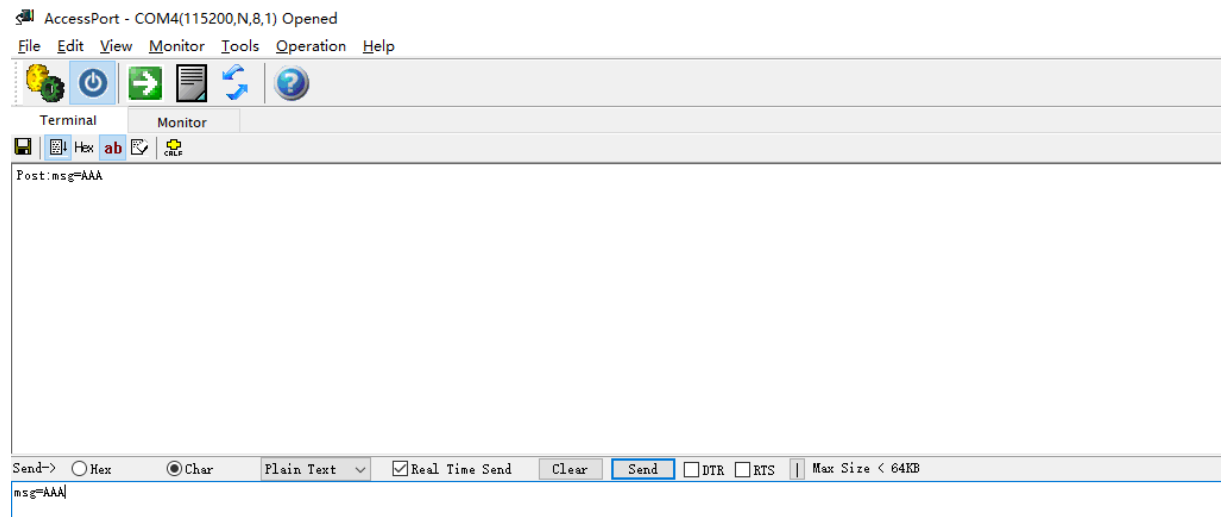
Host:115.29.164.59:8432

Connection: keep-alive

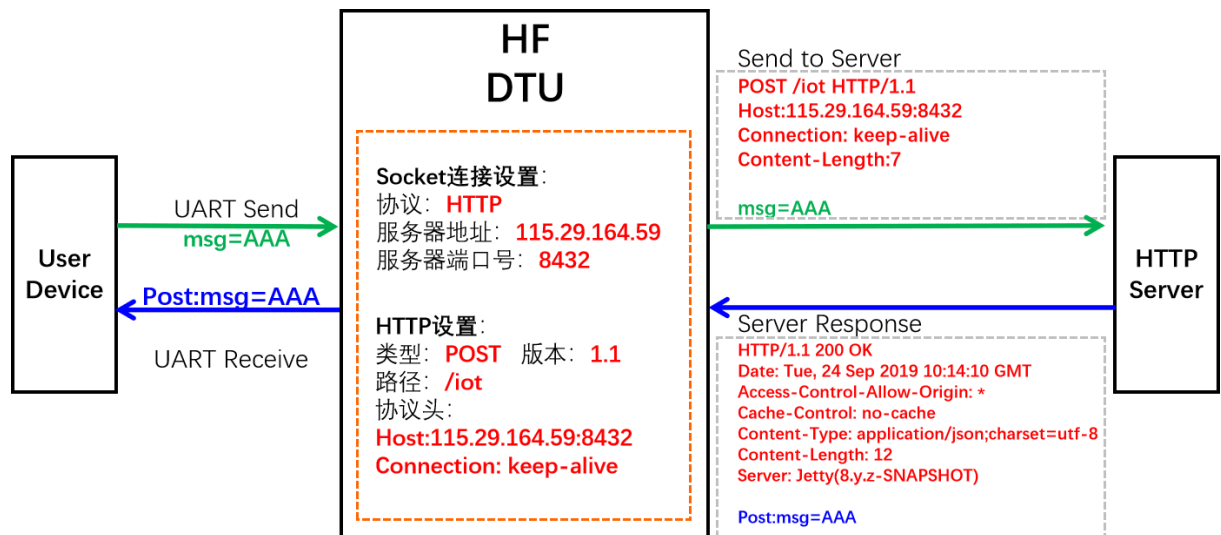
Products setting as following.



Server response back and products UART output packet. It filter the HTTP response header and only output the header.



Data flow is as following.

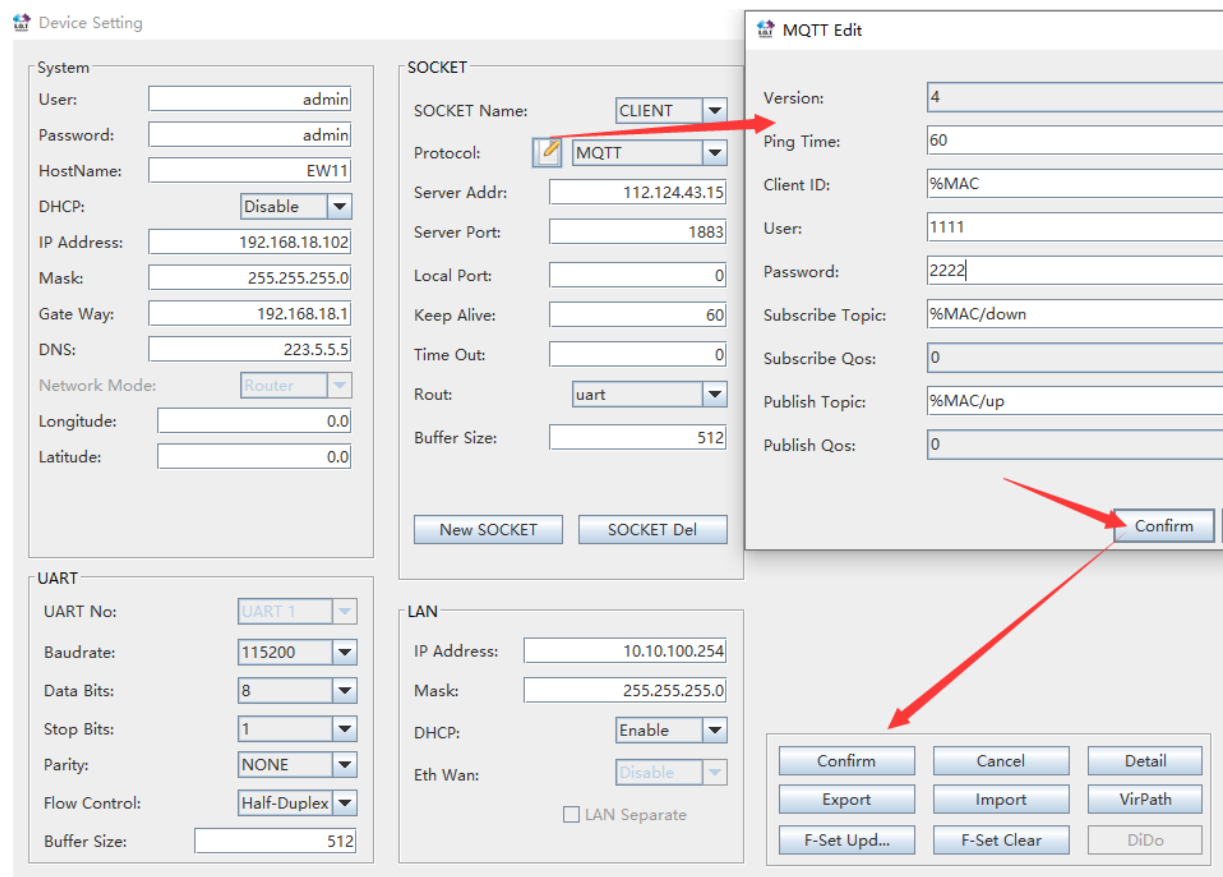


5.7. STA MQTT Client Test

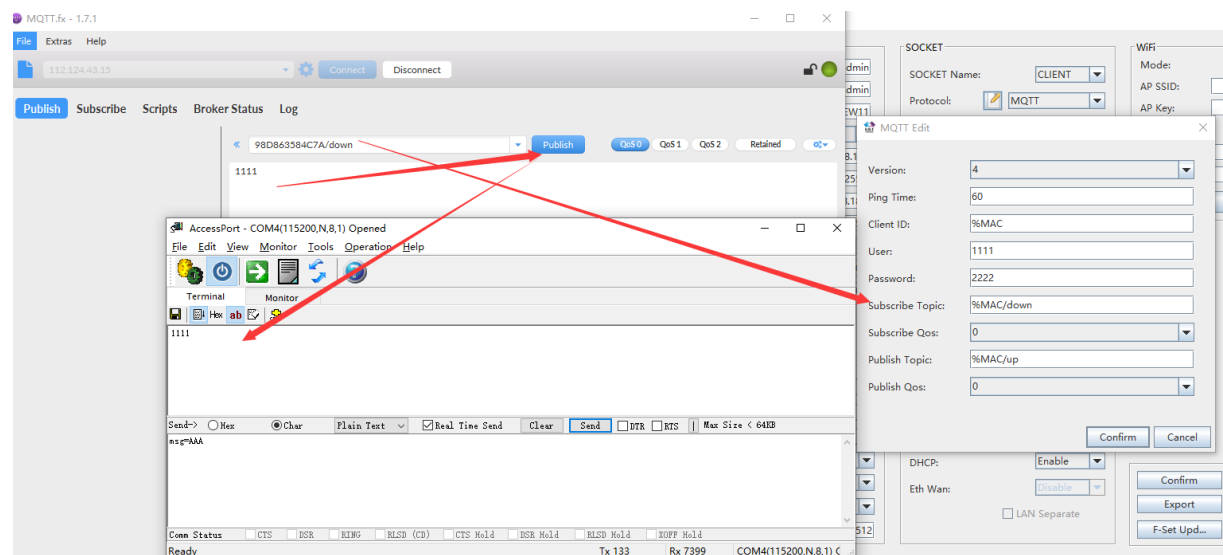
Test server address: 112.124.43.15

Test server port: 1883

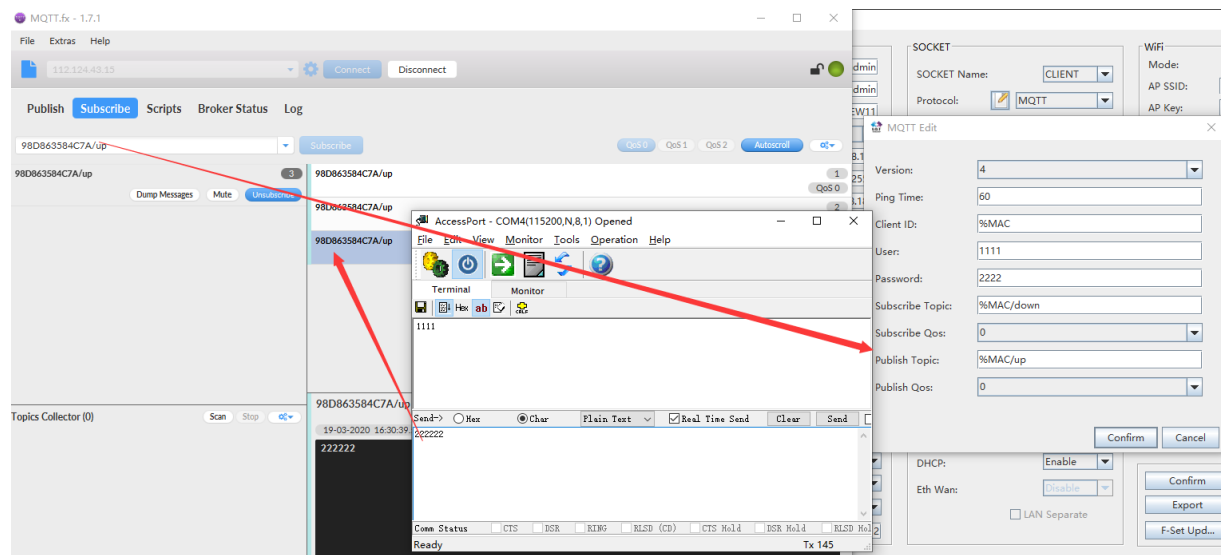
Device setting is as following.



Use MQTT.fx tools to test, set publish topic to the device Subscribe Topic and the publish data will be sent to device UART.



Set tools subscribe topic to the device publish topic and the send UART data, the MQTT.fx tools got the packet.



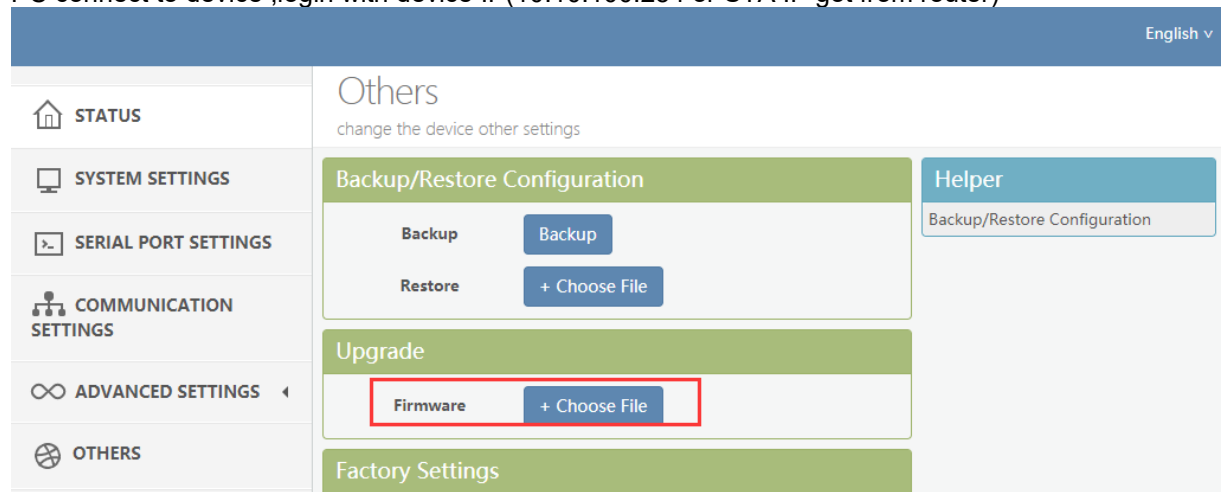
5.8. Firmware Upgrade

Firmware download address:

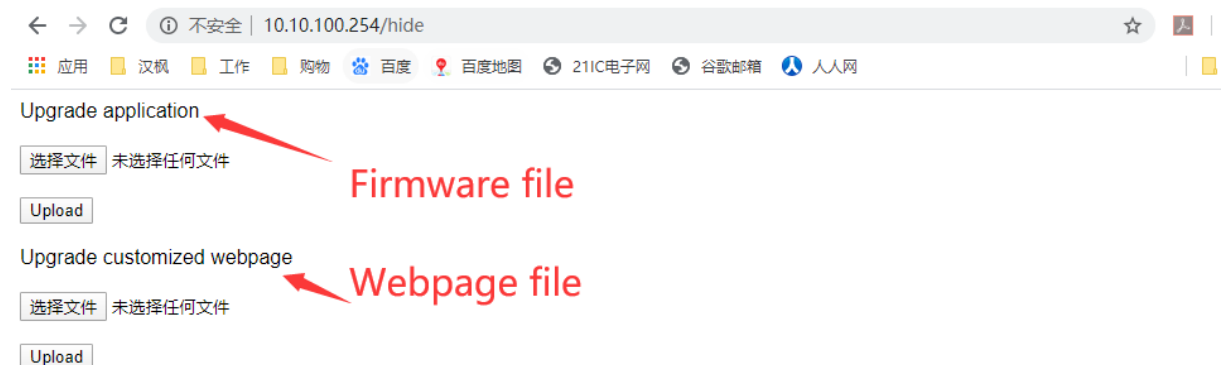
http://www.hi-flying.com/index.php?route=download/category&path=1_3

● Webpage Local Upgrade:

PC connect to device ,login with device IP(10.10.100.254 or STA IP got from router)



There is another internal webpage for upgrade the firmware and webpage (external config webpage as above, this source code is open at our website for customer to change). Login with IP/hide.



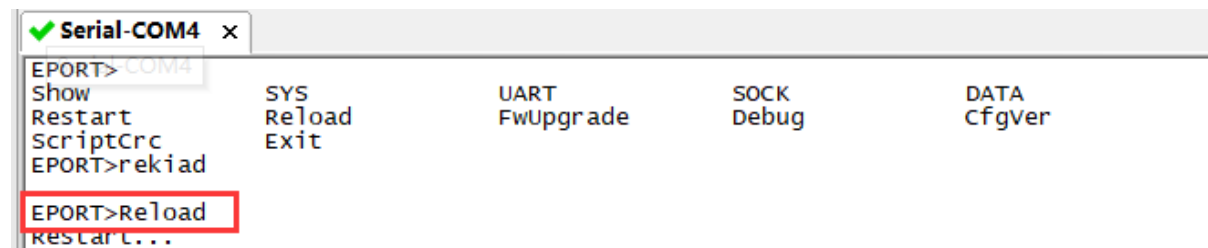
● IOTService Remote Upgrade:

Refer to IOTService doc for remote upgrade.

5.9. Restore to Factory Setting

If device works in STA mode and not yet connect to router AP, do the following operation to recover and reconfig.

- **UART Cli command to reload**



- **nReload button to restore to factory setting.**

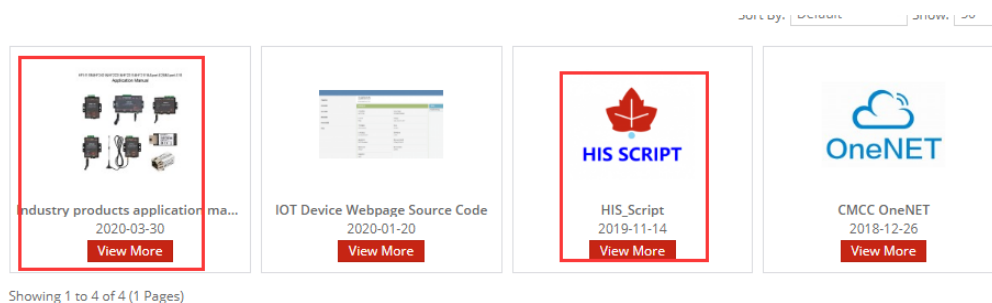
nReload Pin (Button) function:

1. After module is powered up, short press this button (0.2< "Low" <1.5s) and loose to make the module go into "SmartLink" config mode, waiting for APP to set password and other information. (See Appendix to download SmartLink APP).
2. After module is powered up, long press this button ("Low" > 4s) and loose to make the module recover to factory setting.

5.10. More Application Case

See following for more.

http://www.hi-flying.com/index.php?route=download/category&path=1_7



APPENDIX A:REFERENCES

A.1. IOTService Test Tools

IOTService Configure Software:

<http://www.hi-flying.com/download-center-1/applications-1/download-item-iot-service>

A.2. SmartBLElink 软件

<http://www.hi-flying.com/download-center-1/applications-1/download-item-smartblelink>