User Manual and Test Guide

HF2211

Test Guide

目录

Version List：

2017-07-28 First Draft

1. SERIAL SERVER CONNECTION

1. 1 HF2211 Connection

When LAN port of router is connected to HF2211 by Ethernet cable, HF2211 is working under AP mode as default. At the same time, device can deirectly connect to LAN port of router(device can acquire dynamic IP from upper router or adopt defualt Auto-IP function in the state of PC directly connecting with PC by cable). If following device is working under STA mode, then the Ethernet cable will automatically change to LAN port. When HF2211 sucessfully connected with terminal device, light Link will turn to green. If any data sent to the terminal through HF2211, light Active will blink.

WAN: Acquire IP from upper device which connects to operator, the router only has one WAN port.

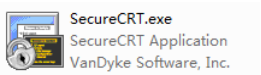
LAN: Router normally has four LAN ports which are used to assign IP to lower devices.

2. SERIAL SETTING

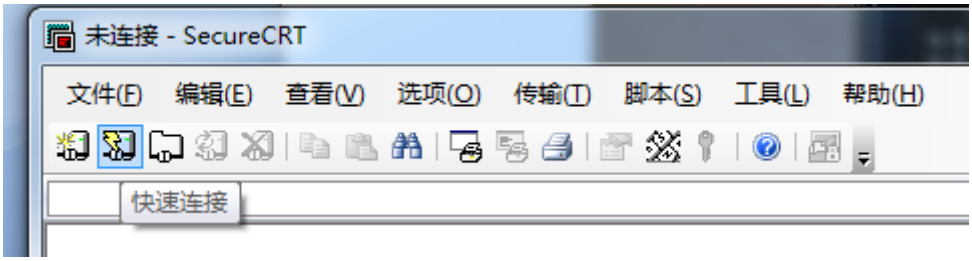
2.1. Serial Tool SecureCRT

Download adddress：

http://gb.hi-flying.com/download_detail_dc/downloadsId=22.html

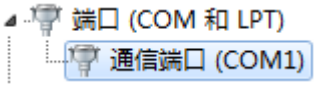
Decompress file and find executable program, 

, then open. Click quick start button  to create connection.



2.2. Configure Serial Parameter

Protocol：Serial

Port: Actual connection port(search by "My PC"->"Device Manager"->"Port(COM and LPT)". As figure: 

)

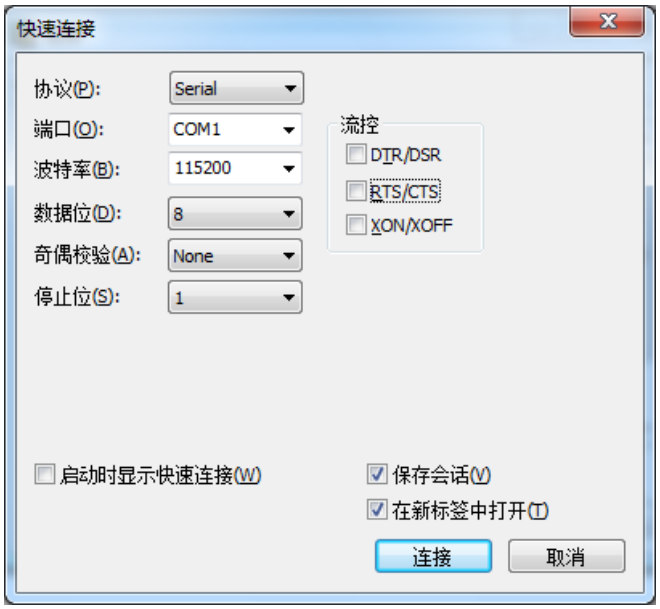
Baud Rate：115200

Data Bits：8

Parity Check Bit：None

Stop Bit：1

Flow Control： None (Please tick off "√" before RTS/CTS)



Notes: HF2211 the default serial data is as above and user can modify device working parameter by IOTService.

3. HF2211 NETWORK CREATION

3.1. TCP/IP Principle and Test Purpose

Principle: Network use physical data link to bulid connection among each isolated station or host to combine data link. As a result, it achieves resource share and communication. It is the most important communication protocol in the process of network commmnication. HF2211 adopt TCP/IP protocol which contain TCP and UDP etc. IP address and port number are two important parameter during generating connection. First, server should make sure IP address and port number. Then client binds the same IP address and port with server to generate connection successfully.

Test purpose:

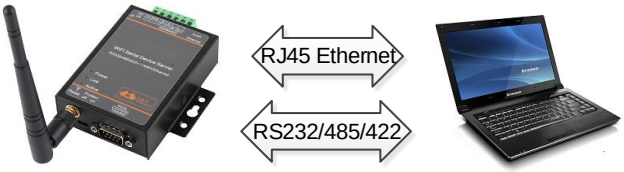
1. PC connects to HF2211 by serial cable. Open SecureCRT to verify if serial port can send and receive data normally.

2. HF2211 can connect to PC through the network when it works under STA mode. And it can also connect to PC in AP mode. After open tcpudpdbg tool, PC is recognized as client connected with serial side. Above two softwares can be used to verify data flow between HF2211 and PC.

In following test, "TCP Server Test" -HF2211 as server and PC as client." TCP Client Local Test" -HF2211 as client and PC as server.

3.2. Auto-IP Networking

Device can directly connect to PC by Ethernet cable and module will use its default IP for PC directly visit or data transfer communication(approximately 15 seconds until PC use 169.254.XXX.XXX). For example, below module IP: 169.254.173.207(normally fixed IP, if confilct it will change to another IP automatically)



Ethernet IP:169.254.173.207

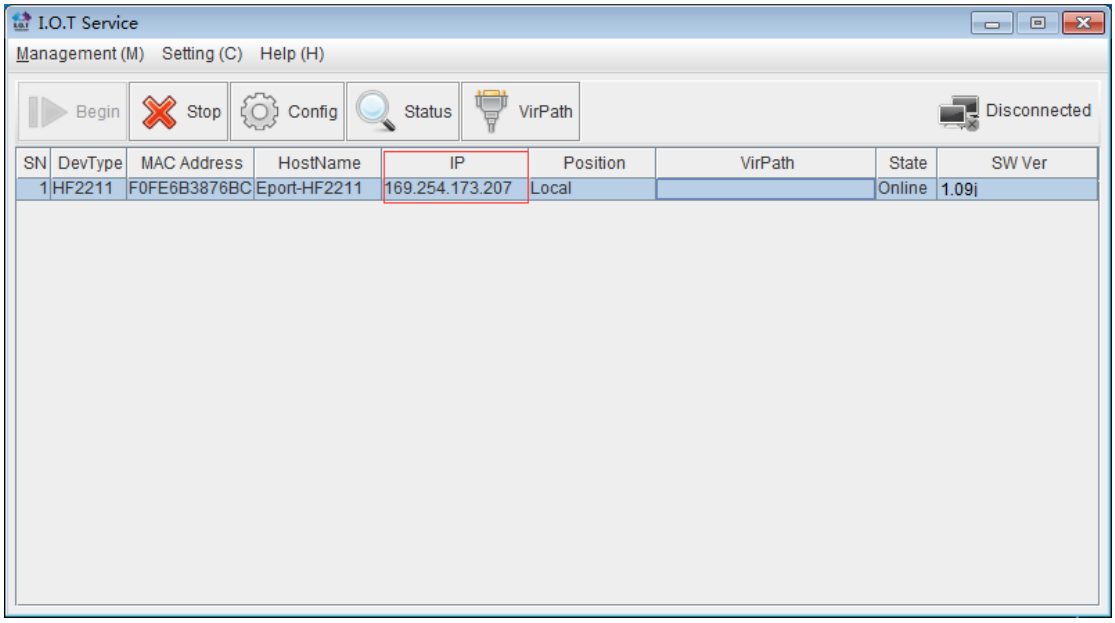
PC1

IP:192.168.1.102

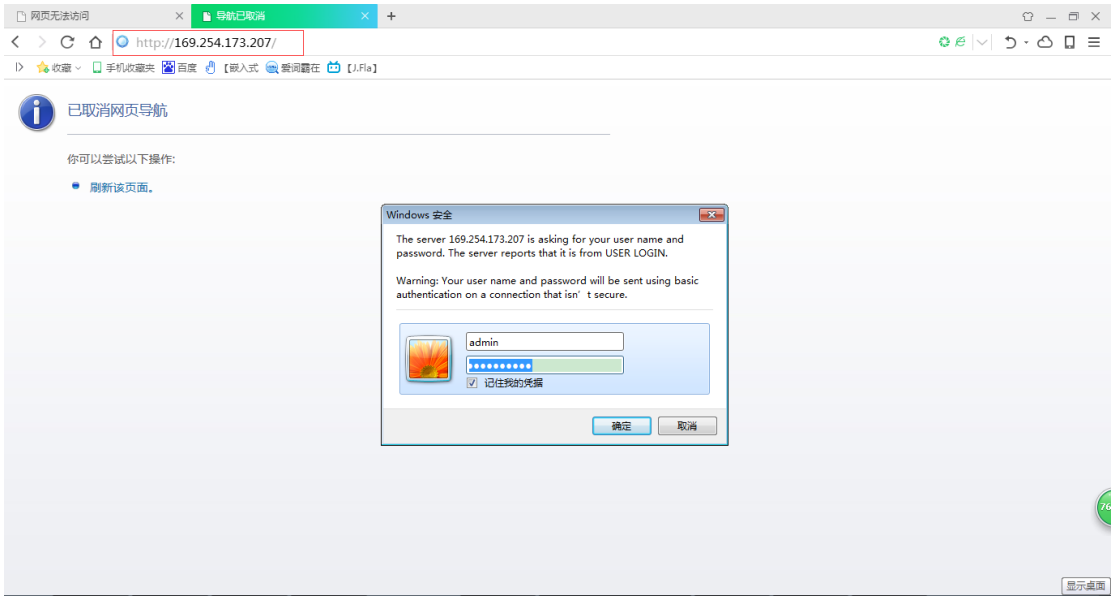
Note:

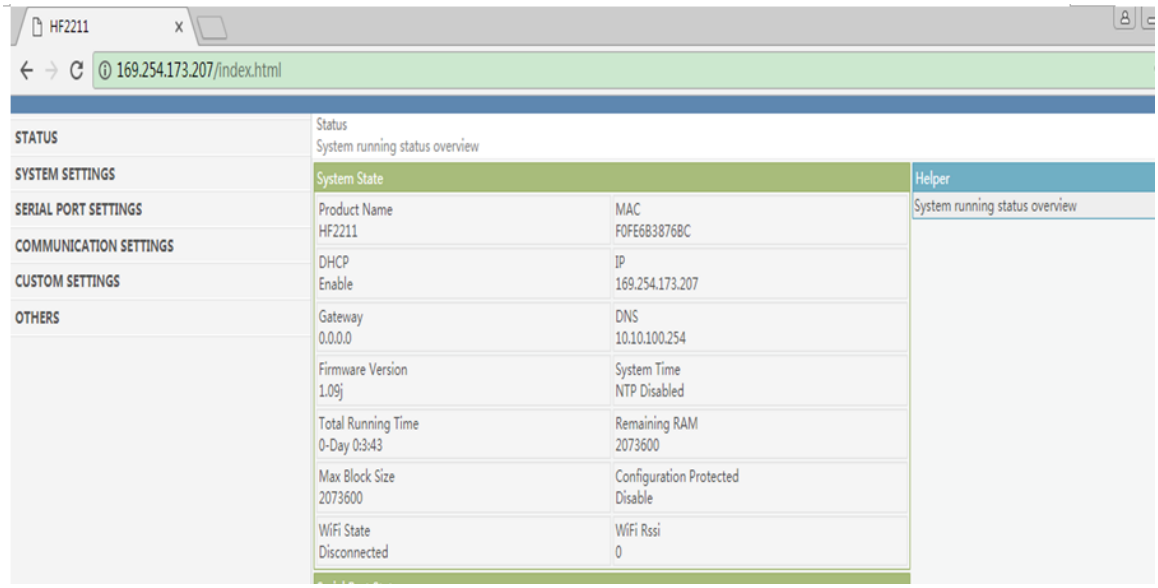
Auto-IP is direct connection application when Ethernet is working under WAN port. Both side adopt default IP. When HF2211 is working under AP mode. If it works under STA or AT+STA mode, Ethernet is LAN port. HF2211 will automatically assign LAN IP to PC(default 10.10.100.XXX).

Step 1: Ethernet cable connects RJ45 ports between device and PC. Open IOTService and it will achieve device information automatically. Figure is as below:



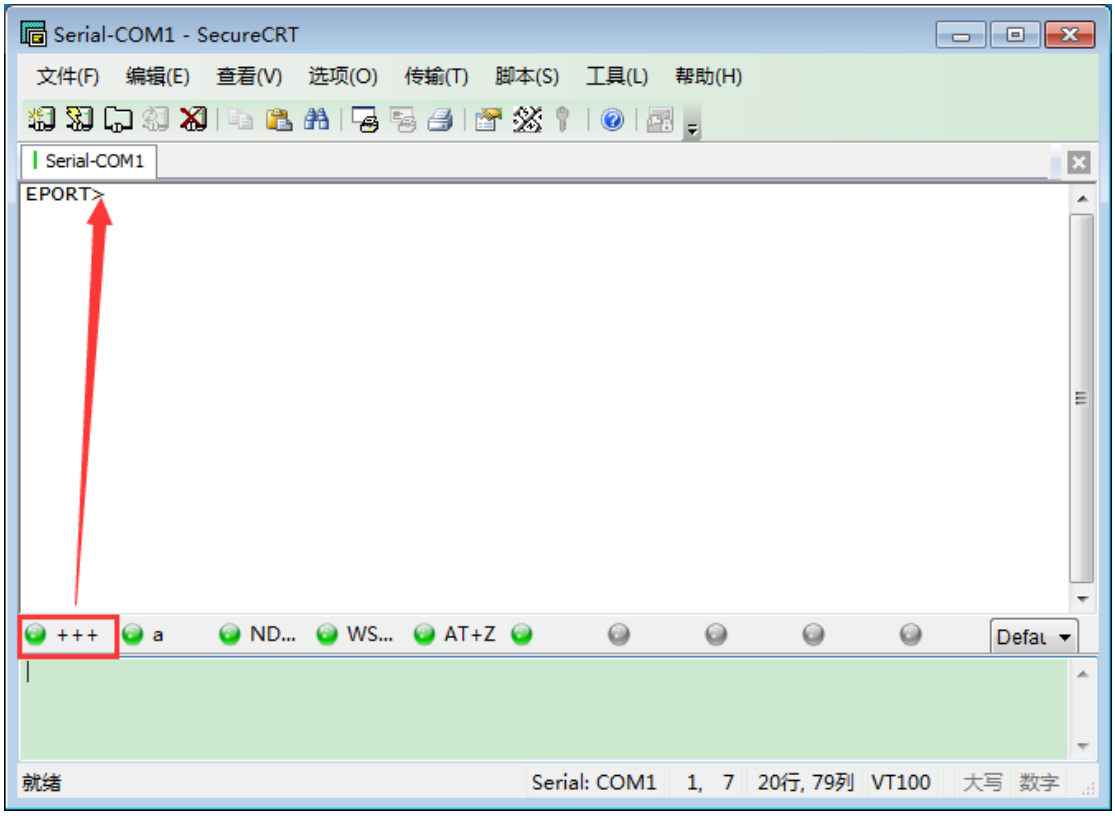
Step 2：According to IP address above, it can be configured parameter by website. Username and password are both admin as default. As below figure:





Step 3：HF2211 can connect PC to simulate serial signal from lower MCU by RS232. The connection method of RS485/422 can refer to charper 2.3 and 2.4 from HF2211 user manual.

Step 4：Open serial configure tool, SecureCRT is recommended(Others is ok but not convenient). Following test is under SecureCRT and serial parameter can refer to Chapter 2.1 and 2.2. The default state is transparent mode when open SecureCRT. If enter into command mode, it needs input three" +" sequently. Afterwards, secreen appear "EPORT>". It can use CLI command to set the state of HF2211 after entering into command mode. Specific operation method can refer to HF2211 user manual.



Functions:

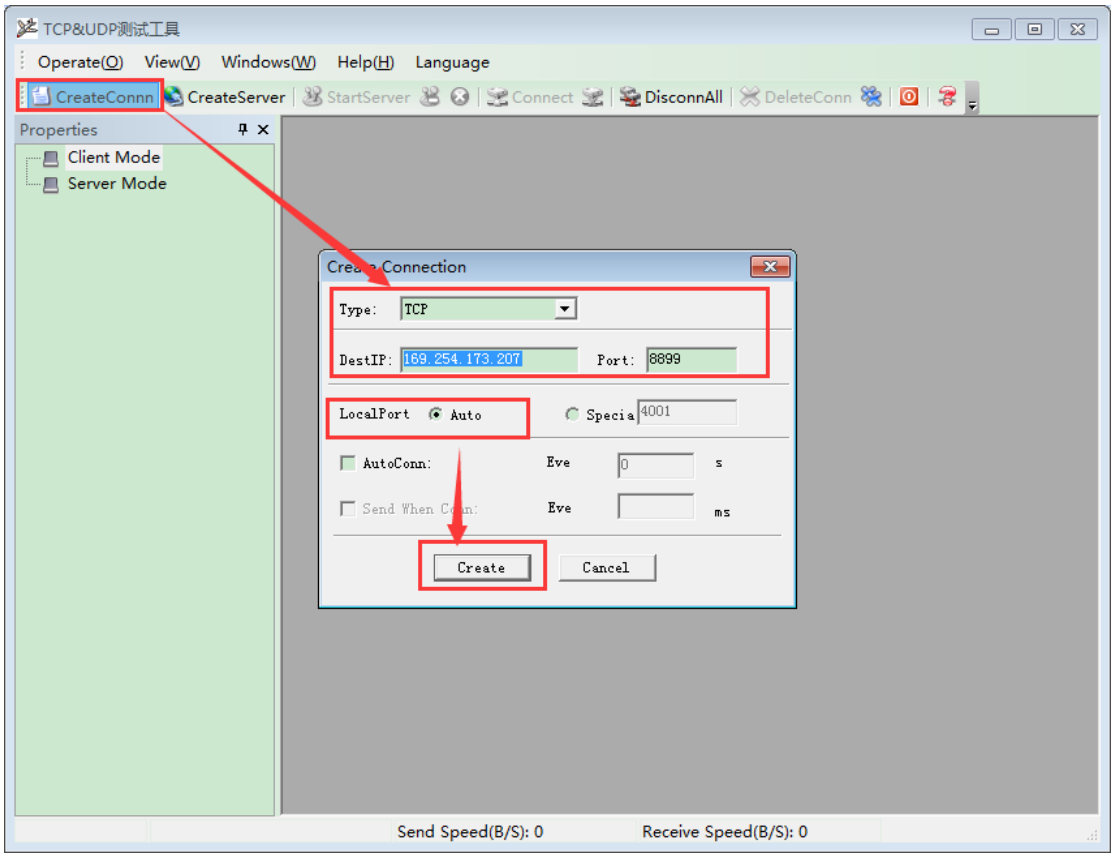
① If there is no routers nearby, Ethernet cable direct applicaiton is used for parameter modification.

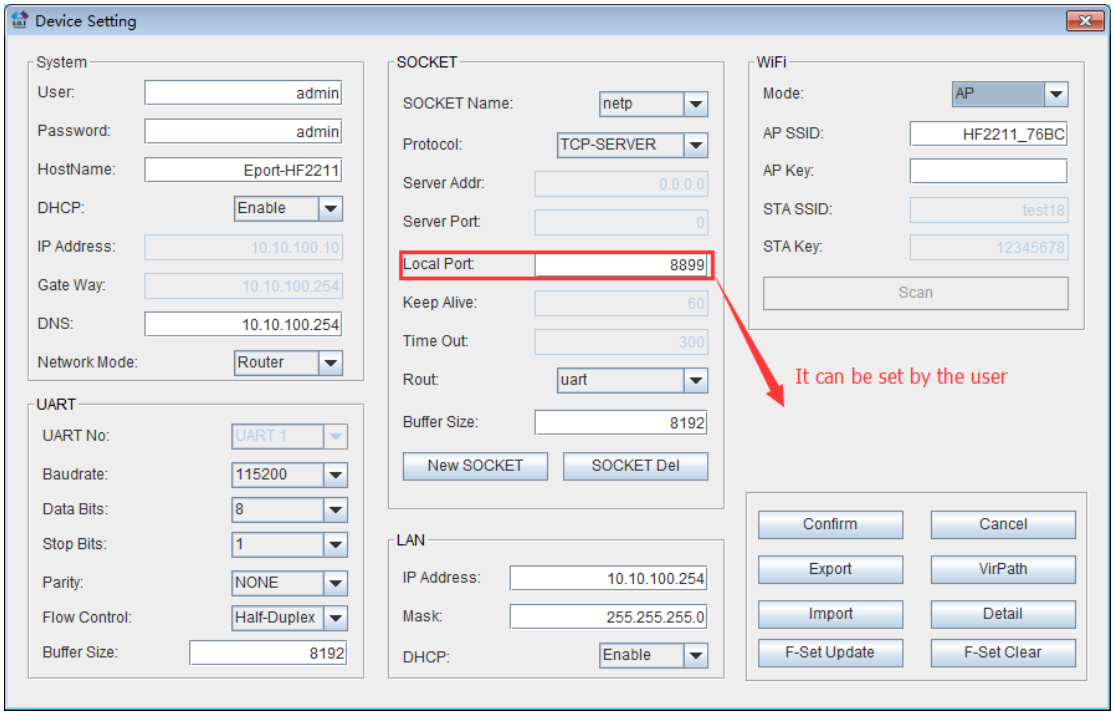
② The time when IOTService and website can not show the detials of device. For example, when set it as STA mode but with wrong password. It will not configure HF2211 parameter by software. And at this time, it can use PC direct connection method to modify correct parameter(note that under STA mode, the IP address of PC is 10.10.100.XXX)

3.3. Auto-IP TCP Server Test

Step 1 : Open TCP&UDP test tool and generate TCP connection as following process.

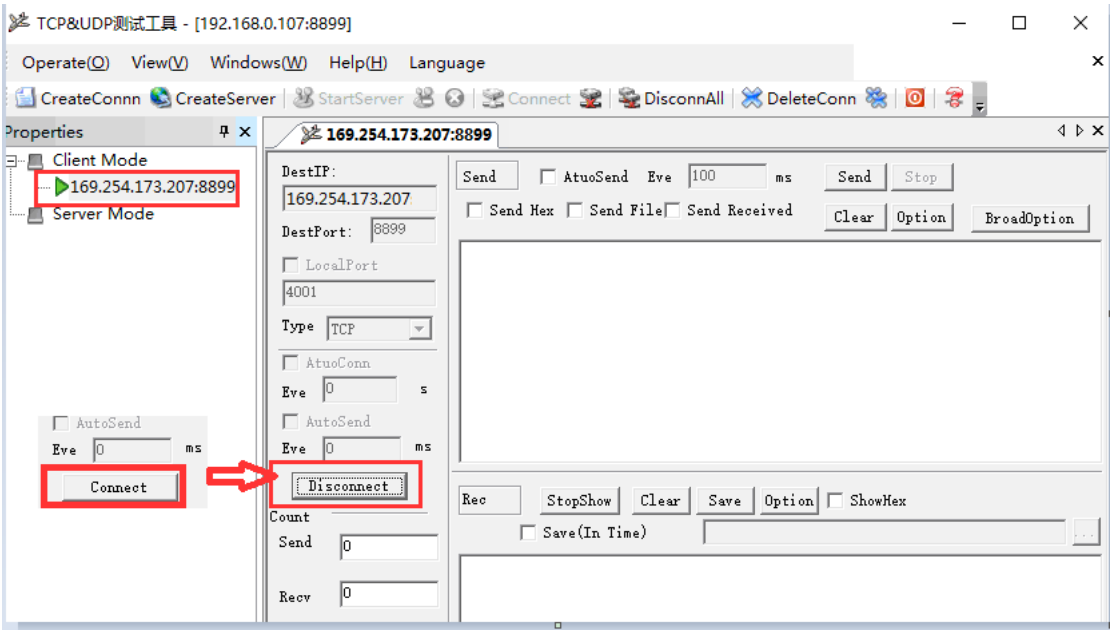
- Product has already created a TCP Server(port 8899) for use.
- TCP&UDP test tool can be downloaded from official website: http://gb.hi-flying.com/download_detail_dc/downloadsId=54.html
- DestIP :IP address of product, this address can be found by IOTService tool.
- Port : TCP Server port number,8899 default which can be modified by IOTService



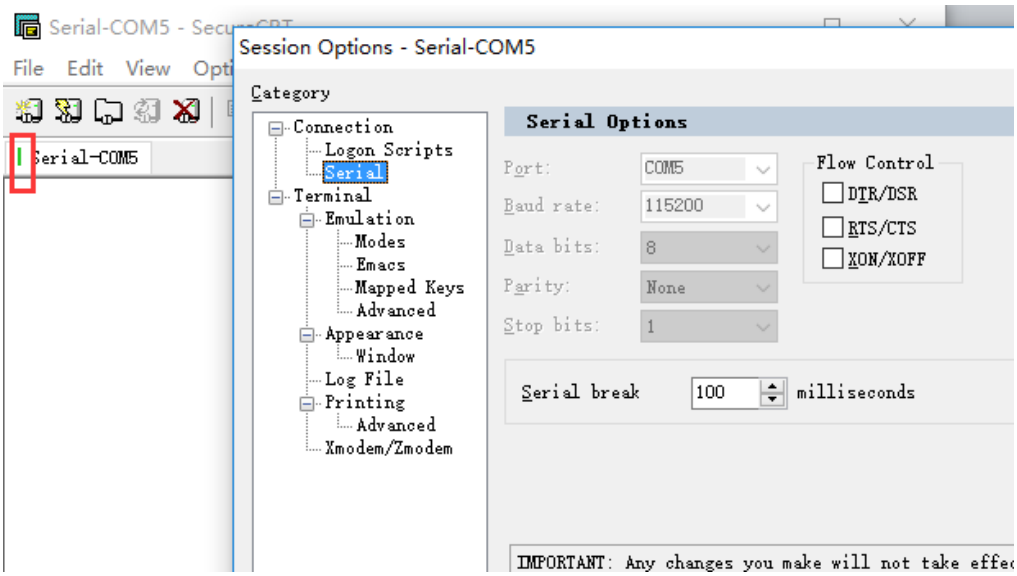


Step 2：Click Connect to build TCP connection

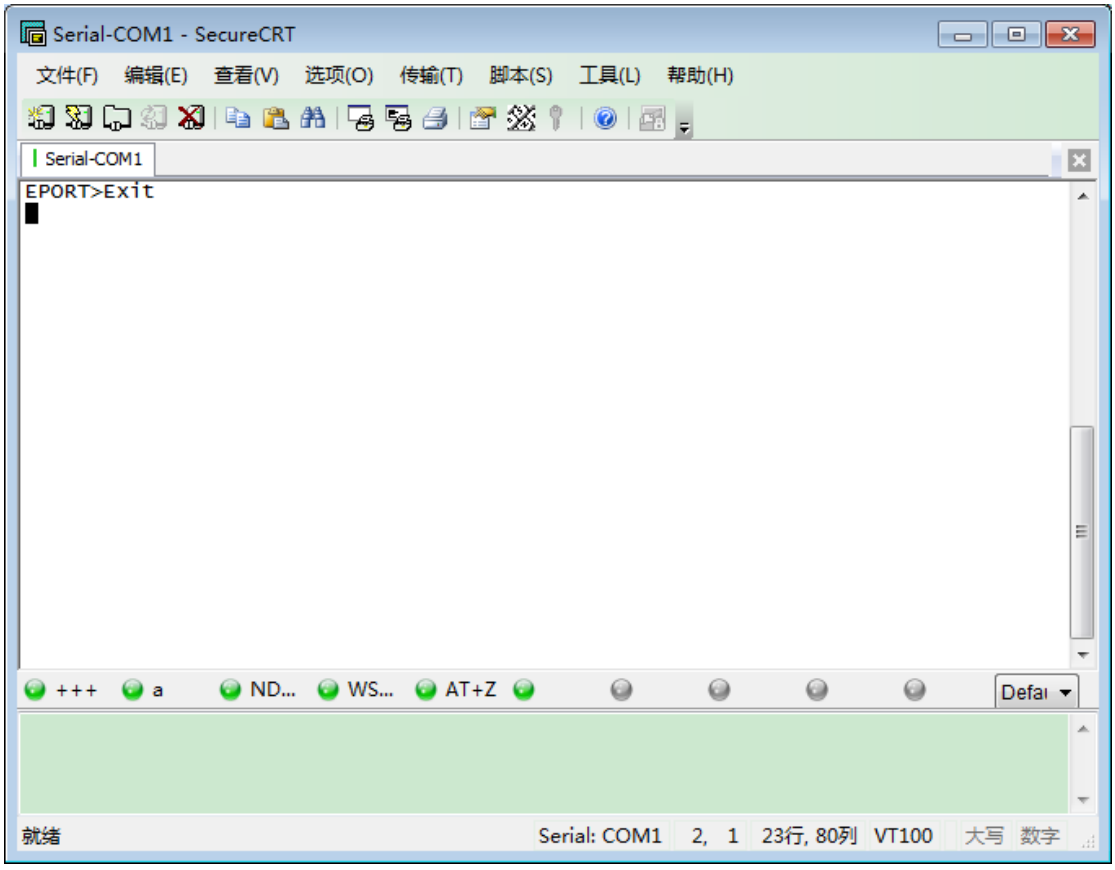
- After successful generation, left side turn to green arrow, yellow if fails.



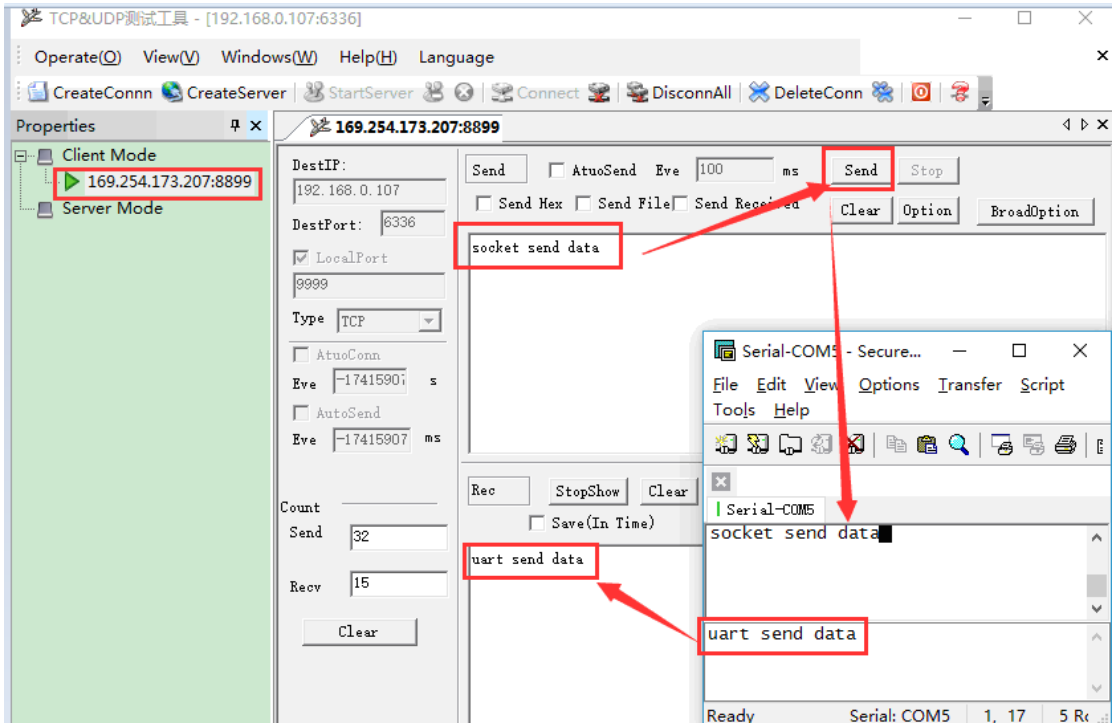
Step 3：Open serial tool according to following parameter(115200 baud rate as default)



Step 4：Make sure if serial tool is CMD mode. Input “Exit” to exit CMD mode and enter into transparent mode(which is default)



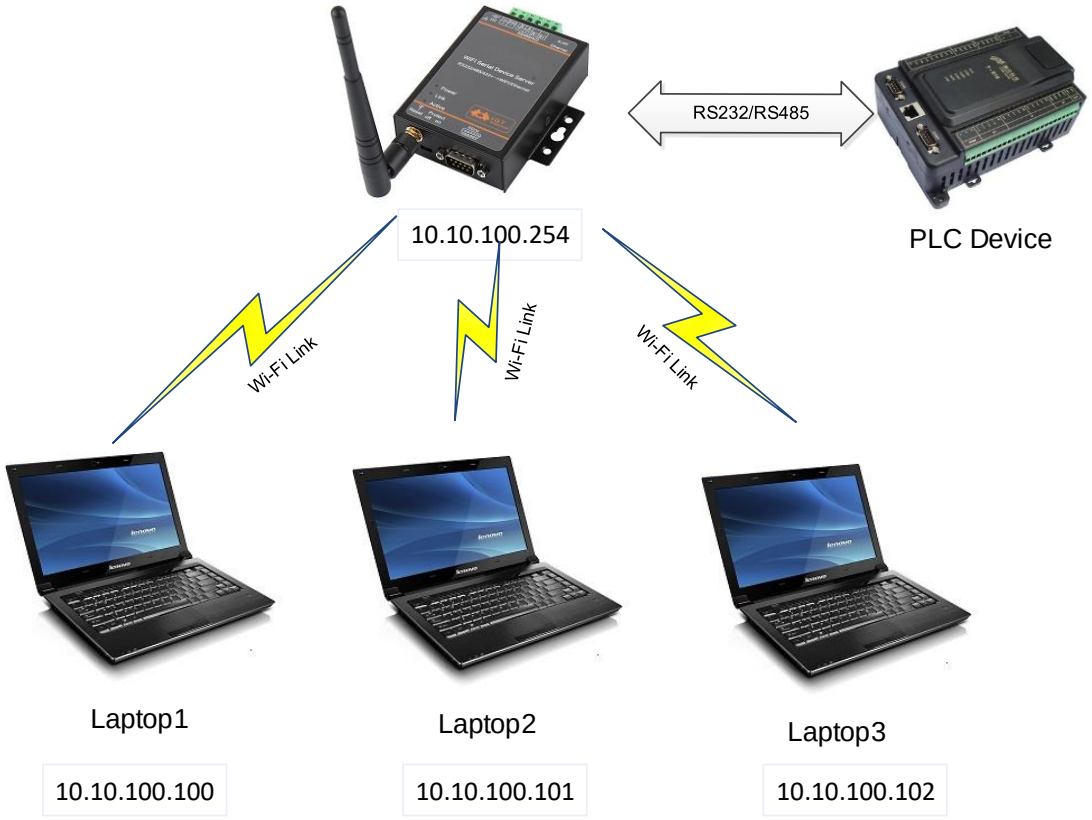
Step 5：Mutual data transmission between TCP and serial port.



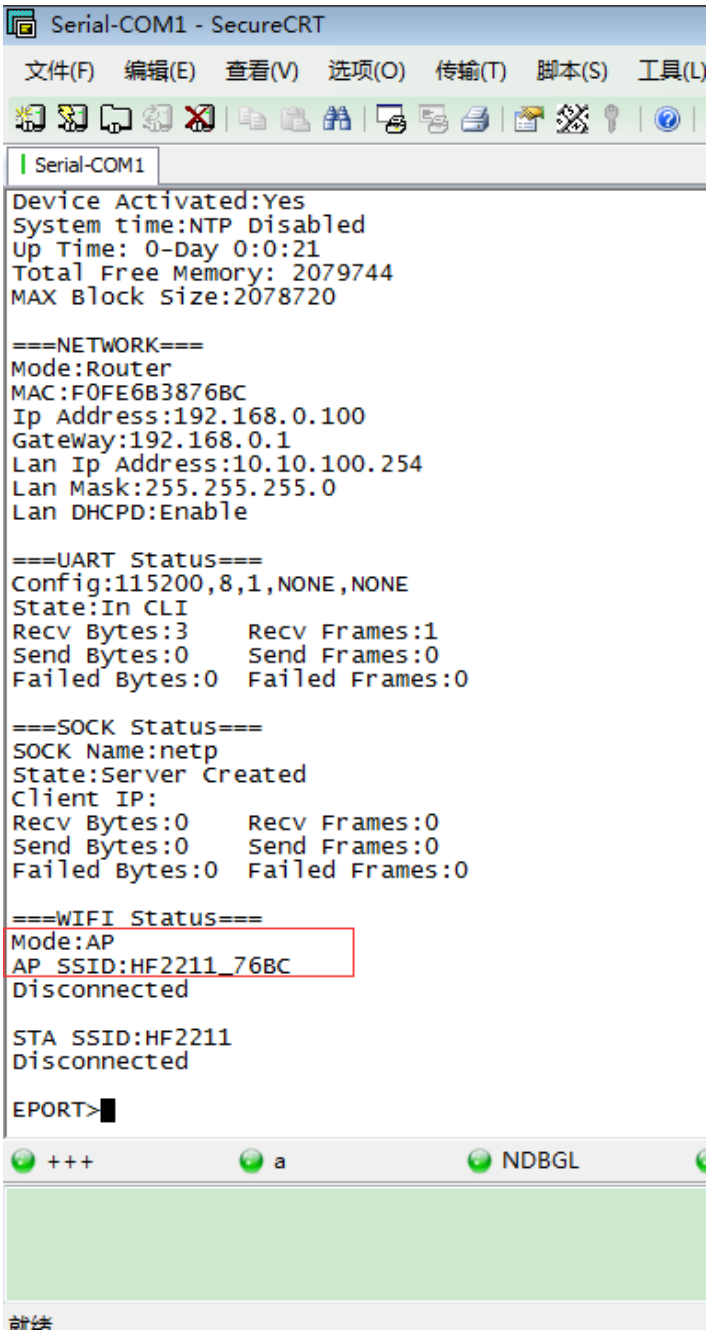
3.4. AP Wireless Networking

Device can combine a wireless network under AP mode. All STA devices are in center of AP hotspot. Mutual communication between STA devices by AP. It shown

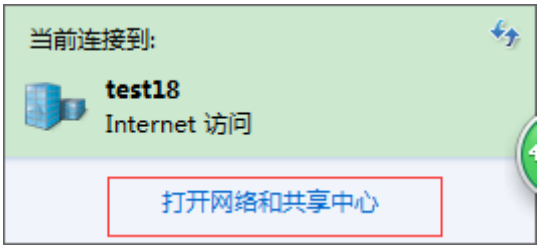
as below:



Step 1：Before configure it as AP mode, AP SSID of AP should be understood first. The default is "HF2211_+MAC(after 4 bits)". It can also search by command "show" in CLI command. Figure is as below:

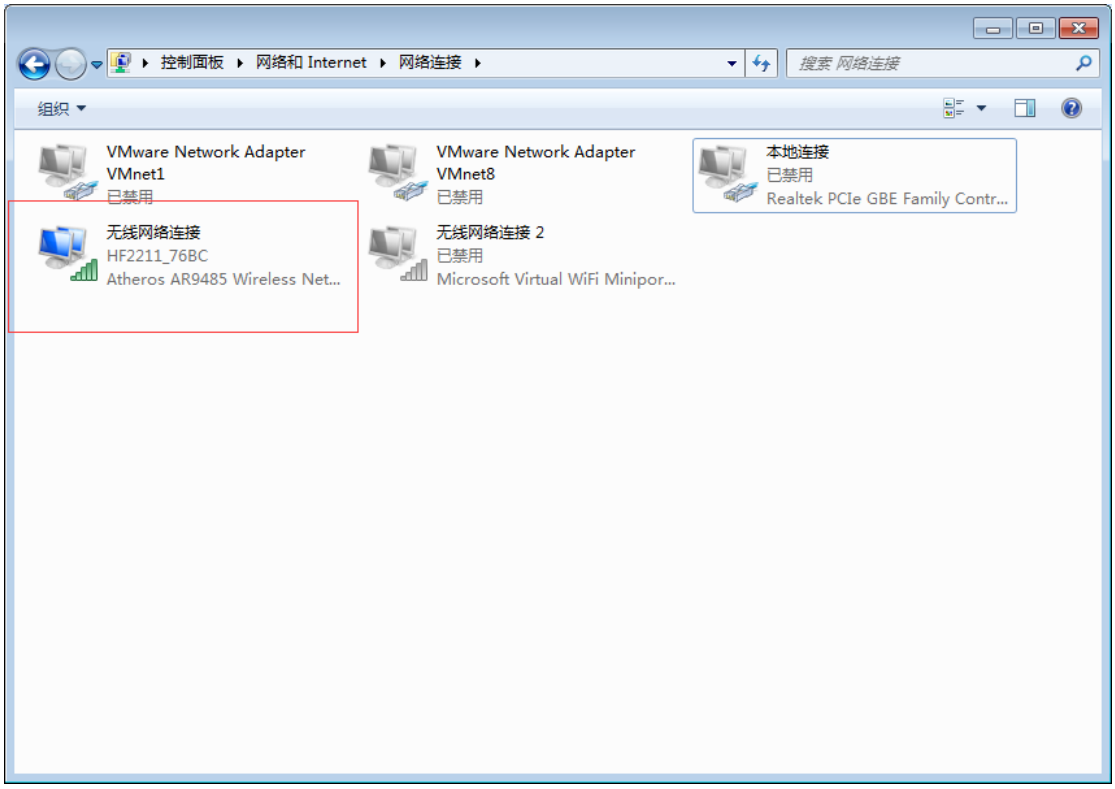


Step 2：Open network and share center->alter adapter

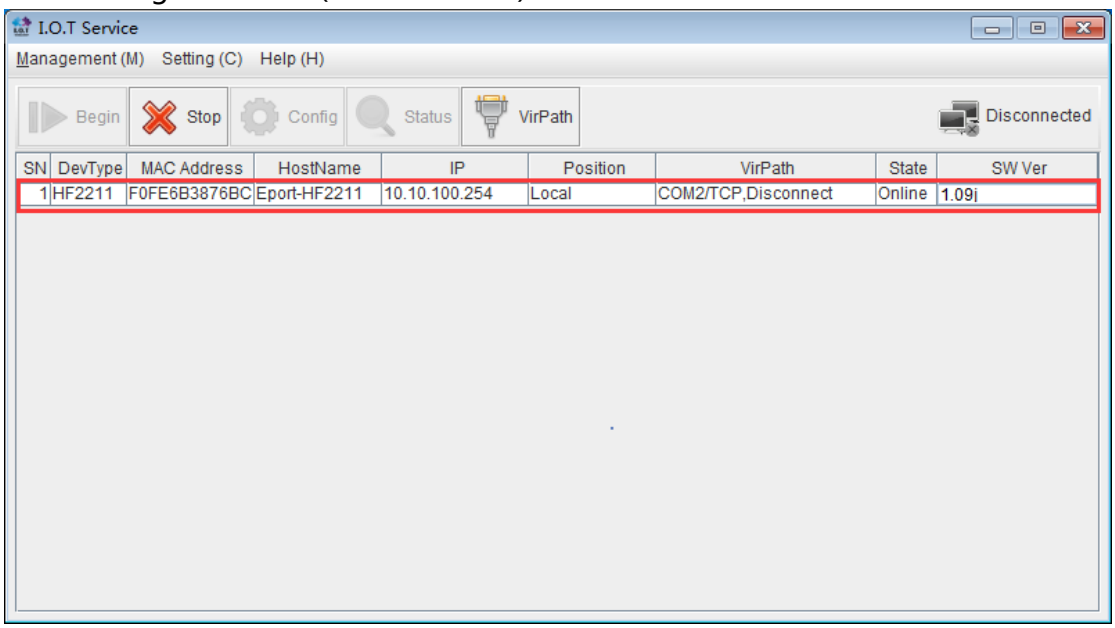


Step 3: Open network connection and connect to HF2211AP from Step 1.

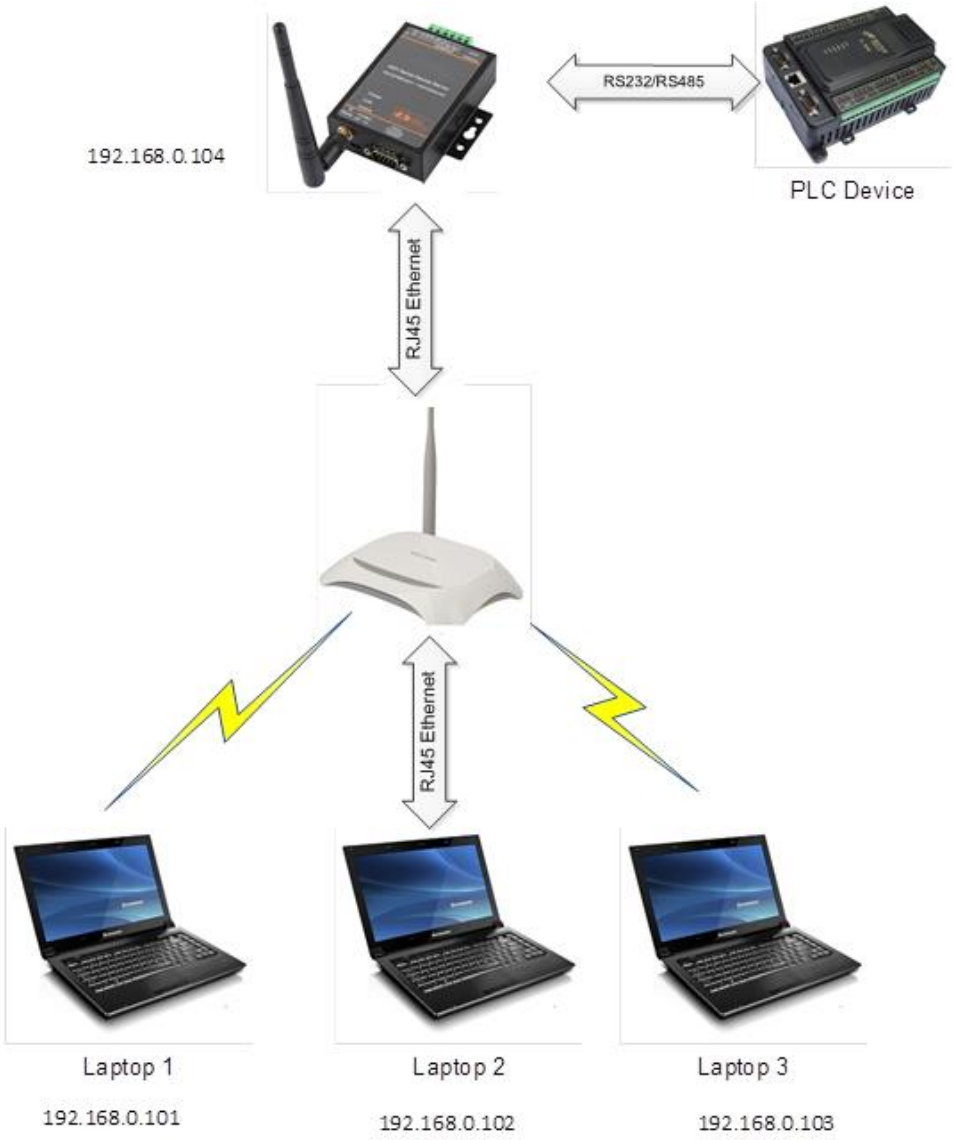
Step 4：Forbid other network connection method and only contain current wireless connection.



Step 5 : Open IOTService and device is connected. It will assign IP address of network segment of AP(10.10.100.XXX).

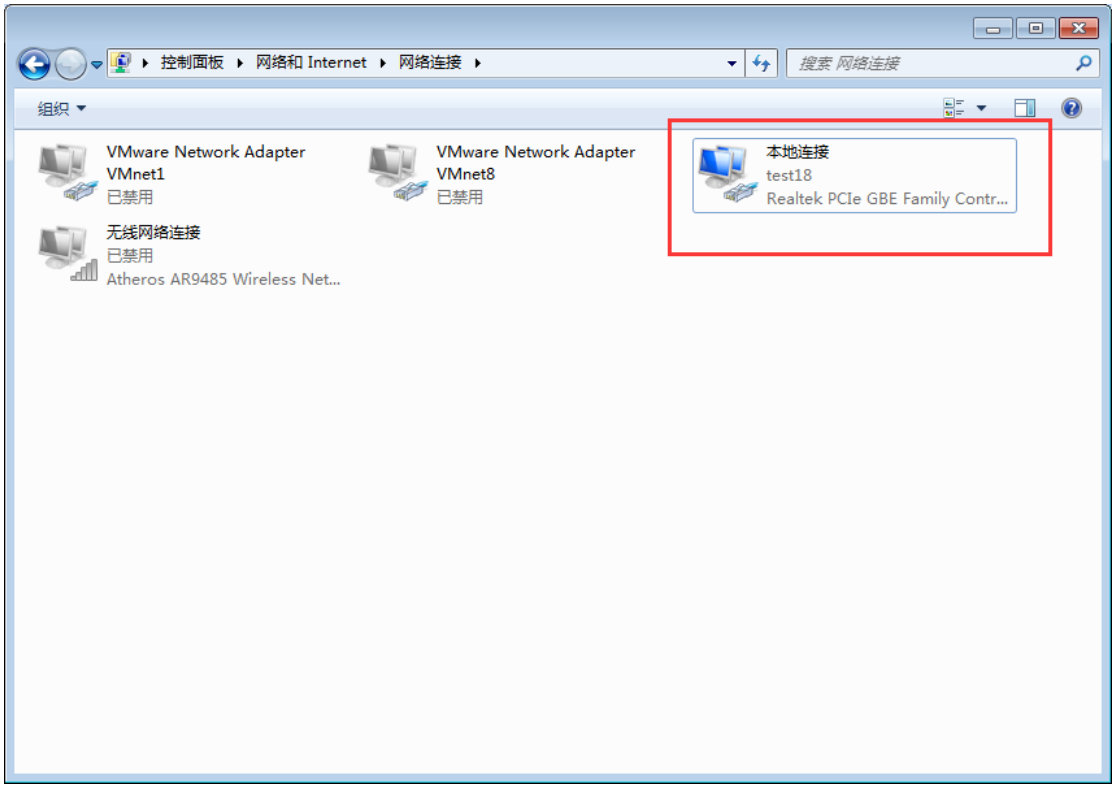


3.5. Ethernet Network based on AP

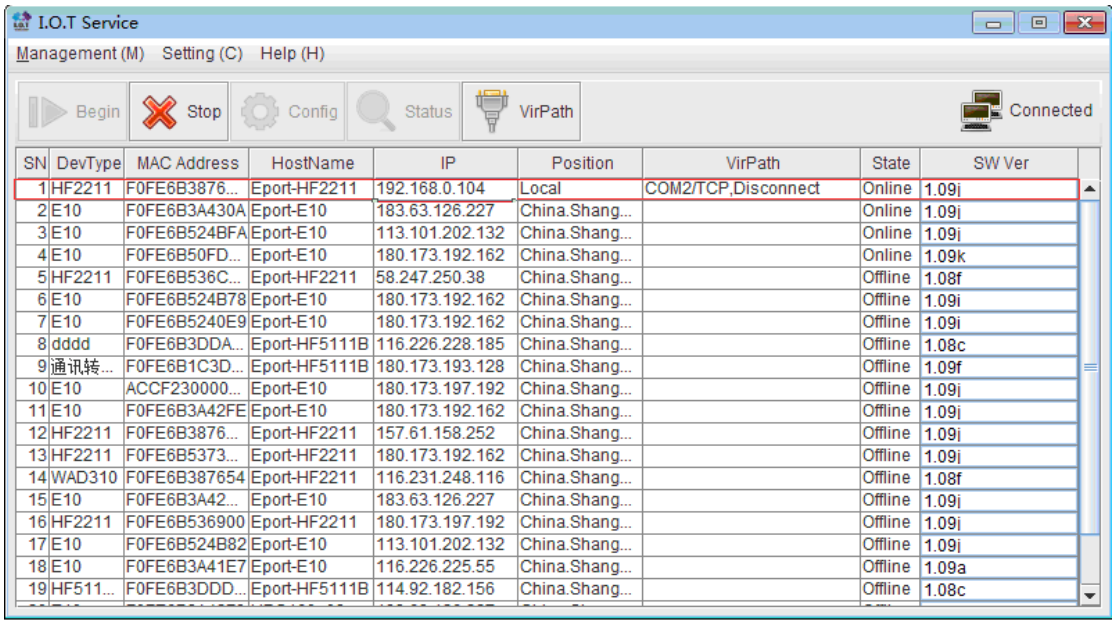


Step 1 : As above figure shows, HF2211 connect LAN port of router by Ethernet cable. PC is able to connect to the router to combian network by Ethernet or wireless.

Note: In AP mode, Ethernet port of HF2211 is WAN and it is used as LAN port of router. When in STA or AT+STA mode, HF2211 is LAN of Ethernet to connect PC.

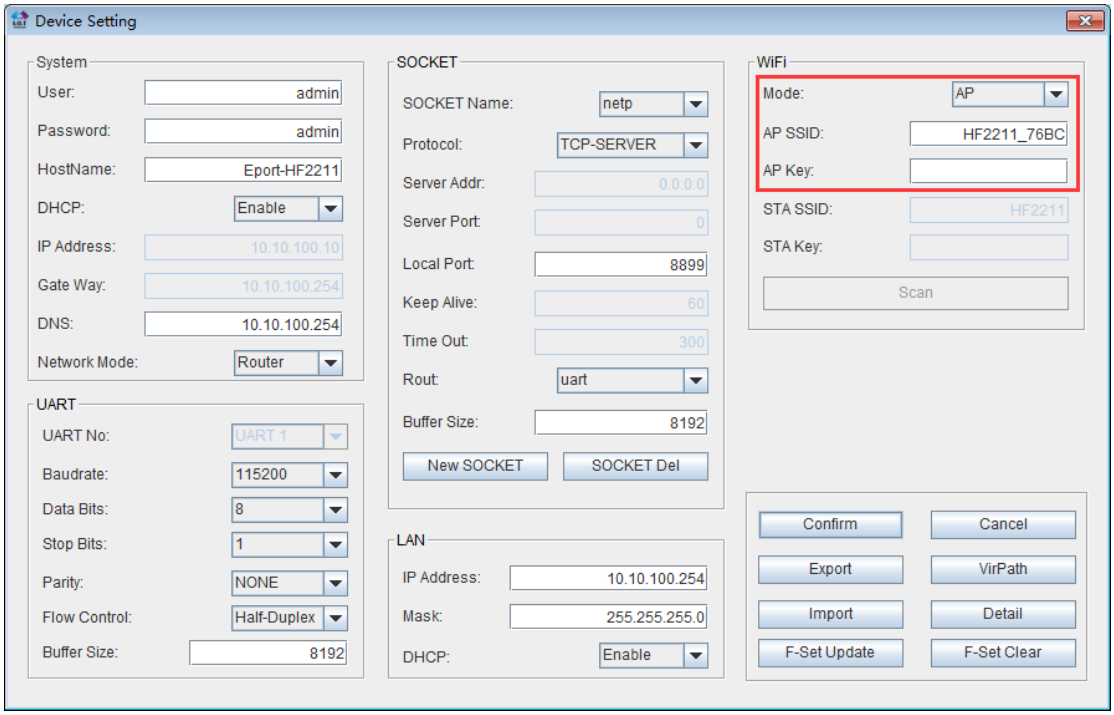


Step 2 : As shown above,open network and share center, forbid other connection method and only contain local connection(might lead to not find devices in the state of multiple network cards)



SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF2211	F0FE6B3876...	Eport-HF2211	192.168.0.104	Local	COM2/TCP,Disconnect	Online	1.09j
2	E10	F0FE6B3A430A	Eport-E10	183.63.126.227	China.Shang...		Online	1.09j
3	E10	F0FE6B524BFA	Eport-E10	113.101.202.132	China.Shang...		Online	1.09j
4	E10	F0FE6B50FD...	Eport-E10	180.173.192.162	China.Shang...		Online	1.09k
5	HF2211	F0FE6B536C...	Eport-HF2211	58.247.250.38	China.Shang...		Offline	1.08f
6	E10	F0FE6B524B78	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09i
7	E10	F0FE6B5240E9	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09i
8	dddd	F0FE6B3DDA...	Eport-HF5111B	116.226.228.185	China.Shang...		Offline	1.08c
9	通讯转...	F0FE6B1C3D...	Eport-HF5111B	180.173.193.128	China.Shang...		Offline	1.09f
10	E10	ACCF230000...	Eport-E10	180.173.197.192	China.Shang...		Offline	1.09j
11	E10	F0FE6B3A42FE	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09j
12	HF2211	F0FE6B3876...	Eport-HF2211	157.61.158.252	China.Shang...		Offline	1.09j
13	HF2211	F0FE6B5373...	Eport-HF2211	180.173.192.162	China.Shang...		Offline	1.09j
14	WAD310	F0FE6B387654	Eport-HF2211	116.231.248.116	China.Shang...		Offline	1.08f
15	E10	F0FE6B3A42...	Eport-E10	183.63.126.227	China.Shang...		Offline	1.09j
16	HF2211	F0FE6B536900	Eport-HF2211	180.173.197.192	China.Shang...		Offline	1.09j
17	E10	F0FE6B524B82	Eport-E10	113.101.202.132	China.Shang...		Offline	1.09j
18	E10	F0FE6B3A41E7	Eport-E10	116.226.225.55	China.Shang...		Offline	1.09a
19	HF511...	F0FE6B3DDD...	Eport-HF5111B	114.92.182.156	China.Shang...		Offline	1.08c

Step 3 : Open IOTService and press Begin button, device information will appear.

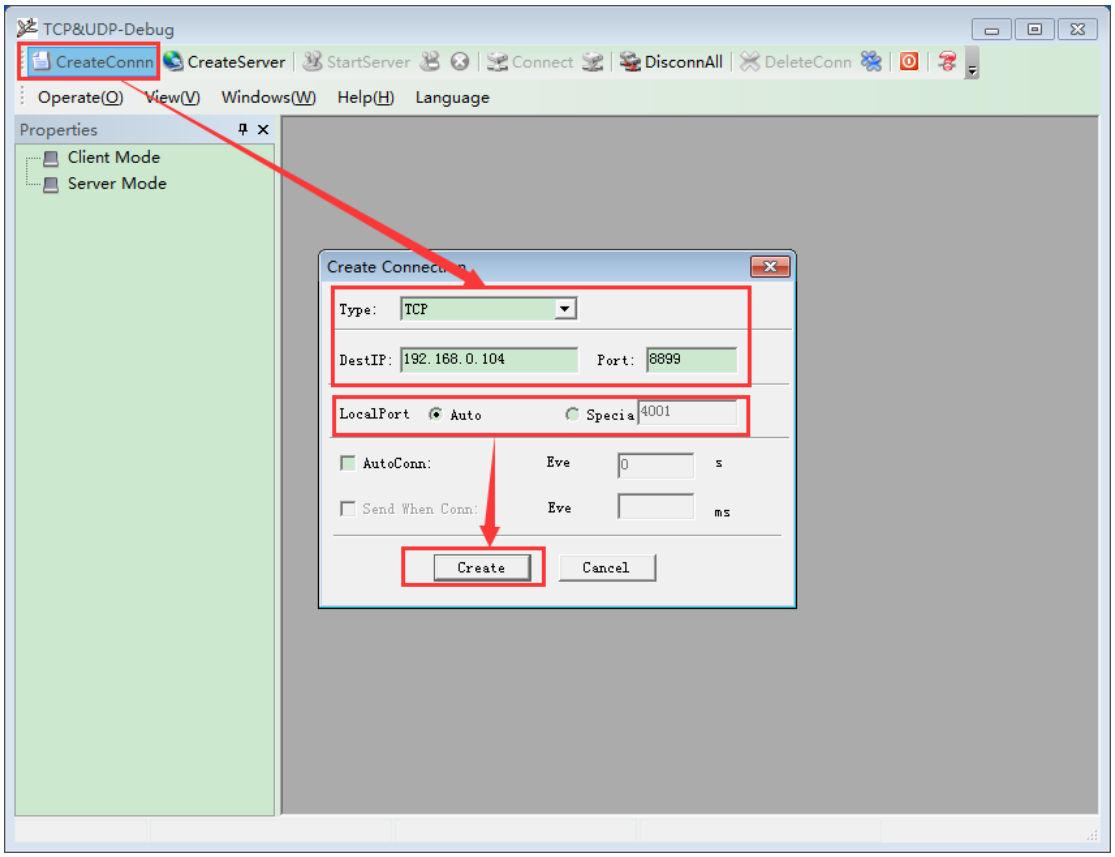


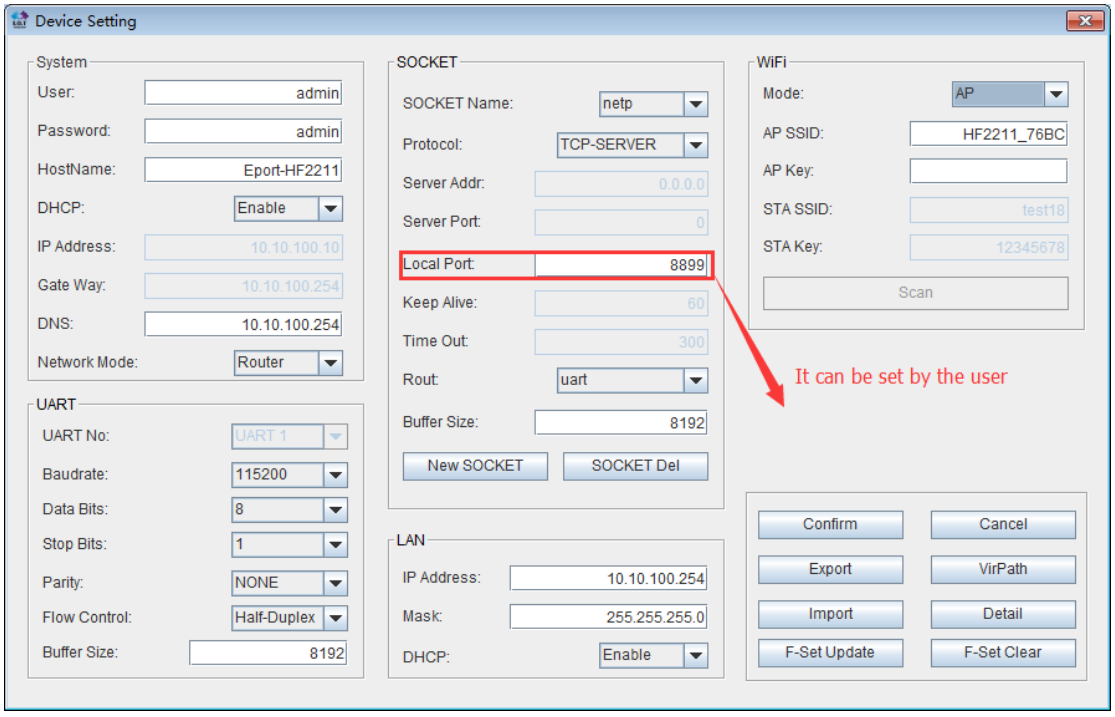
Step 4 : If any demand to modify AP SSID and password, it can enter into device configure to modify parameter informaion.

3.6. TCP Server Test in AP Mode

Step 1 : Open TCP&UDP test tool and generate TCP connection as following steps.

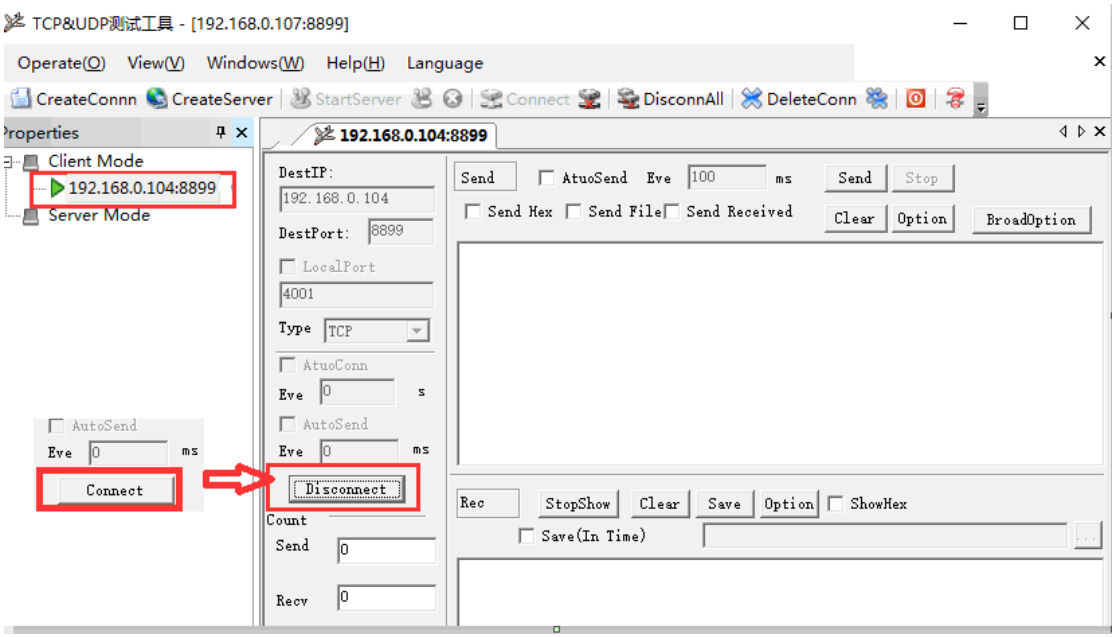
- Device has already created a TCP Server(port 8899) for use.
- TCP&UDP test tool can be downloaded from the website:
  - http://gb.hi-flying.com/download_detail_dc/downloadsId=54.html
- DestIP : IP address of device which can be found by IOTService.
- Port : Port of TCP Server which can be found by IOTService or set by users own.





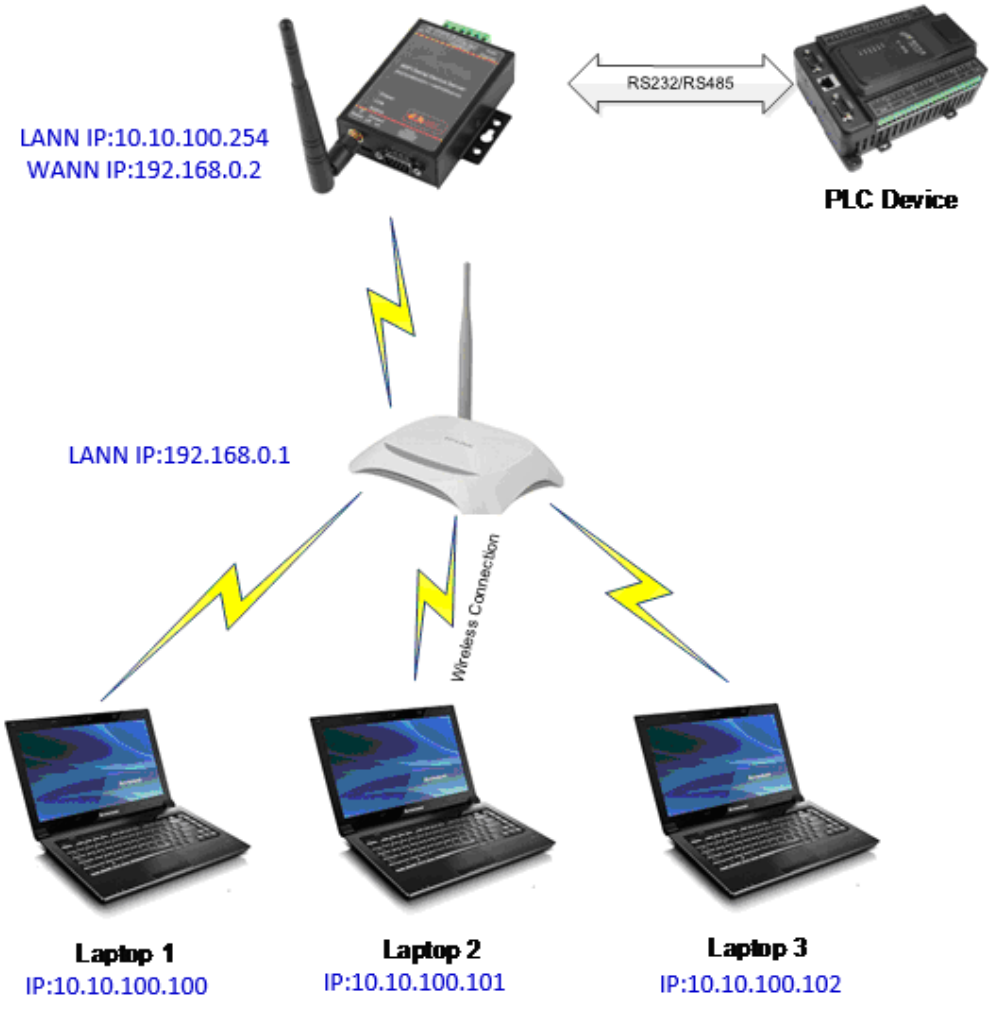
Step 2：Click Connection to generate TCP connection

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



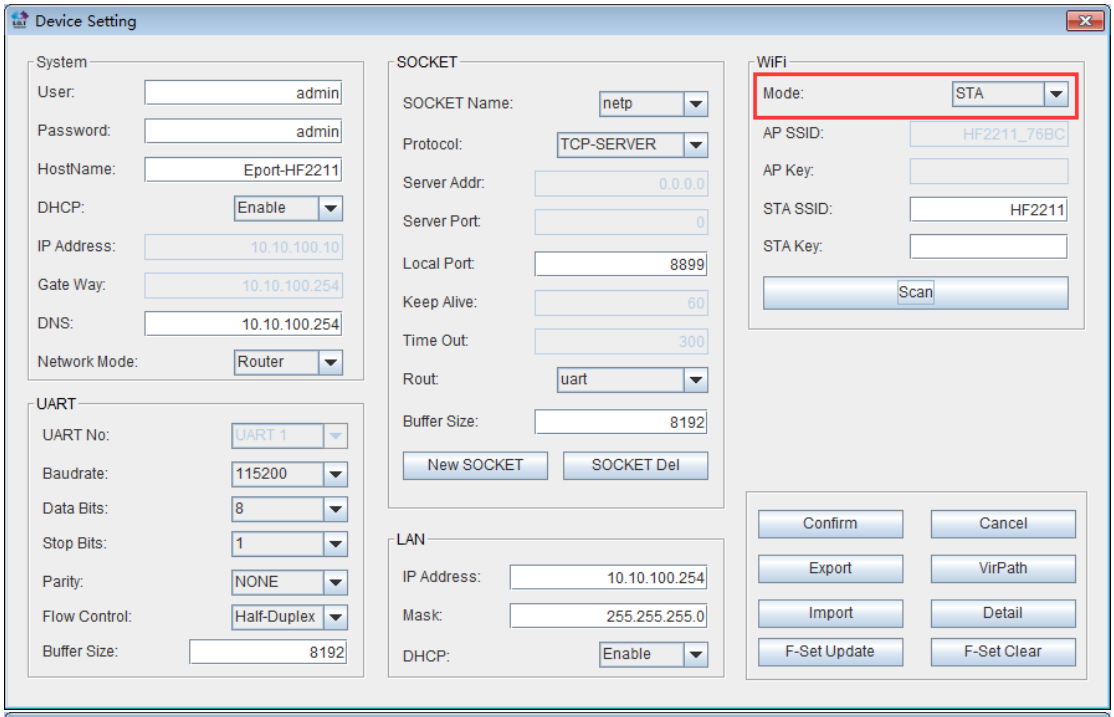
Step 3：Procedure of transparent data transmission please refer to chapter 3.3.

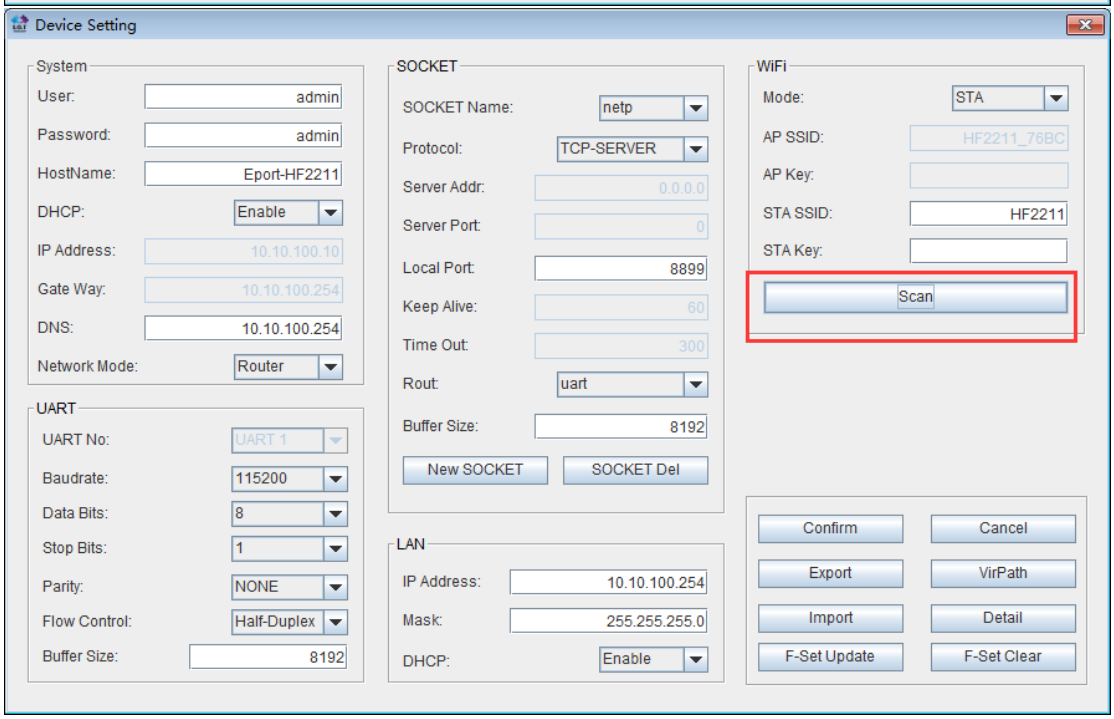
3.7. STA Wireless Networking

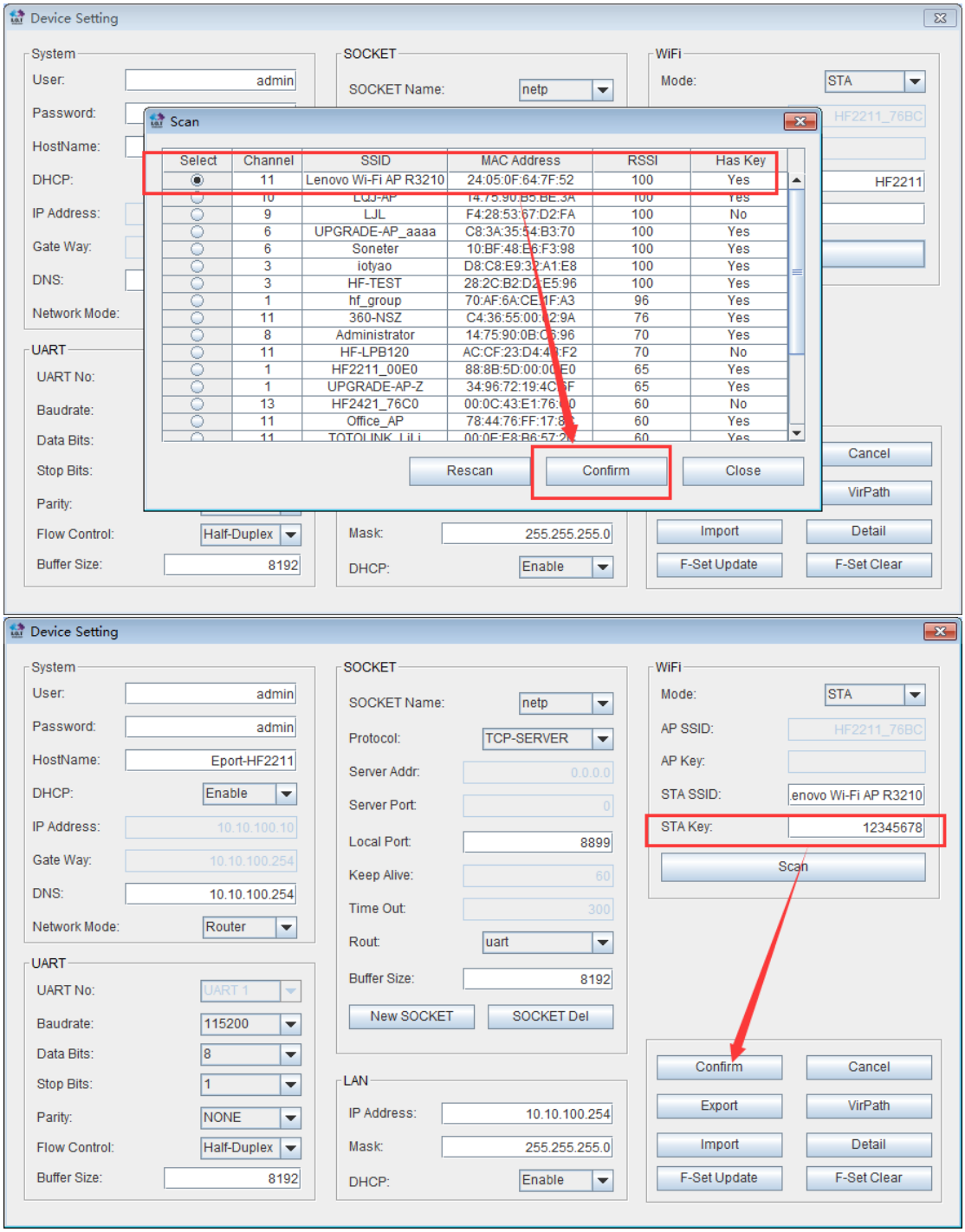


Step 1：Factory parameter of HF2211 is AP mode. If need to modify to STA mode, it can adopt wireless direct connection with AP, Ethernet cable direct connection with PC and Ethernet cable direct connection with router.

Step 2 :Choose STA mode after enter device setting and scan needed signal hotspot before input password.





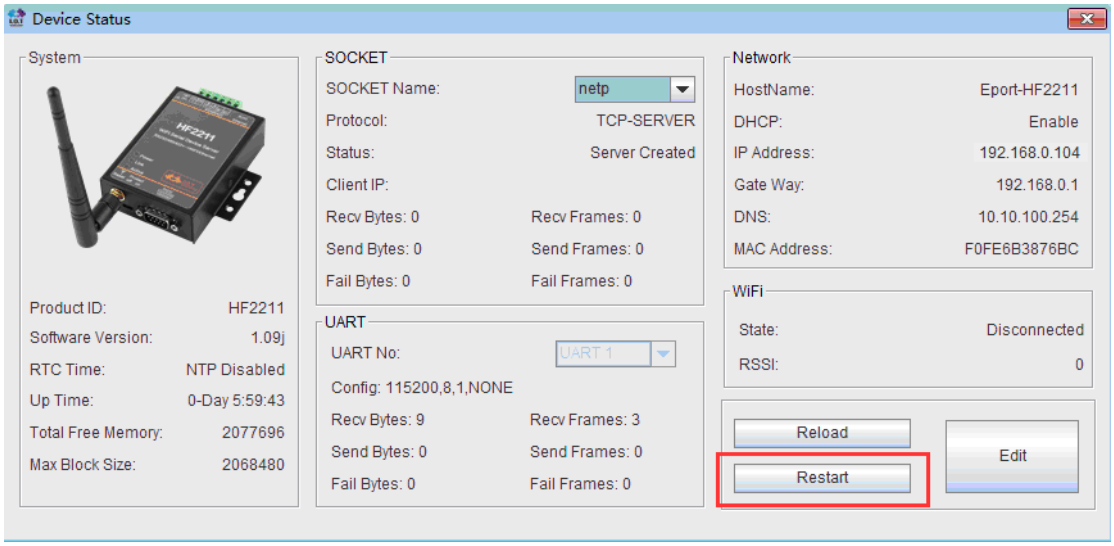


Step 3：Device restarts. And at this time, HF2211 has already connected to router and you can pull out the cable.

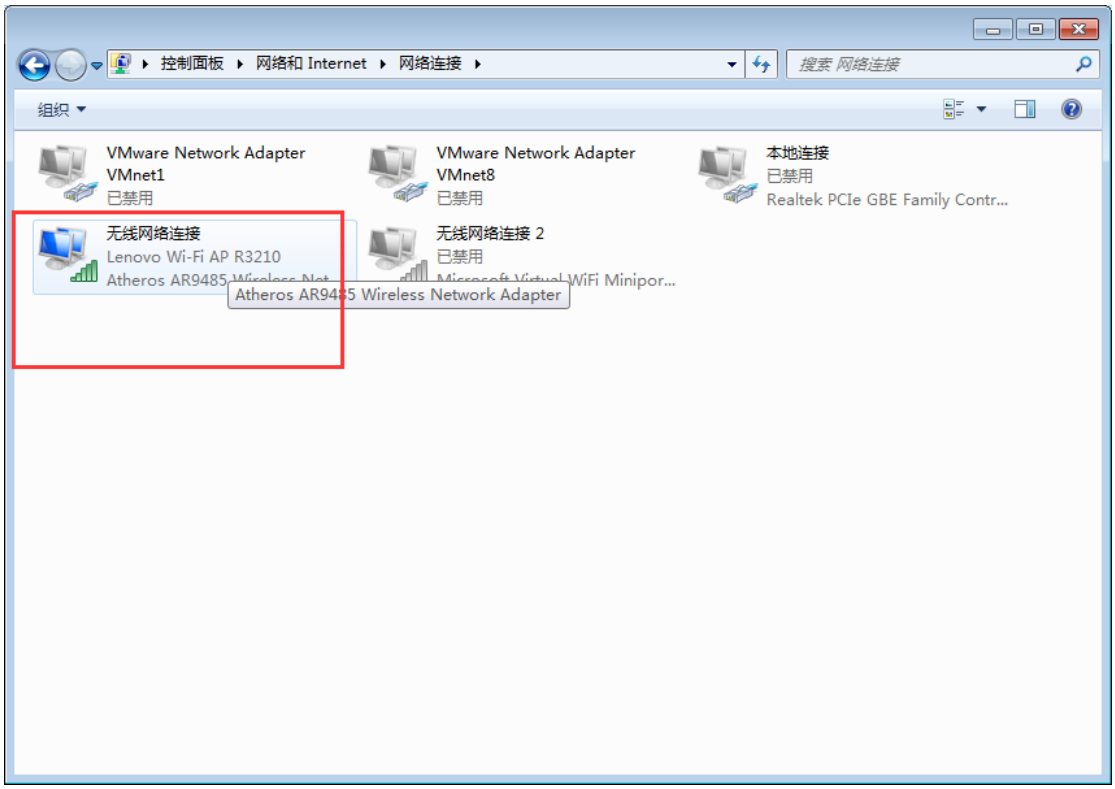
Note：

1、If change from STA mode to AP mode, device Ethernet interface will automatically alter to WAN from LAN.

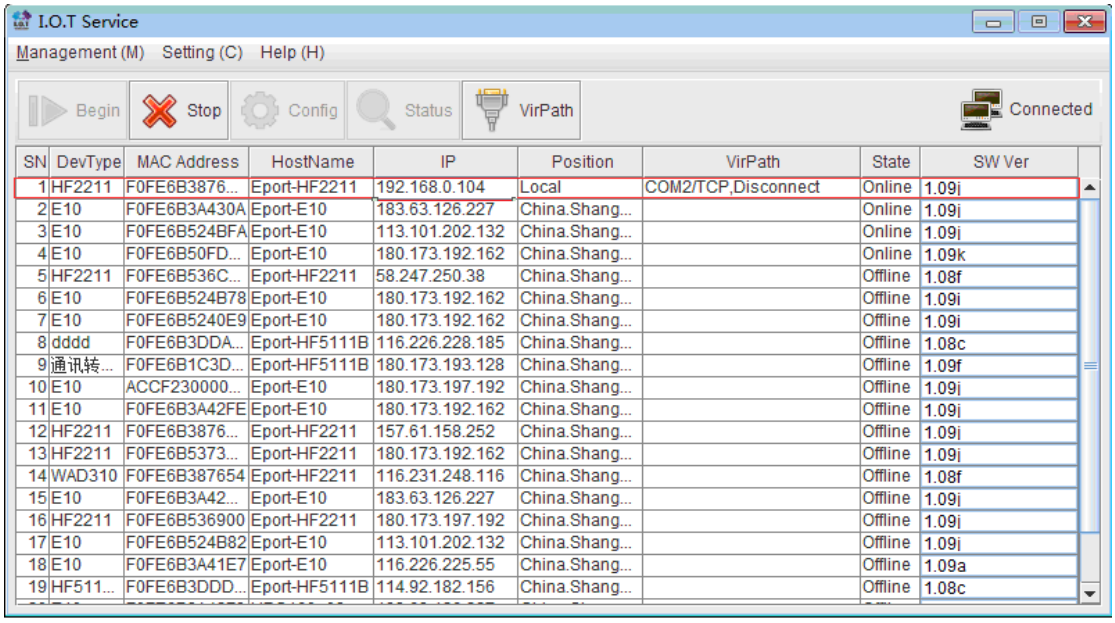
2、If change networking mode, it needs restart to be effective.



Step 4 : When open network and share, close other network connection method and only contain wireless connection between PC and router.



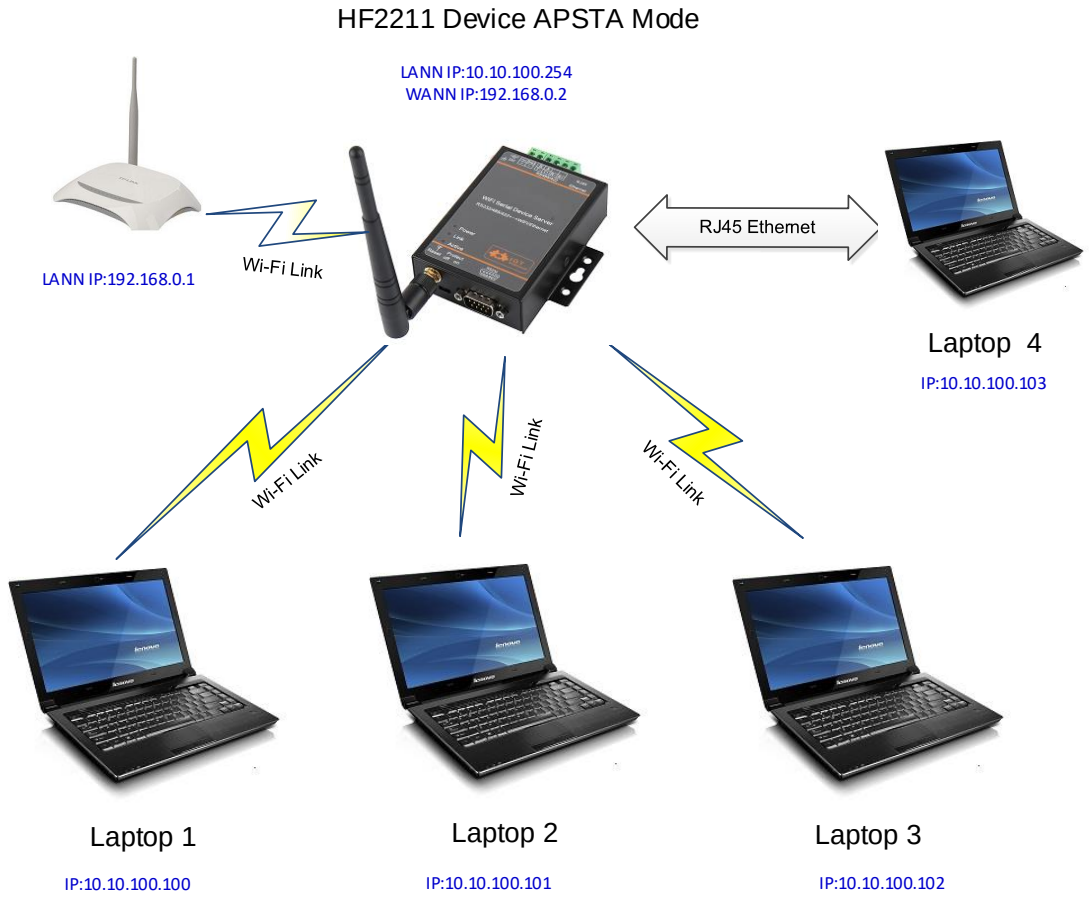
Step 5：After sucessfully build successfully, the Link light on. After open IOTService, it will show the information of device.



SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF2211	F0FE6B3876...	Eport-HF2211	192.168.0.104	Local	COM2/TCP,Disconnect	Online	1.09j
2	E10	F0FE6B3A430A	Eport-E10	183.63.126.227	China.Shang...		Online	1.09j
3	E10	F0FE6B524BFA	Eport-E10	113.101.202.132	China.Shang...		Online	1.09j
4	E10	F0FE6B50FD...	Eport-E10	180.173.192.162	China.Shang...		Online	1.09k
5	HF2211	F0FE6B536C...	Eport-HF2211	58.247.250.38	China.Shang...		Offline	1.08f
6	E10	F0FE6B524B78	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09i
7	E10	F0FE6B5240E9	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09i
8	dddd	F0FE6B3DDA...	Eport-HF5111B	116.226.228.185	China.Shang...		Offline	1.08c
9	通讯转...	F0FE6B1C3D...	Eport-HF5111B	180.173.193.128	China.Shang...		Offline	1.09f
10	E10	ACCF230000...	Eport-E10	180.173.197.192	China.Shang...		Offline	1.09j
11	E10	F0FE6B3A42FE	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09j
12	HF2211	F0FE6B3876...	Eport-HF2211	157.61.158.252	China.Shang...		Offline	1.09j
13	HF2211	F0FE6B5373...	Eport-HF2211	180.173.192.162	China.Shang...		Offline	1.09j
14	WAD310	F0FE6B387654	Eport-HF2211	116.231.248.116	China.Shang...		Offline	1.08f
15	E10	F0FE6B3A42...	Eport-E10	183.63.126.227	China.Shang...		Offline	1.09j
16	HF2211	F0FE6B536900	Eport-HF2211	180.173.197.192	China.Shang...		Offline	1.09j
17	E10	F0FE6B524B82	Eport-E10	113.101.202.132	China.Shang...		Offline	1.09j
18	E10	F0FE6B3A41E7	Eport-E10	116.226.225.55	China.Shang...		Offline	1.09a
19	HF511...	F0FE6B3DDD...	Eport-HF5111B	114.92.182.156	China.Shang...		Offline	1.08c

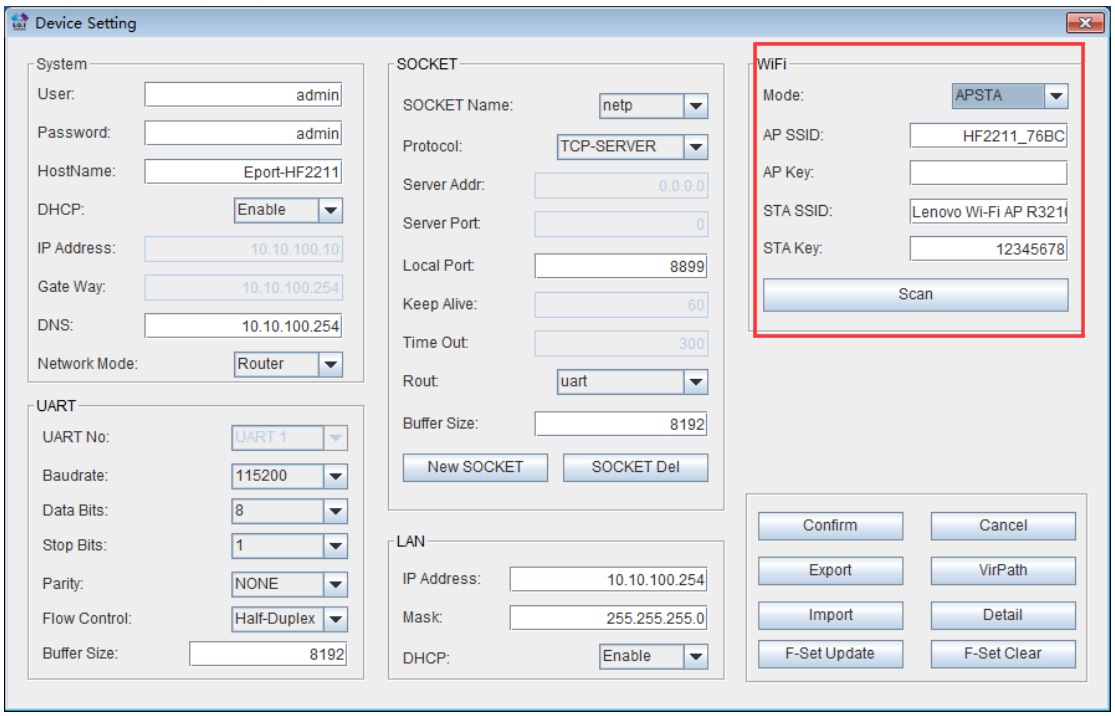
Step 5 : The test method of mutual data transmission between TCP tool and serial port under STA mode is the same as former one.

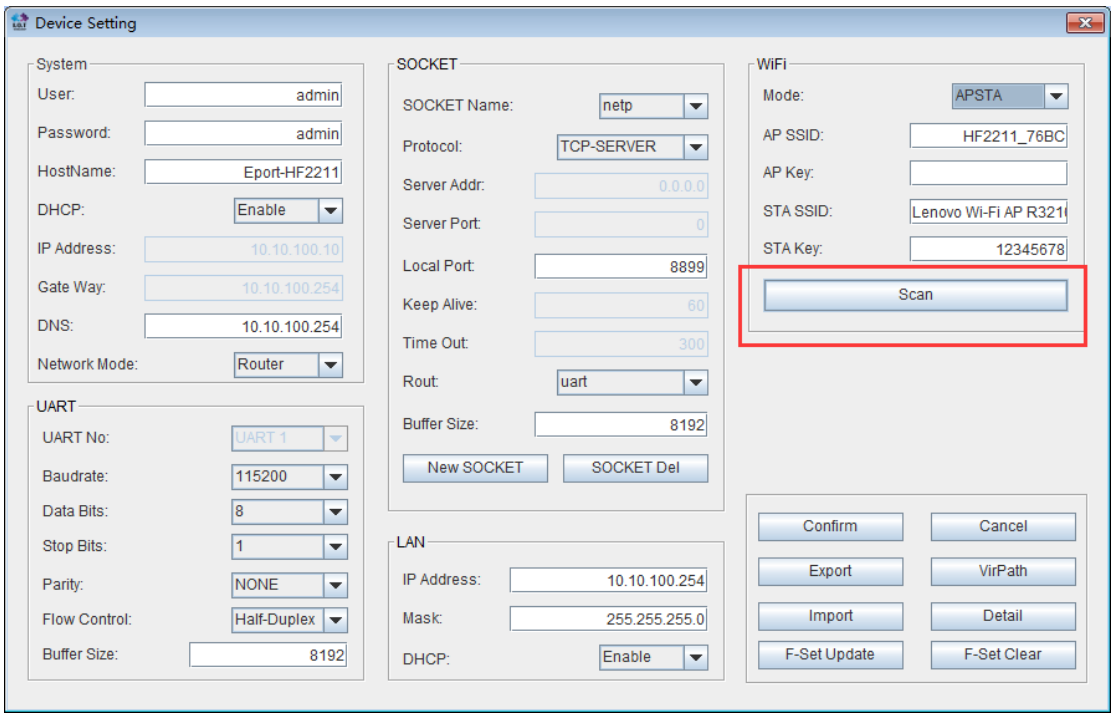
3.8. AP-STA Wireless Networking

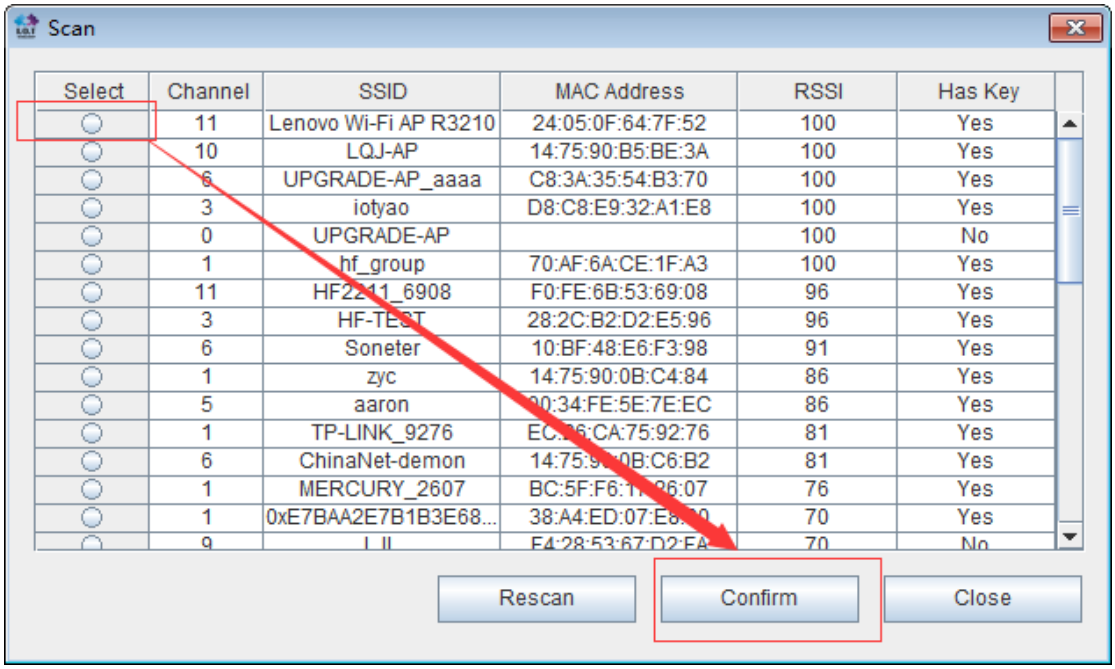


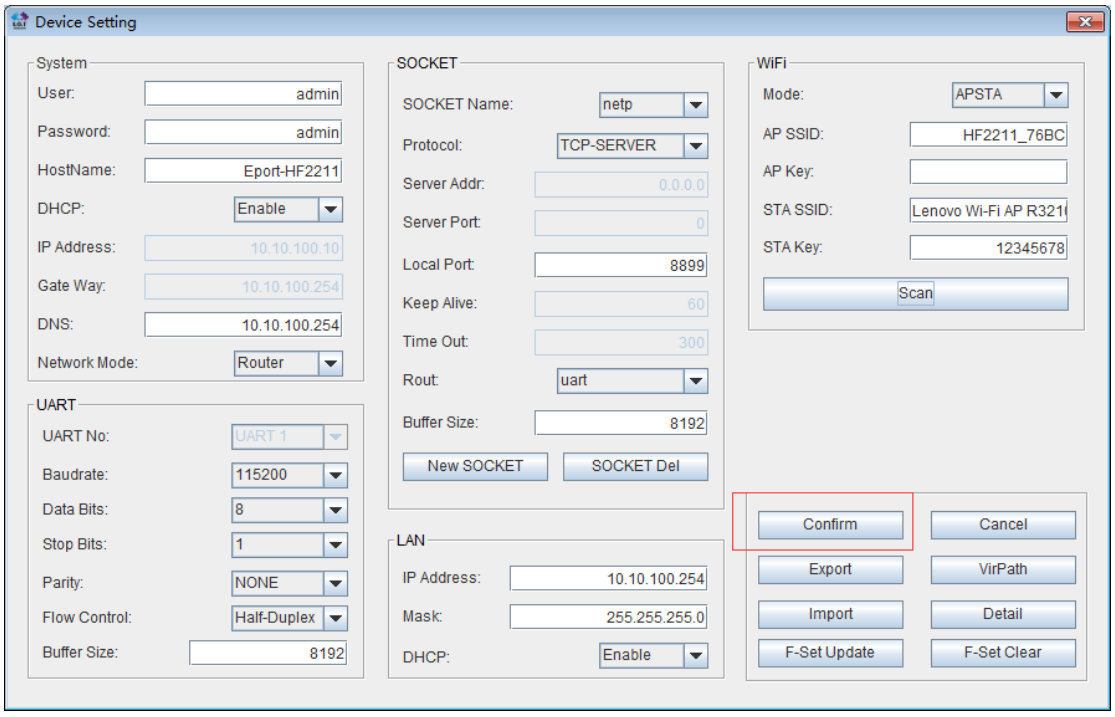
Step 1 : The default networking mode of HF2211 is AP. AP+STA mode can be changed by software or webpage.

Step 2 : Enter into device setting and choose APSTA mode. Scan needed signal hotspot and input password.

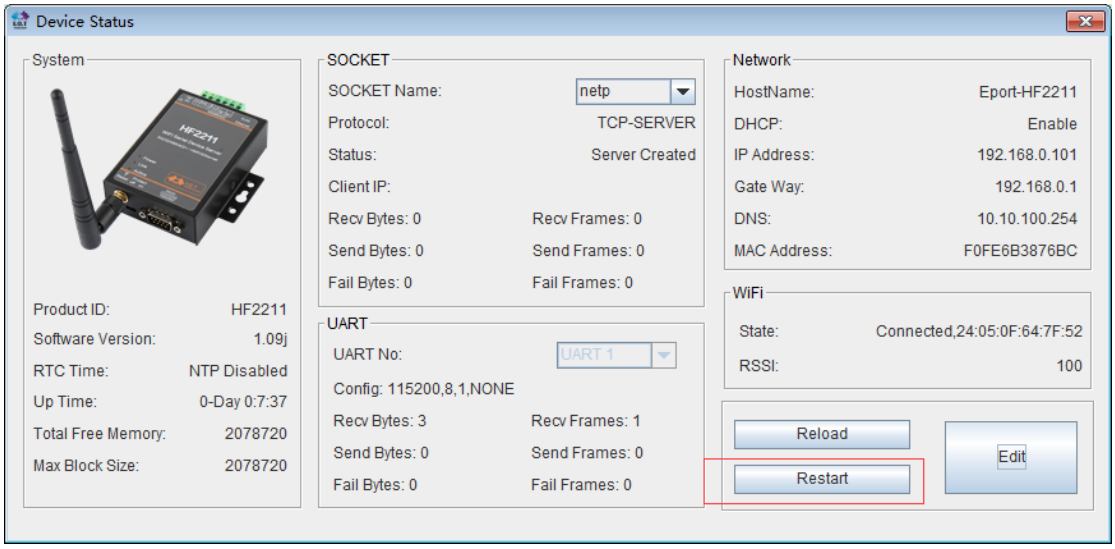




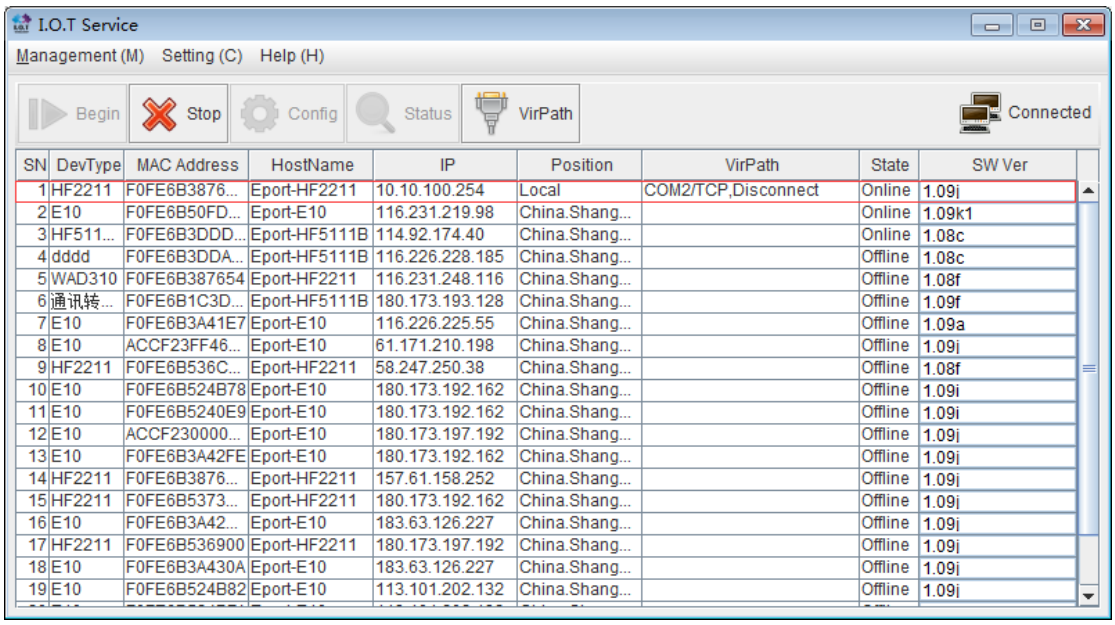




Step 3: Each time when network changed, device need restart to be effective.

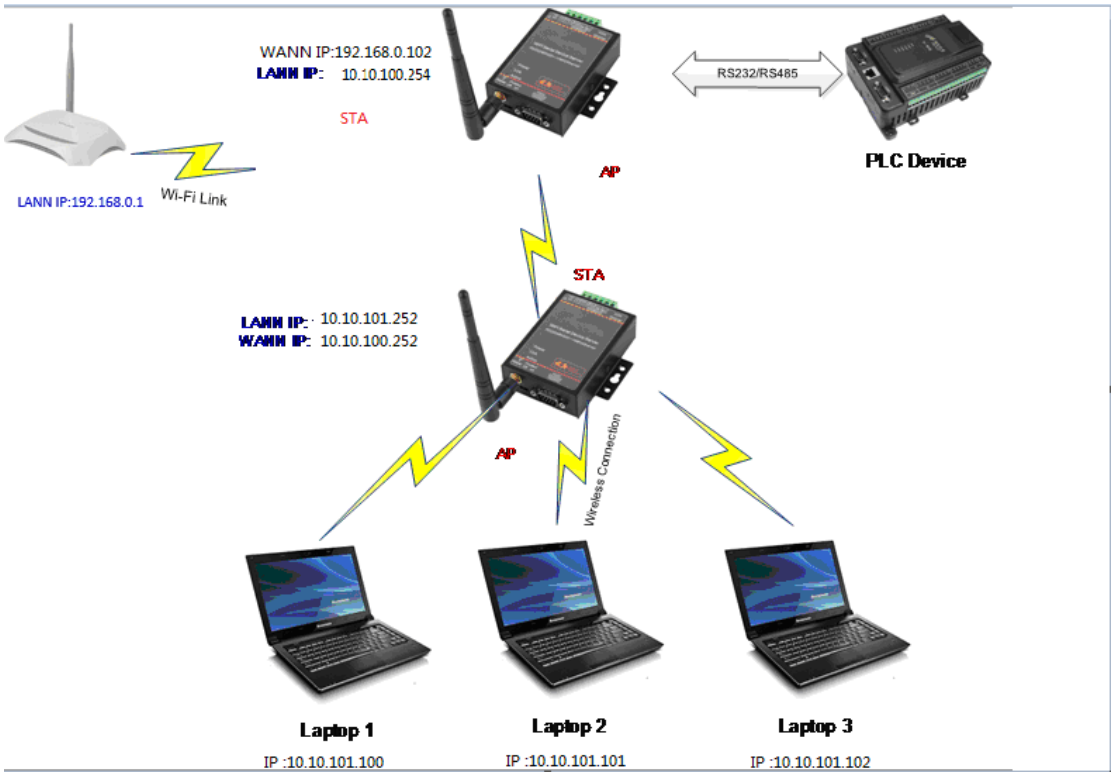


Step 4：After restart, cable can be pulled out when the Link lights on. If device and terminal connect successfully, HF2211 can connect to the router as STA mode, and PC can connect the HF2211 AP hotspot. As a result, router, HF2211 and PC are under the same IP segment.

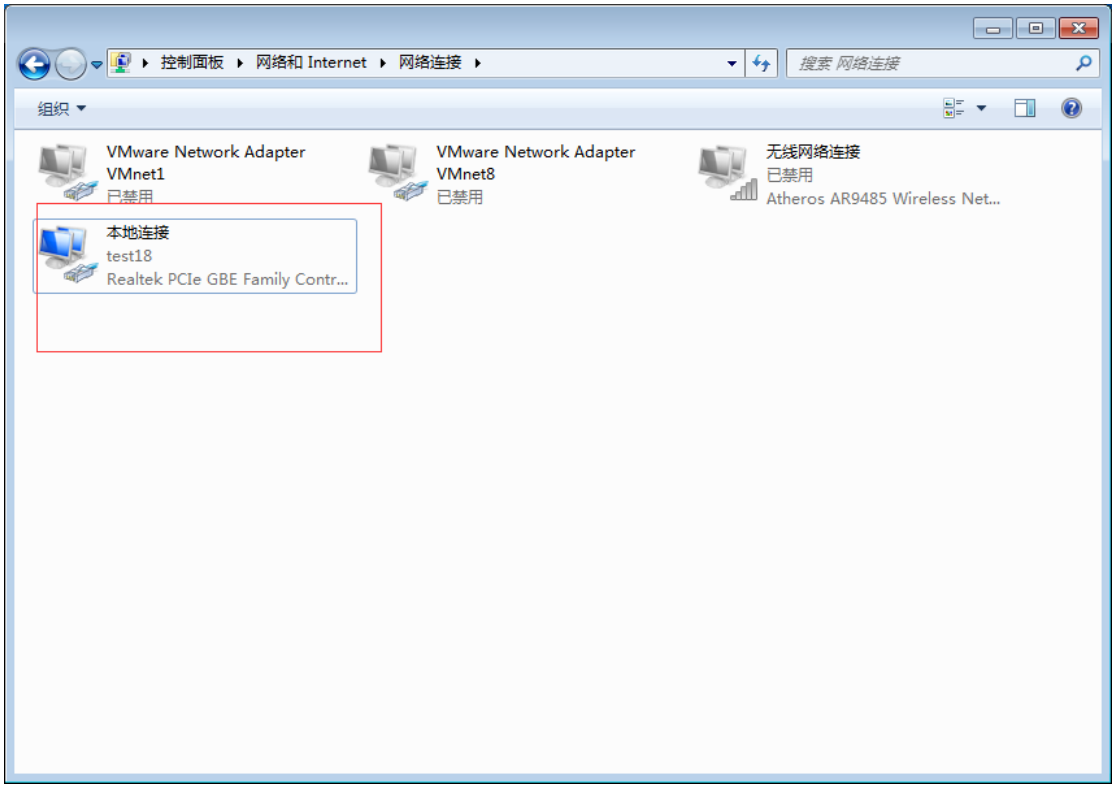


SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF2211	F0FE6B3876...	Eport-HF2211	10.10.100.254	Local	COM2/TCP,Disconnect	Online	1.09j
2	E10	F0FE6B50FD...	Eport-E10	116.231.219.98	China.Shang...		Online	1.09k1
3	HF511...	F0FE6B3DDD...	Eport-HF5111B	114.92.174.40	China.Shang...		Online	1.08c
4	dddd	F0FE6B3DDA...	Eport-HF5111B	116.226.228.185	China.Shang...		Offline	1.08c
5	WAD310	F0FE6B387654	Eport-HF2211	116.231.248.116	China.Shang...		Offline	1.08f
6	通讯转...	F0FE6B1C3D...	Eport-HF5111B	180.173.193.128	China.Shang...		Offline	1.09f
7	E10	F0FE6B3A41E7	Eport-E10	116.226.225.55	China.Shang...		Offline	1.09a
8	E10	ACCF23FF46...	Eport-E10	61.171.210.198	China.Shang...		Offline	1.09j
9	HF2211	F0FE6B536C...	Eport-HF2211	58.247.250.38	China.Shang...		Offline	1.08f
10	E10	F0FE6B524B78	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09i
11	E10	F0FE6B5240E9	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09i
12	E10	ACCF230000...	Eport-E10	180.173.197.192	China.Shang...		Offline	1.09j
13	E10	F0FE6B3A42FE	Eport-E10	180.173.192.162	China.Shang...		Offline	1.09j
14	HF2211	F0FE6B3876...	Eport-HF2211	157.61.158.252	China.Shang...		Offline	1.09j
15	HF2211	F0FE6B5373...	Eport-HF2211	180.173.192.162	China.Shang...		Offline	1.09j
16	E10	F0FE6B3A42...	Eport-E10	183.63.126.227	China.Shang...		Offline	1.09j
17	HF2211	F0FE6B536900	Eport-HF2211	180.173.197.192	China.Shang...		Offline	1.09j
18	E10	F0FE6B3A430A	Eport-E10	183.63.126.227	China.Shang...		Offline	1.09j
19	E10	F0FE6B524B82	Eport-E10	113.101.202.132	China.Shang...		Offline	1.09j

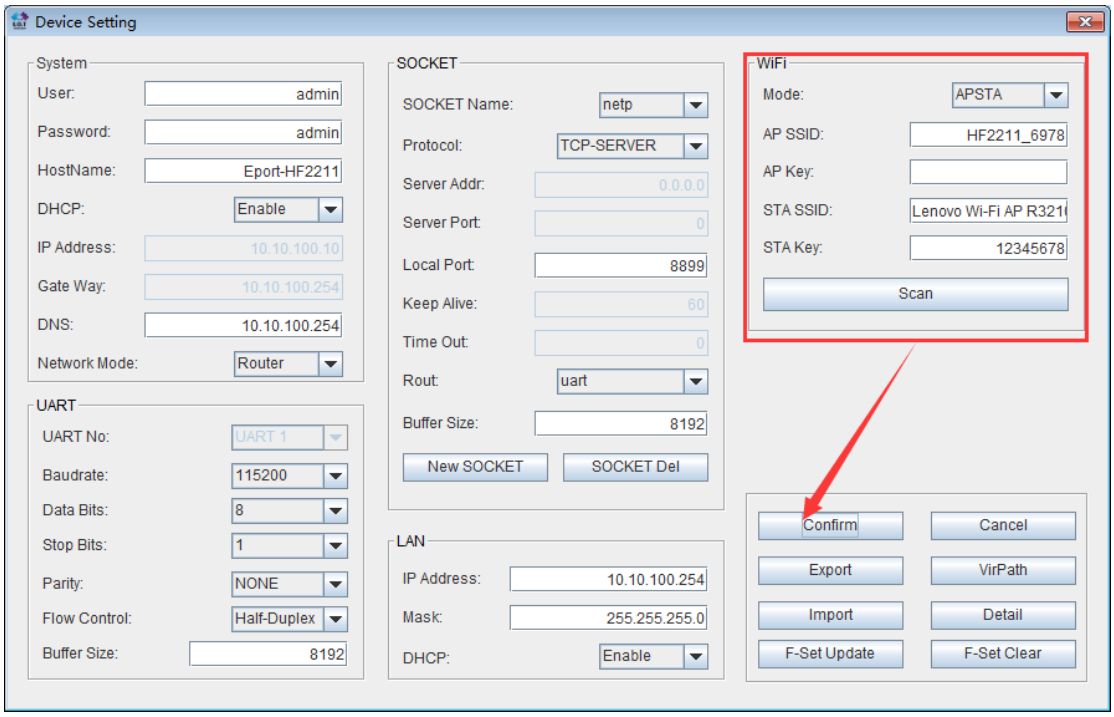
4. AP-STA WIRELESS CASCADE NETWORK



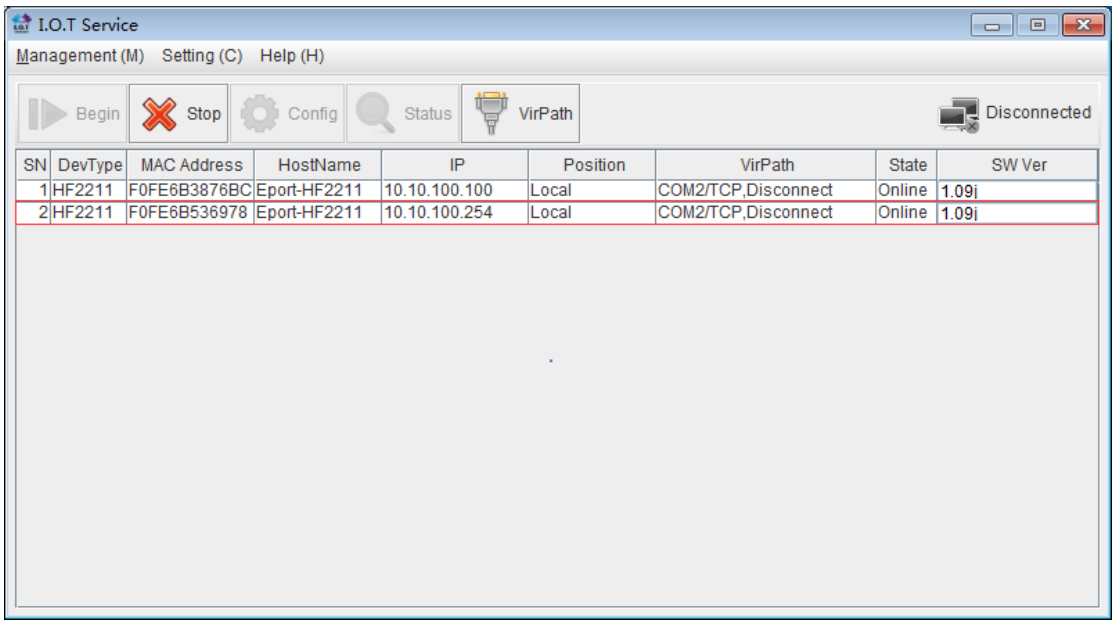
Step 1 : PC cable directly connect the Ethernet interface of first layer device(upper HF2211 in above figure). Open network and share center and forbid other connection method with only local connection.



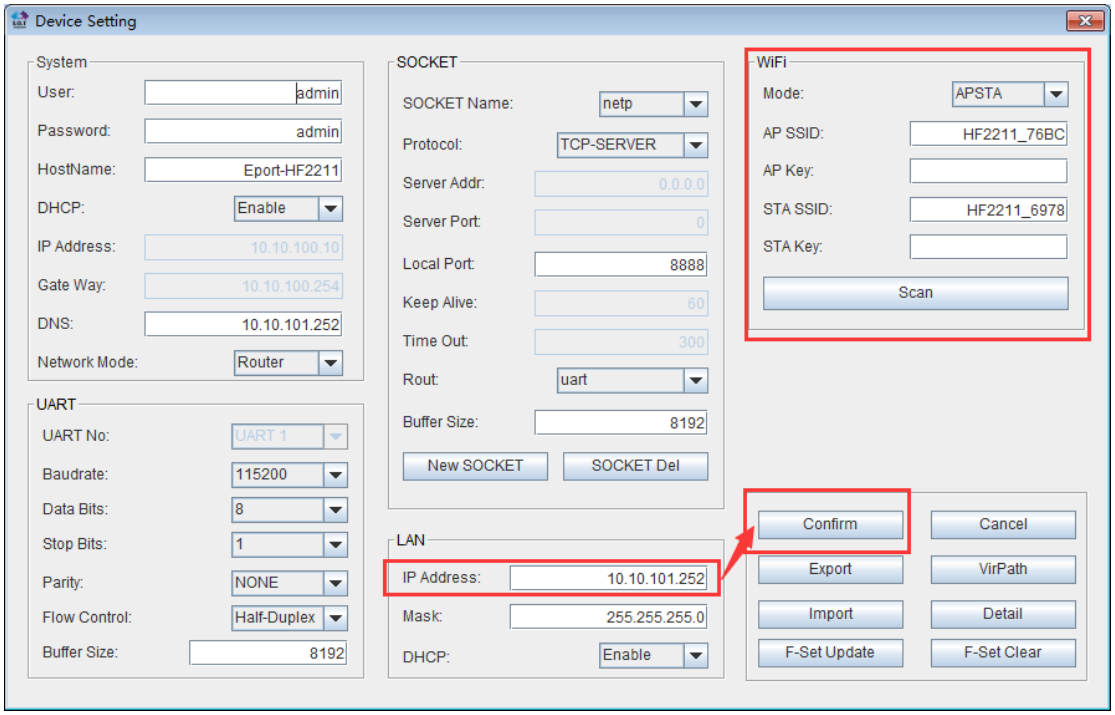
Step 2 :After open IOTService, then click device setting. Configure network mode to AP+STA. STA is configured as router parameter before restart module.



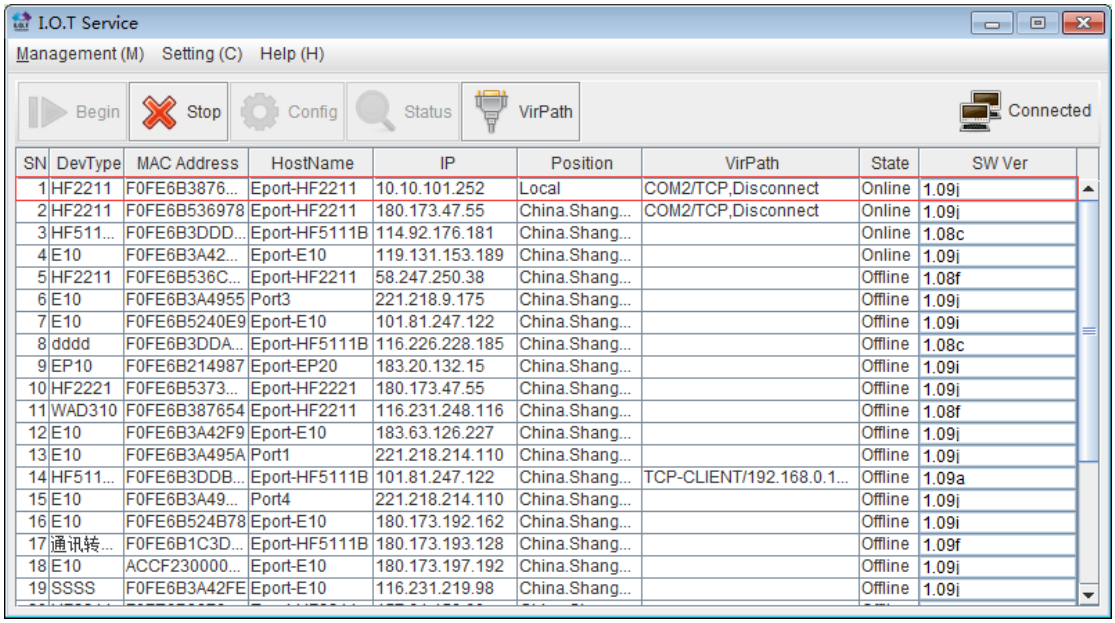
Step 5：Pull out the cable between and PC, the Link will light on after device restart. In the meantime, PC can open WiFi to choose the AP hotspot set by HF2211. The IOTService will show the devce after restart. As a result, AP+STA mode of class 1 device network successfully.



Step 6：Repeat Setp 1 to Setp 4 to class 2 device. STA side connects to the class 1 hotspot. Besides, change IP address in LAN network. It will result that LAN address of class 2 device in the different network segment of WAN address of class 1.



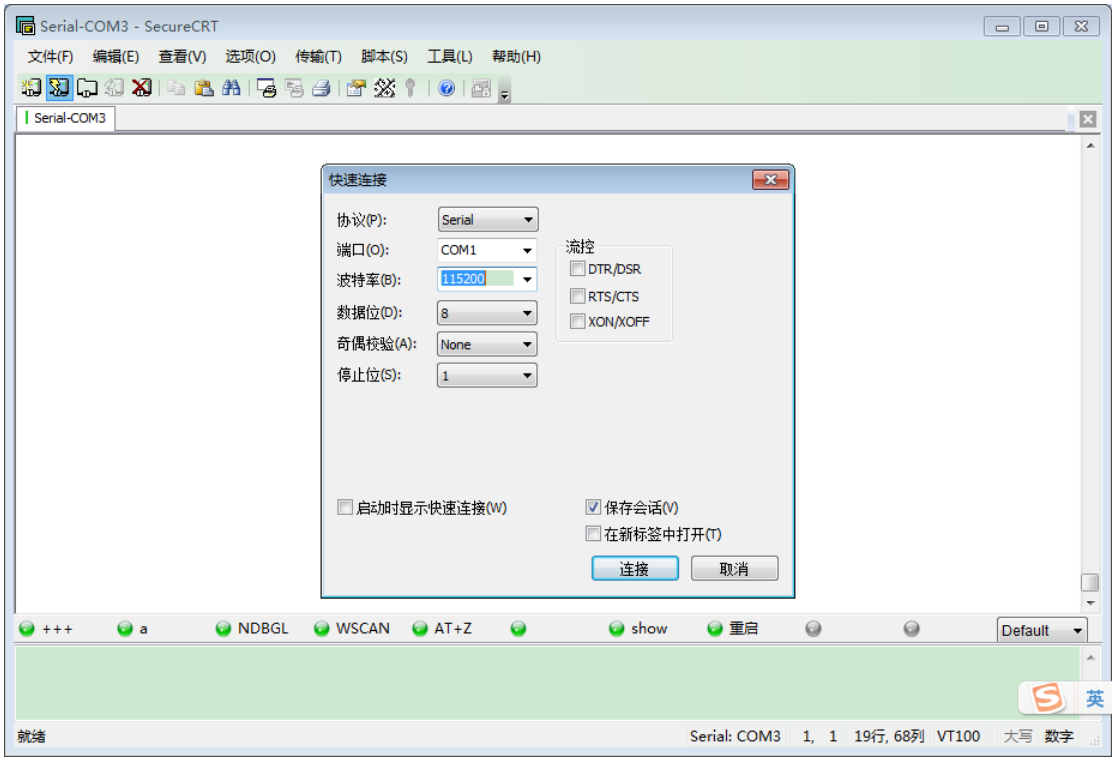
Step 7：Restart after set successfully, PCWiFi connect to hotspot of class 2 device. Restart IOTService, it will show device information. In the meantime, HF2211 cascade connection is successful. "Router->class 1 device->class 2 device->terminal" are under the same network.



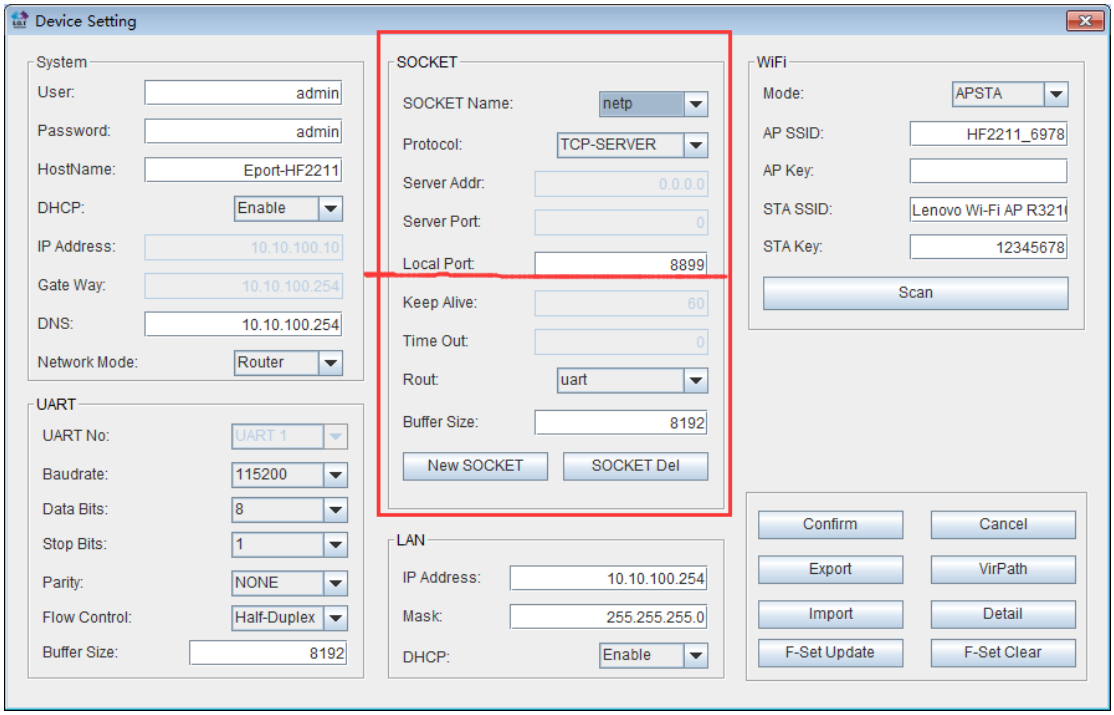
4.1. TCP Server Test One

Class 1 device works as server while class 2 is client. After generate connection, the date can be sent and received.

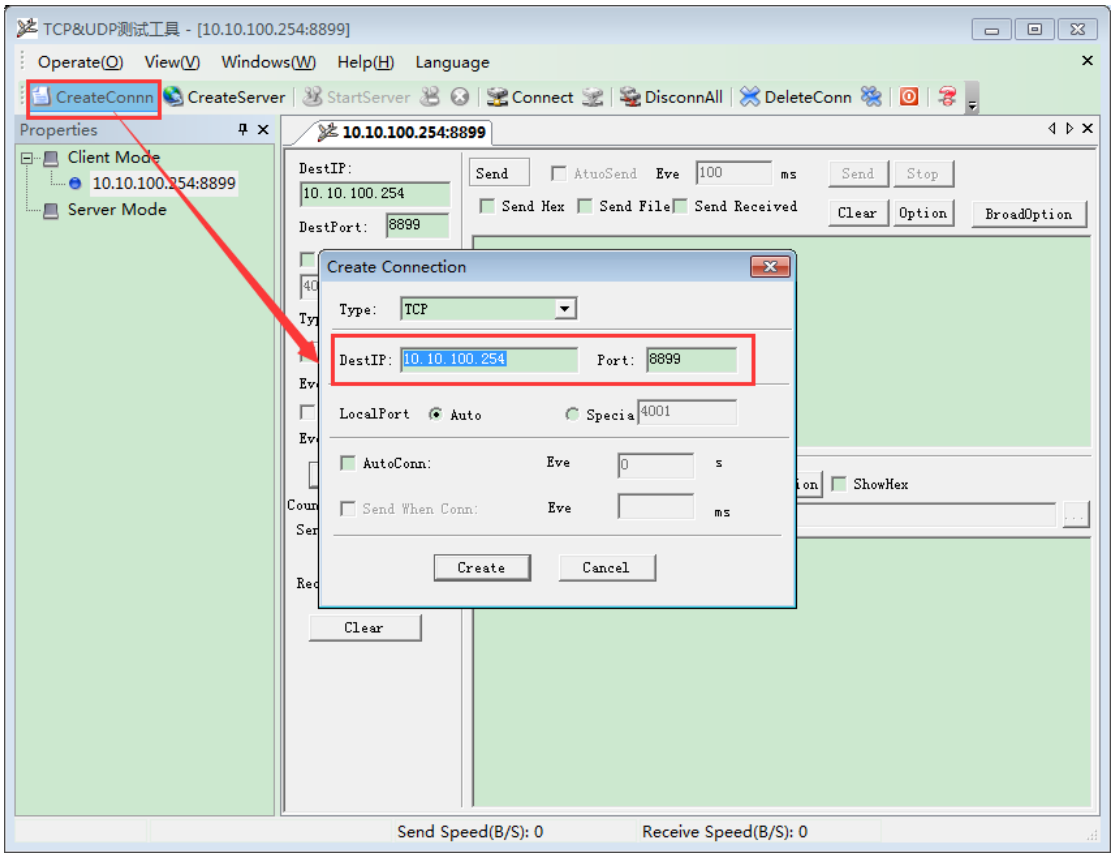
Step 1 : PC connects with class 1 device by serial cable, and then open SecureCRT to configure serial parameter.

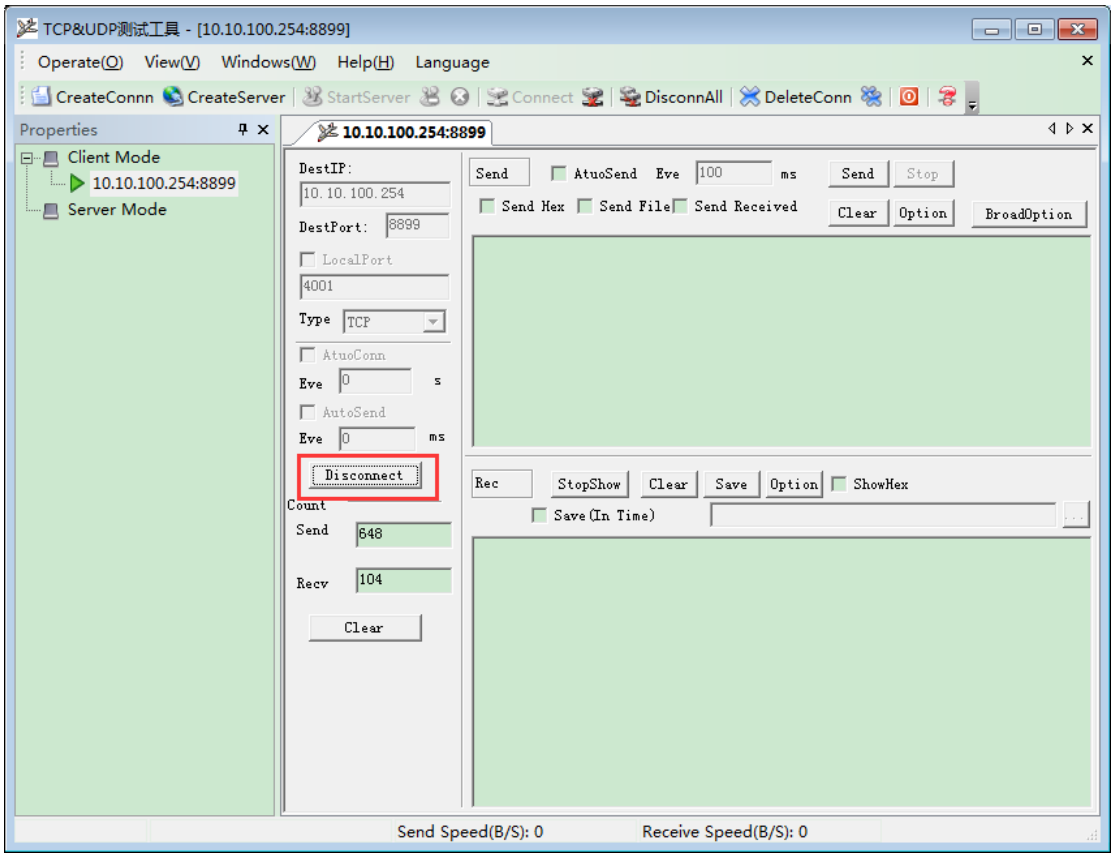


Step 2 : Open TCP&UDP test tool and generate TCP connection according to following steps.Default device has already generated a TCP Server(port 8899) for use. It can be searched after networked with class 1 device. If any demand, users can also configure by themselves.

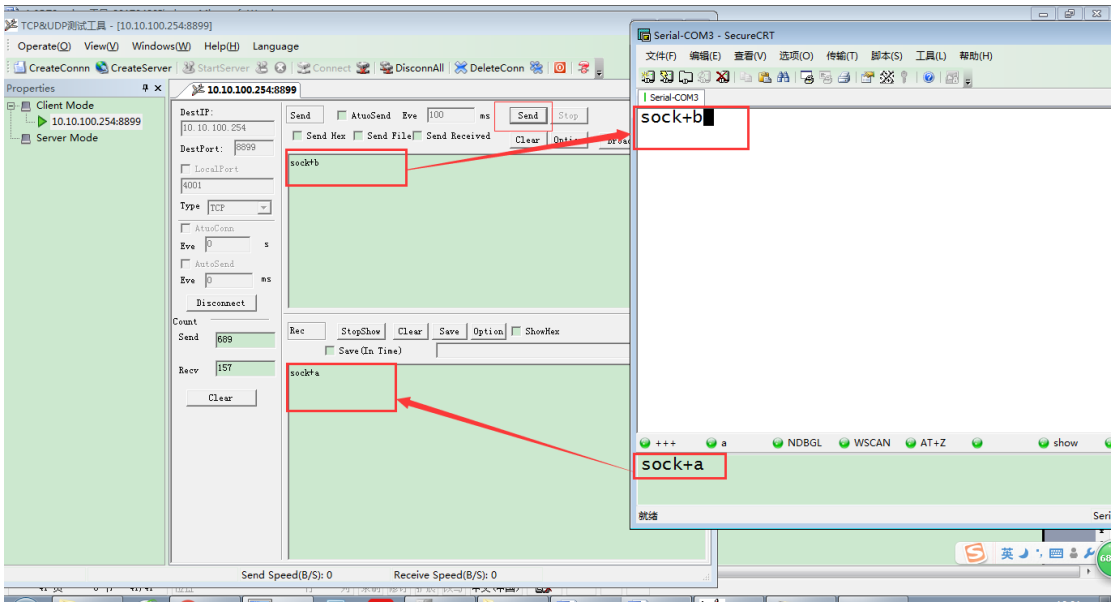


Step 3 : PC WiFi connected with hotspot of class 2 device-> create client-> input LAN IP address of class 1 device(as above figure) and socket port->connect->green arrow shown in client side.

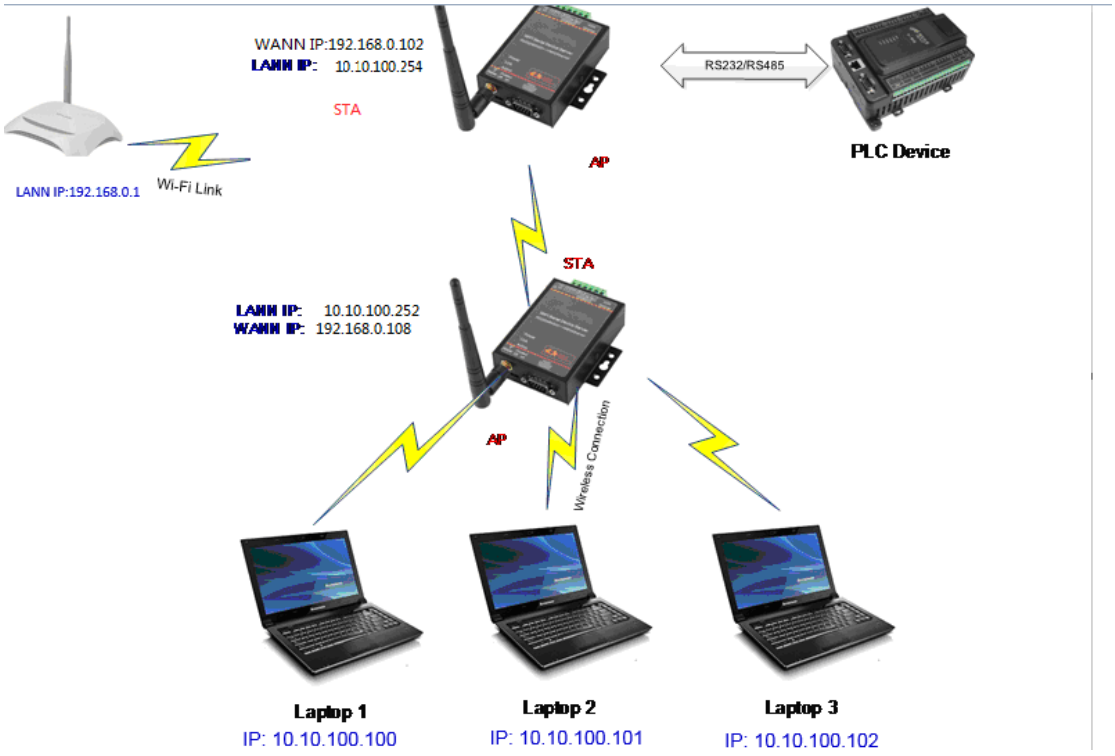




Step 4: HF2211 and TCP&UDP test tool can normally send and receive data.



4.2. TCP Server Test Two



Devices under secondary router can actively create communication to primary router(HF2211 is also recognized as router device). Ping package can confirm network status, but device under primary router can not visit device under secondary router. If needs visit mutually, it can set HF2211 as bridge mode. As figure above, the IP address of PC is assigned by HF2211 in first class. The specific steps is as following:

Step 1：After PC network with class 2 device, open IOTService.

System：

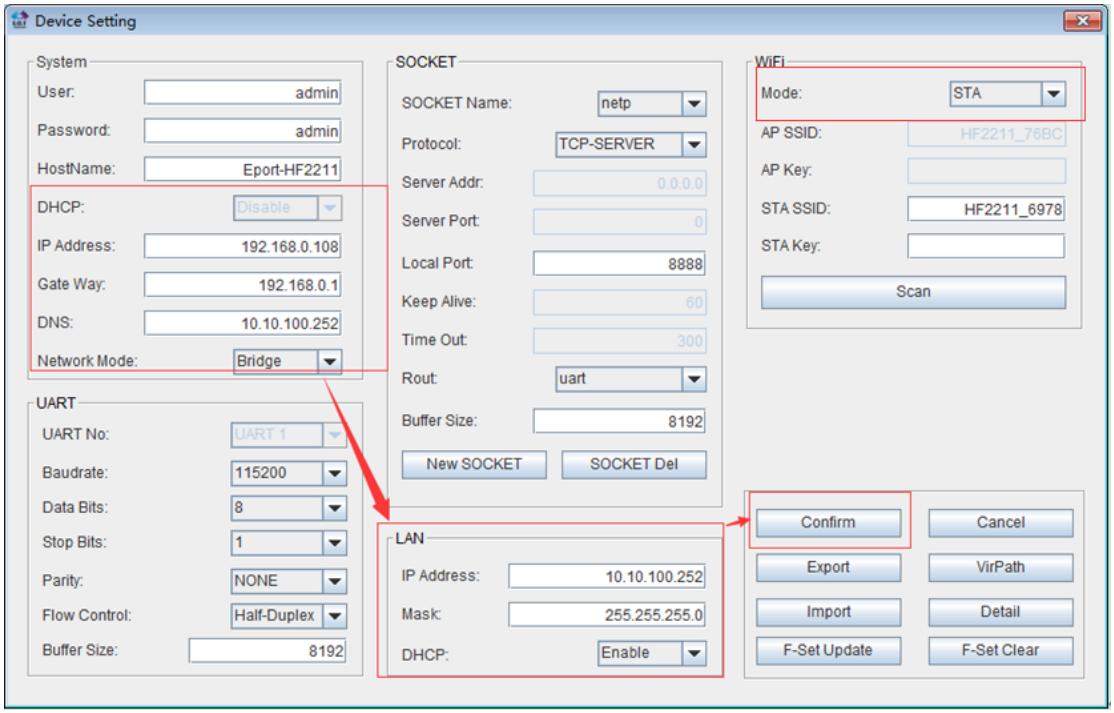
- Network Mode：Modify to bridge.

LAN：

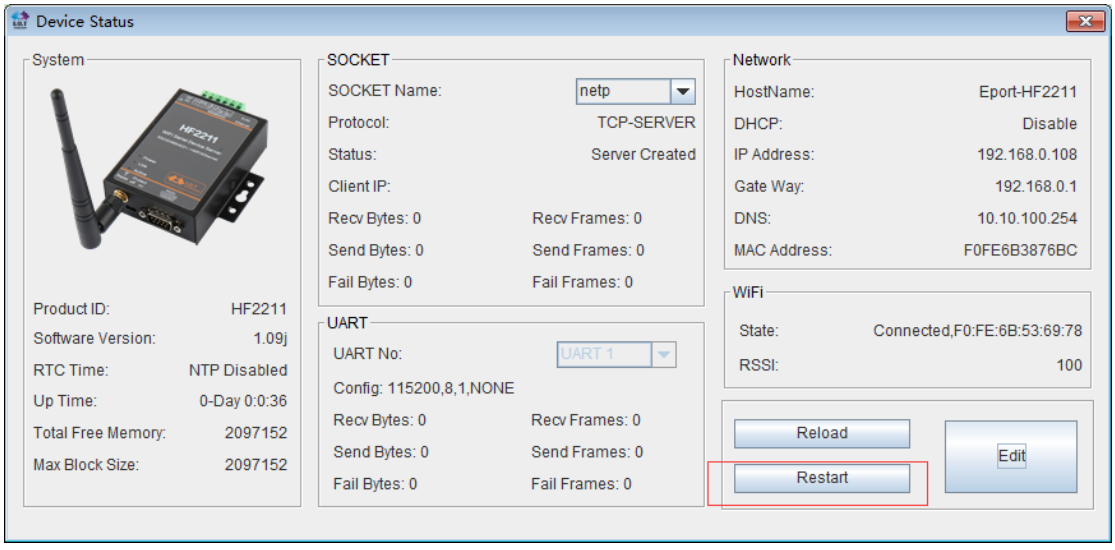
- IP Address：Modify the LAN IP address with the same IP segment to the class 1 device. But the IP address can not be the same, if not, it will lead to conflict. But bridge mode can also visit class 2 device.
- Mask：255.255.255.0。

WiFi：

- Mode：STA mode connected with class 1 device.

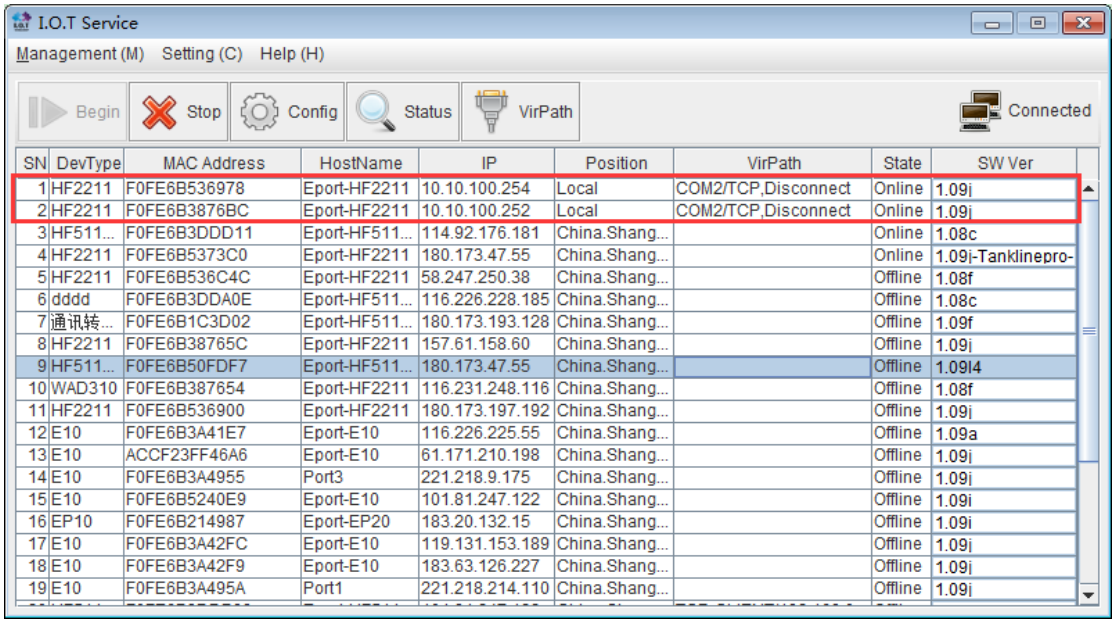


Step 2：Restart class 2 device after configure successfully.



Step 3：PC connect to the WiFi hotspot of class 1 device.

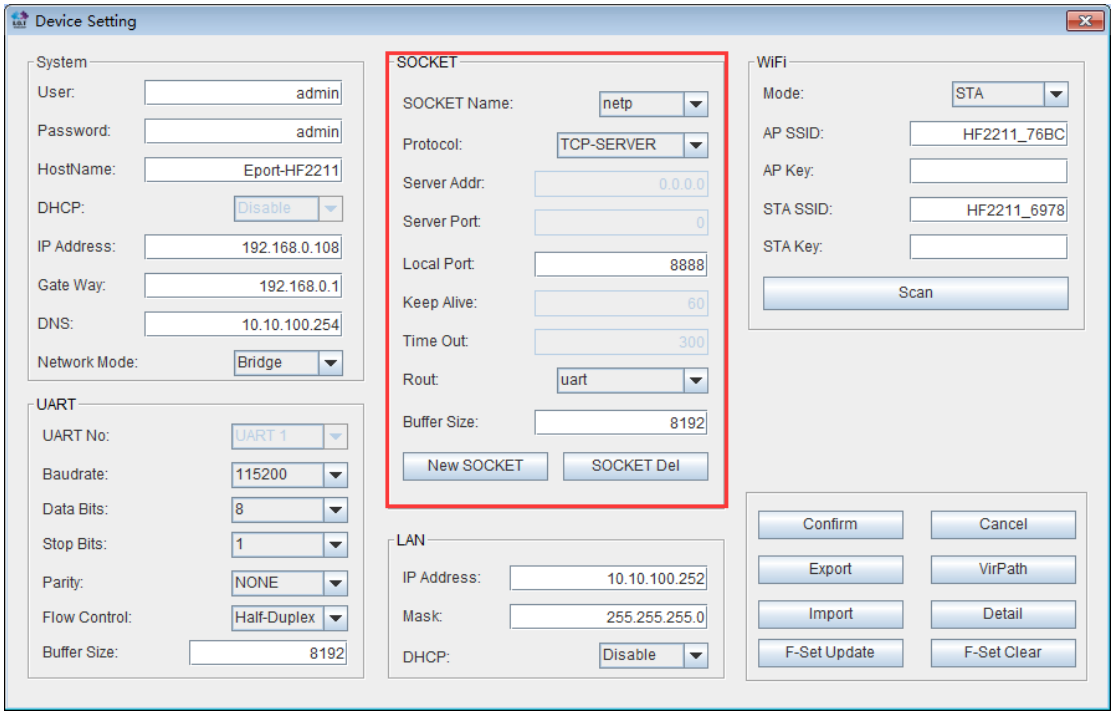
Step 4 : Restart IOTService again, there are two HF2211. SN1- class 1 device, SN2-class 2 device



SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF2211	F0FE6B536978	Eport-HF2211	10.10.100.254	Local	COM2/TCP,Disconnect	Online	1.09i
2	HF2211	F0FE6B3876BC	Eport-HF2211	10.10.100.252	Local	COM2/TCP,Disconnect	Online	1.09i
3	HF511...	F0FE6B3DDD11	Eport-HF511...	114.92.176.181	China.Shang...		Online	1.08c
4	HF2211	F0FE6B5373C0	Eport-HF2211	180.173.47.55	China.Shang...		Online	1.09i-Tanklinepro-
5	HF2211	F0FE6B536C4C	Eport-HF2211	58.247.250.38	China.Shang...		Offline	1.08f
6	dddd	F0FE6B3DDA0E	Eport-HF511...	116.226.228.185	China.Shang...		Offline	1.08c
7	通讯转...	F0FE6B1C3D02	Eport-HF511...	180.173.193.128	China.Shang...		Offline	1.09f
8	HF2211	F0FE6B38765C	Eport-HF2211	157.61.158.60	China.Shang...		Offline	1.09i
9	HF511...	F0FE6B50FDF7	Eport-HF511...	180.173.47.55	China.Shang...		Offline	1.09l4
10	WAD310	F0FE6B387654	Eport-HF2211	116.231.248.116	China.Shang...		Offline	1.08f
11	HF2211	F0FE6B536900	Eport-HF2211	180.173.197.192	China.Shang...		Offline	1.09i
12	E10	F0FE6B3A41E7	Eport-E10	116.226.225.55	China.Shang...		Offline	1.09a
13	E10	ACCF23FF46A6	Eport-E10	61.171.210.198	China.Shang...		Offline	1.09i
14	E10	F0FE6B3A4955	Port3	221.218.9.175	China.Shang...		Offline	1.09i
15	E10	F0FE6B5240E9	Eport-E10	101.81.247.122	China.Shang...		Offline	1.09i
16	EP10	F0FE6B214987	Eport-EP20	183.20.132.15	China.Shang...		Offline	1.09i
17	E10	F0FE6B3A42FC	Eport-E10	119.131.153.189	China.Shang...		Offline	1.09i
18	E10	F0FE6B3A42F9	Eport-E10	183.63.126.227	China.Shang...		Offline	1.09i
19	E10	F0FE6B3A495A	Port1	221.218.214.110	China.Shang...		Offline	1.09i

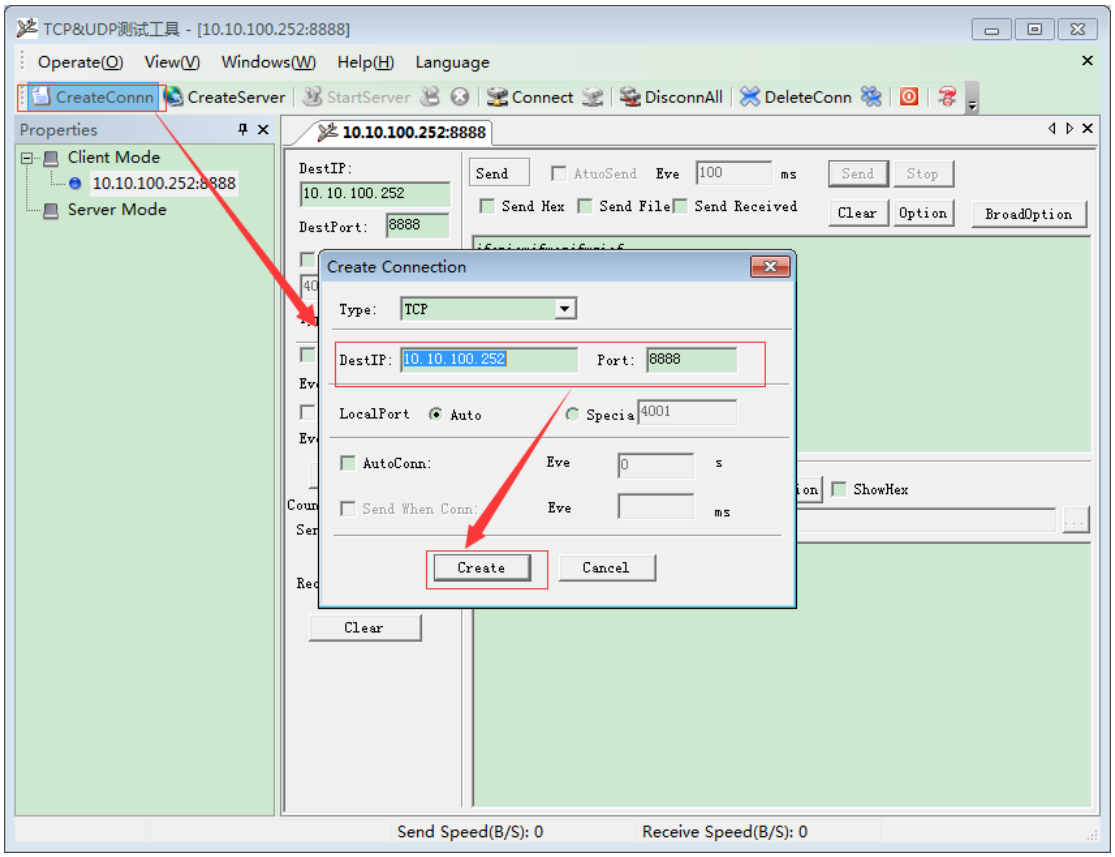
Step 5 : Open device setting of class 2 device, module has already created a socket initially.

Local Port : Initial port number is 8899. Note that the configuration of port number cannot be the same as other sockets.

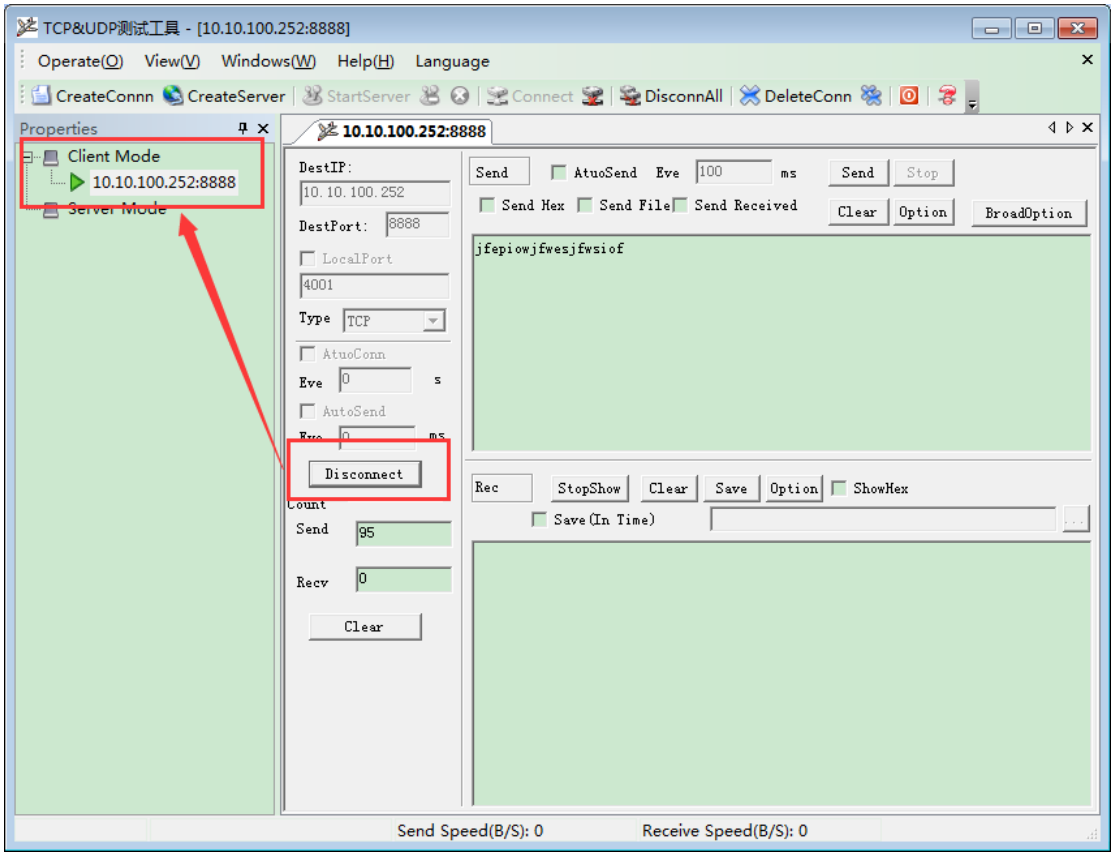


Step 6：Restart device after set successfully. And open TCP&UDP test tool to create a client.

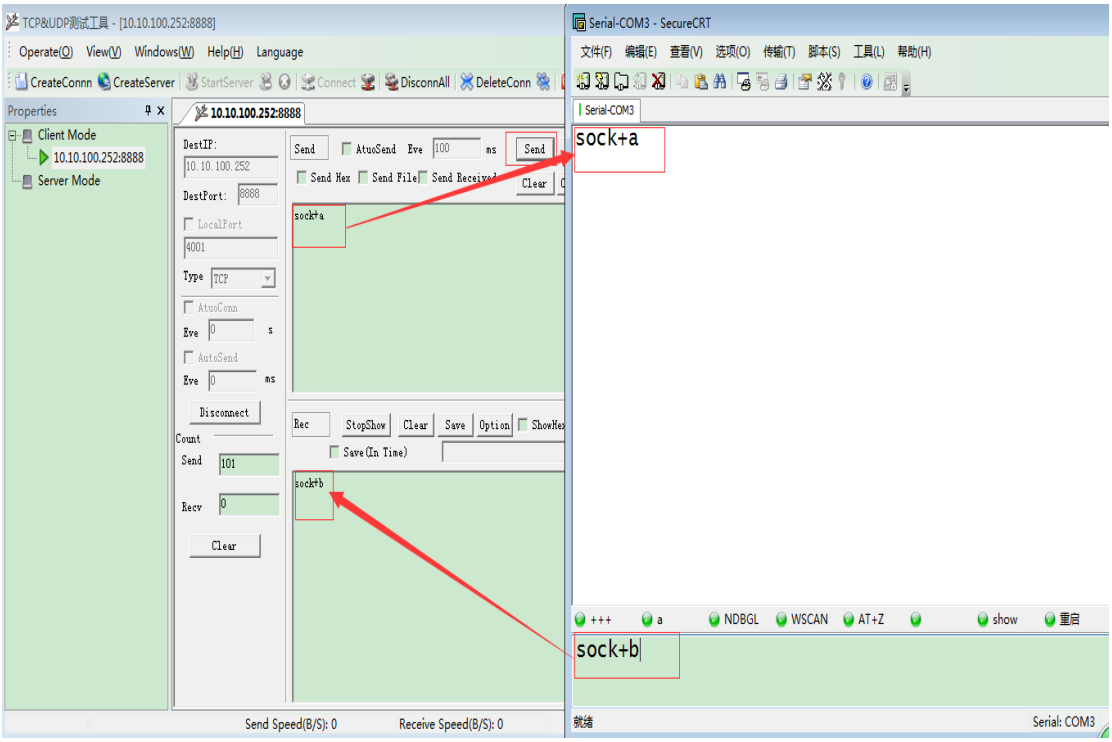
- Create Connect：Input LAN IP address of class 2 device and created port number.



Step 7 : Green arrow appears after created client, which represents successful connection.



Step 8：PC connects to class 2 device by serial cable. Open SercureCRT serial tool and mutual data transmission between TCP and serial port will appear.



Step 9：Similar to class 1 device. No longer repeat.

