User Manual and Test Guide

HF2421

Test Guide

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Version List：

2017-08-30 First Draft

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1. SERIAL SERVER CONNECTION

1. 1 HF2421 Device Connection

When HF2421 work under AP mode and Ethernet interface can only be LANN port, it can be connected to PC or WiFi. The initial ssid is device type+last 4 bits of MAC address.(The duration between powered on and networked successfully is about 5~10s). When Ethernet 1 networked successfully, light Net-1 will turn to be green, and it is the same as Net-2. When RS232-1 has data transmission, Active1 will flash, which is the same as RS232-2.

Ethernet 1: The first Ethernet on the right in the following figure can only be used as LANN port.

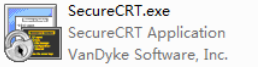
Ethernet 2: The same as the second Ethernet on the right.

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.

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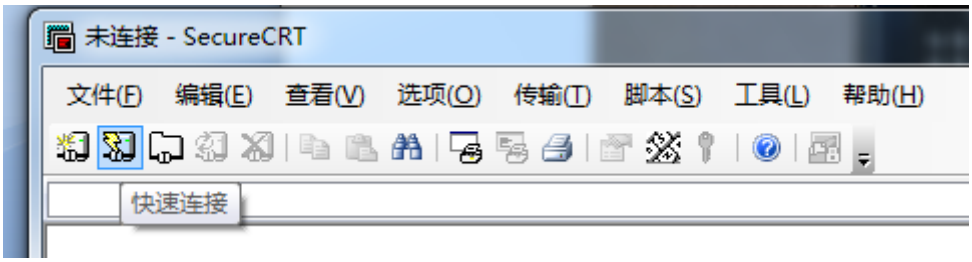
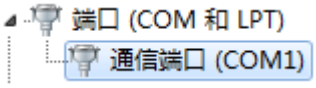


2.2. Configure Serial Parameter

Protocol：Serial

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

)

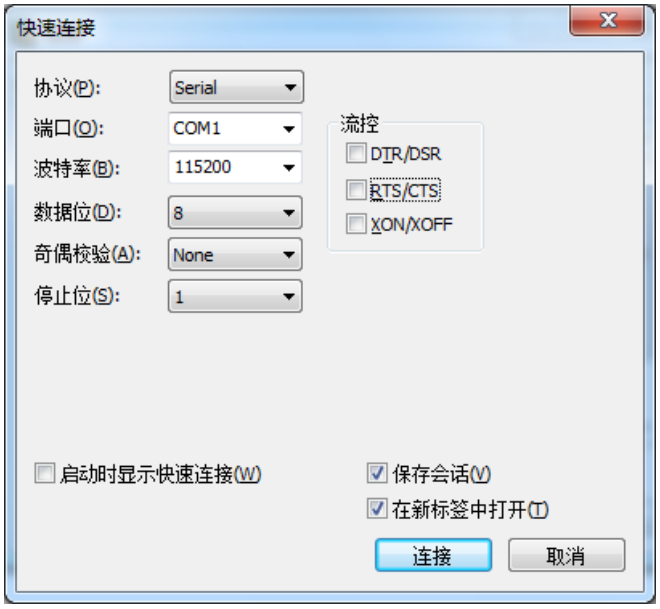
Baud Rate：115200

Data Bits：8

Parity Check Bit：None

Stop Bit：1

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



Notes: HF2421 the default serial data is as above and user can modify device working parameter by IOTService.

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3. HF2421 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. HF2421 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 HF2421 by serial cable. Open SecureCRT to verify if serial port can send and receive data normally.

2. HF2421 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 HF2421 and PC.

In following test, "TCP Server Test" -HF2421 as server and PC as client." TCP Client Local Test" -HF2421 as client and PC as server.

3.2. Ethernet Network based on AP

Device can directly connect to PC(Ethernet 1 or 2) and module use default IP address automatically for parameter config or data transmission by PC direct connection(about 5 seconds after default 10.10.XXX.XXX appears). For example, IP address below is 10.10.100.254(Normally, it is default IP. If conflicts, it will change to others automatically)

Step 1 : Open Network and Share centre and forbid other connection method in addition to reserve local connection. Then, use Ethernet cable to connect the interfaces between RJ45 and PC. After open IOTService, it will automatically appear device information, shown below:

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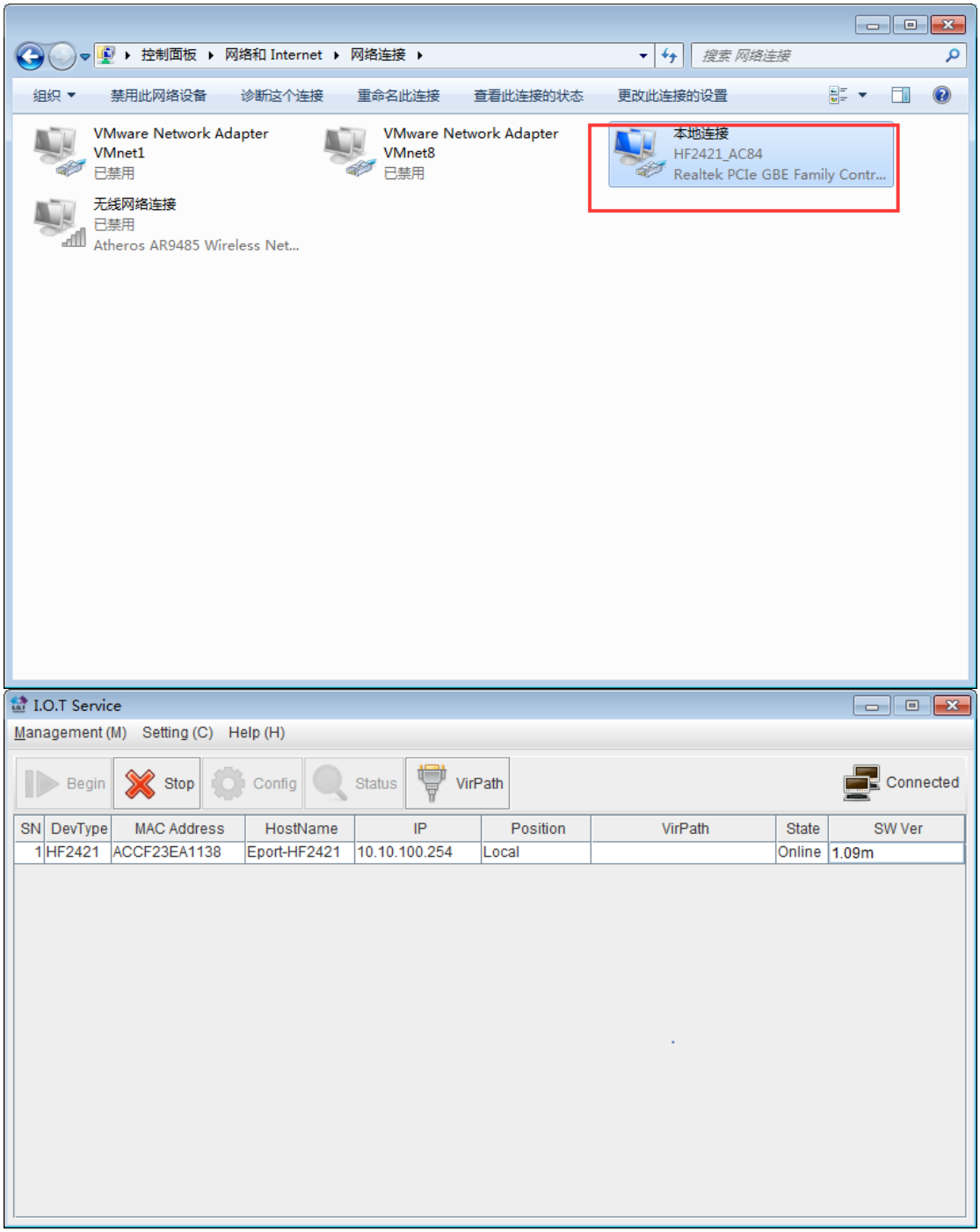

Step 2：According to the IP address above, parameter can be configured by webpage. Username and password are both admin as default.

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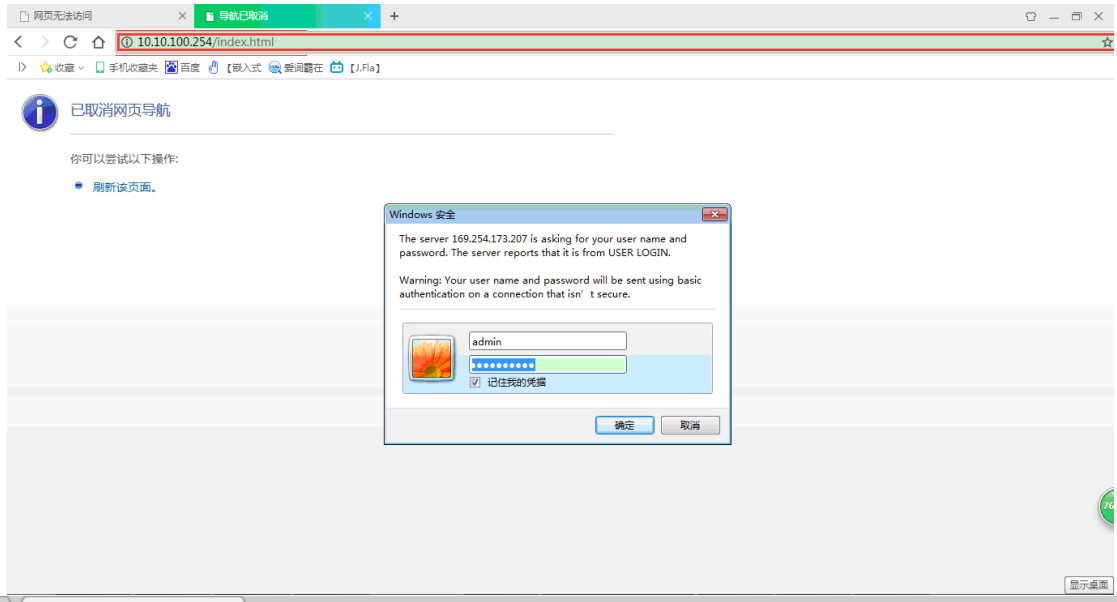

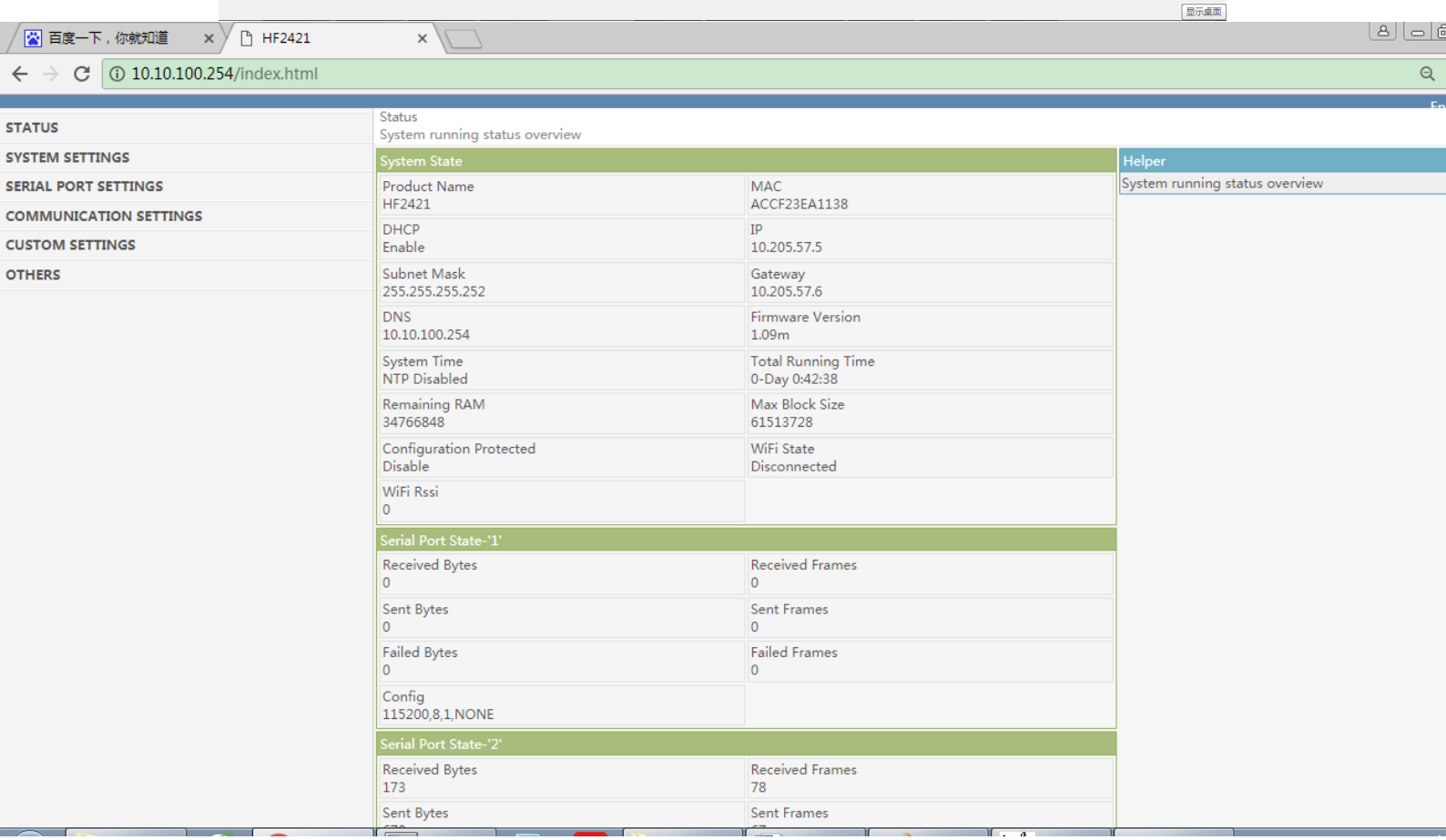

Step 3：HF2421 connects to PC by interface RS232 and simulate MCU serial signal. The use method of HF2421 can refer to 4th chapter os user manual. Please use serial cable from our company, crosswire necessarily.

Step 4：Open serial configuration tool, SecureCRT software is recommended(other software is ok as well but less convenient). Following introduction are all using SecureCRT. Specific command operation method can refer to chapter cli in HF2421 user manual.

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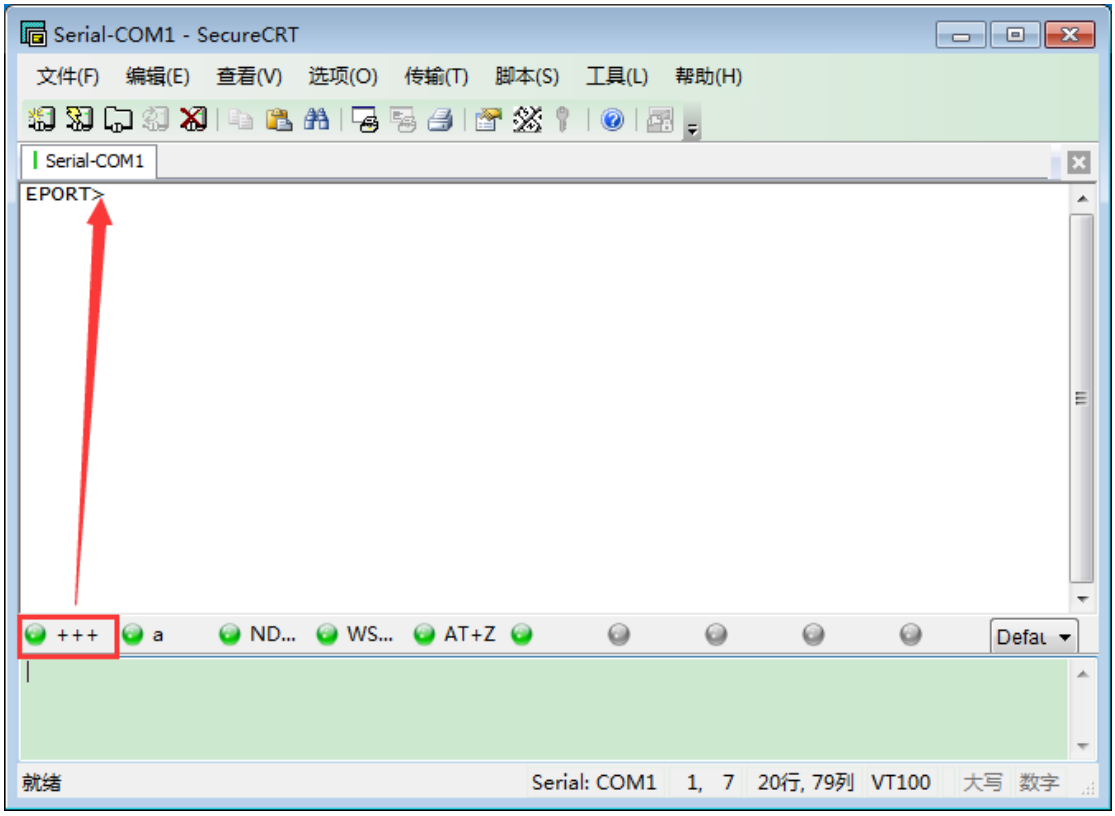

3.3. TCP Server Test one in AP Mode

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

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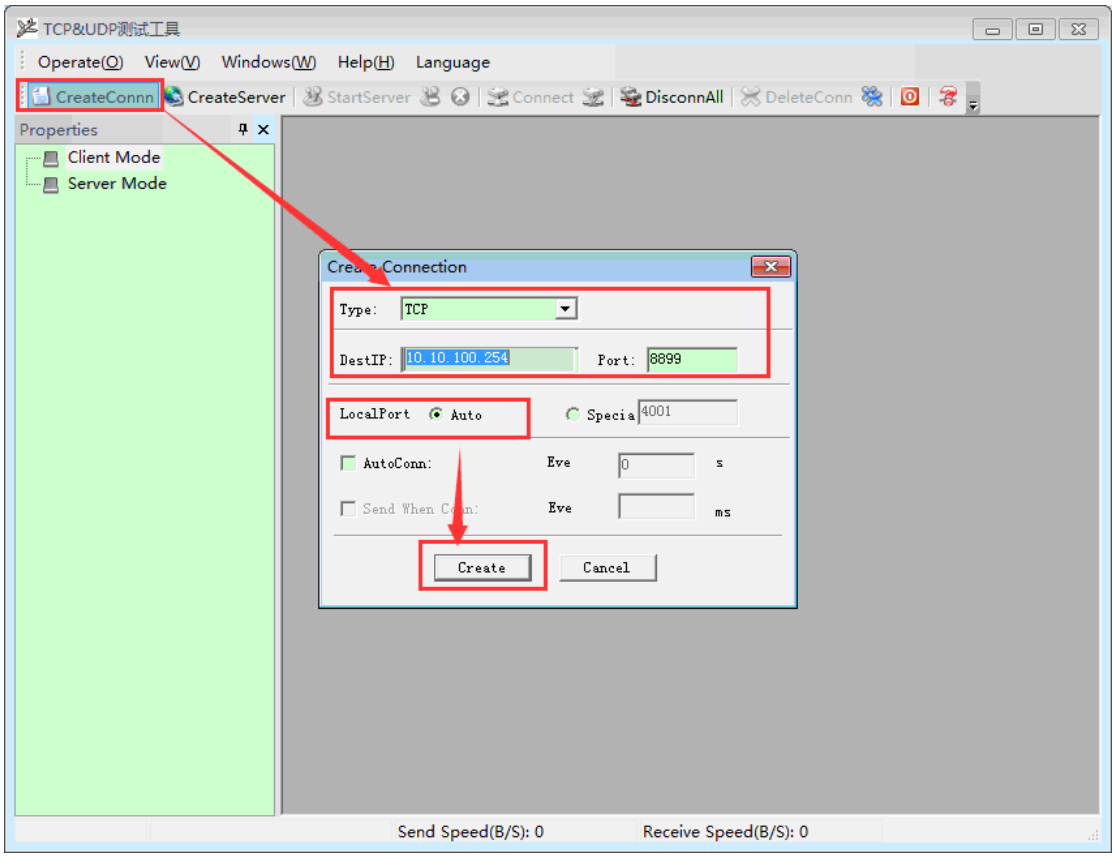

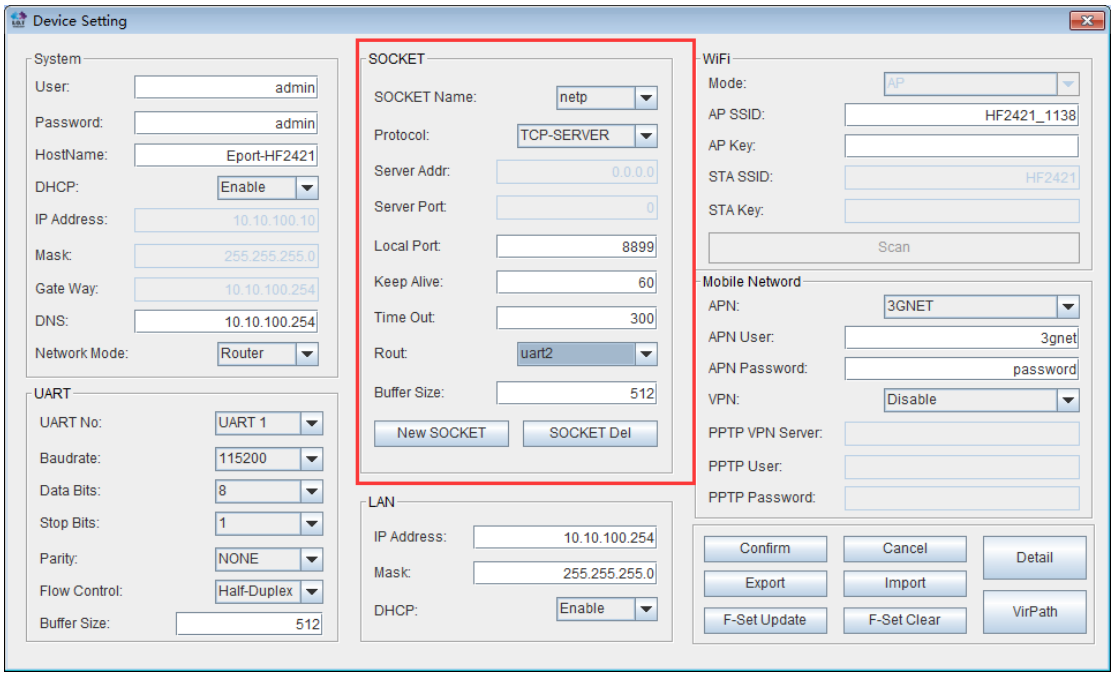

Step 2：Click Connect to build TCP connection

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

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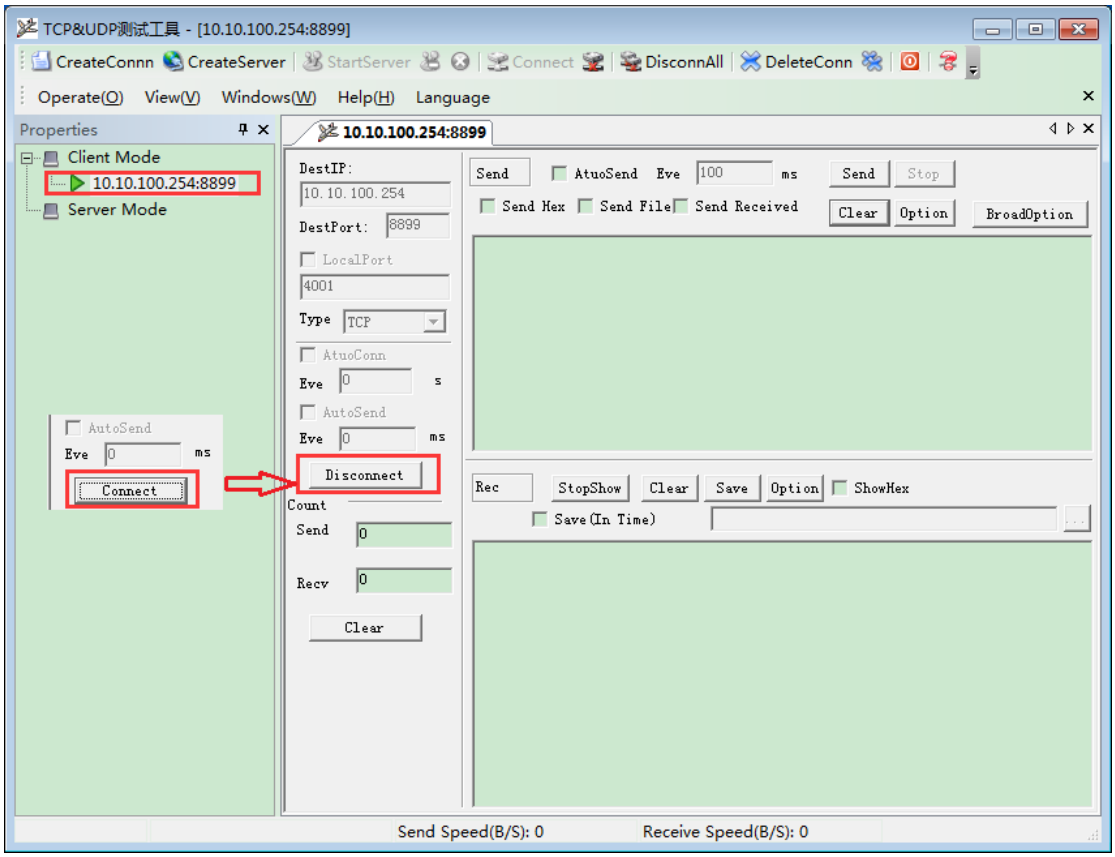
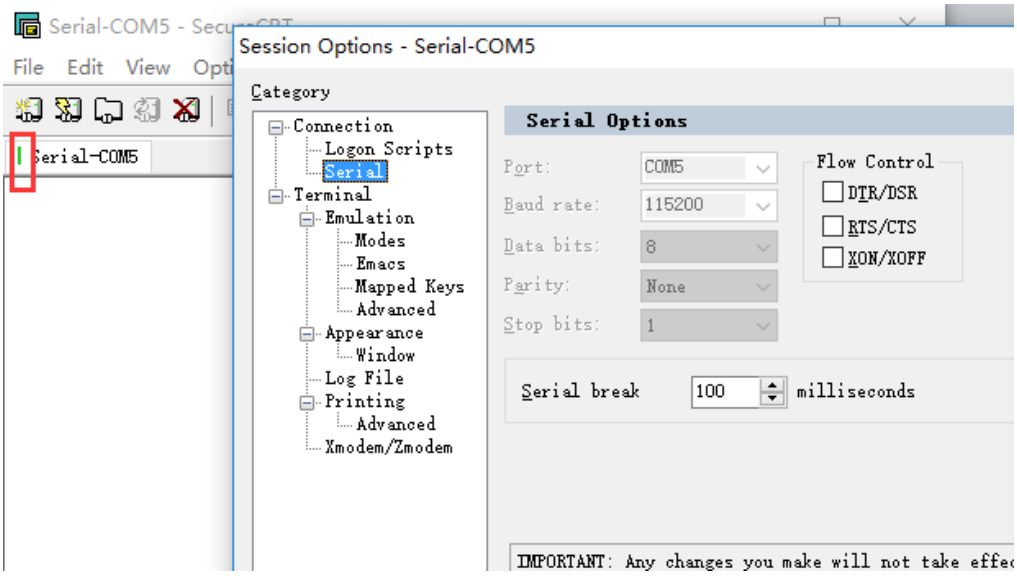


Step 3 : Open serial tool according to following parameter(115200 baud rate as default)



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

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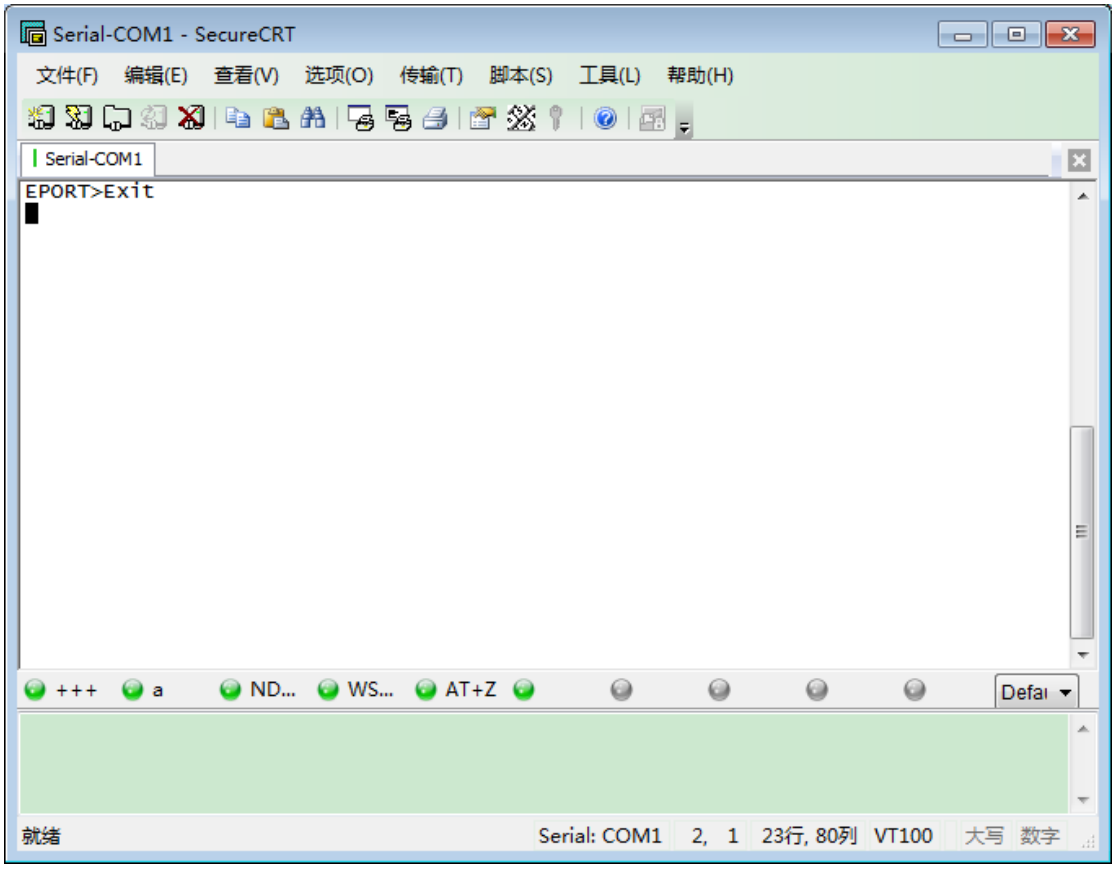
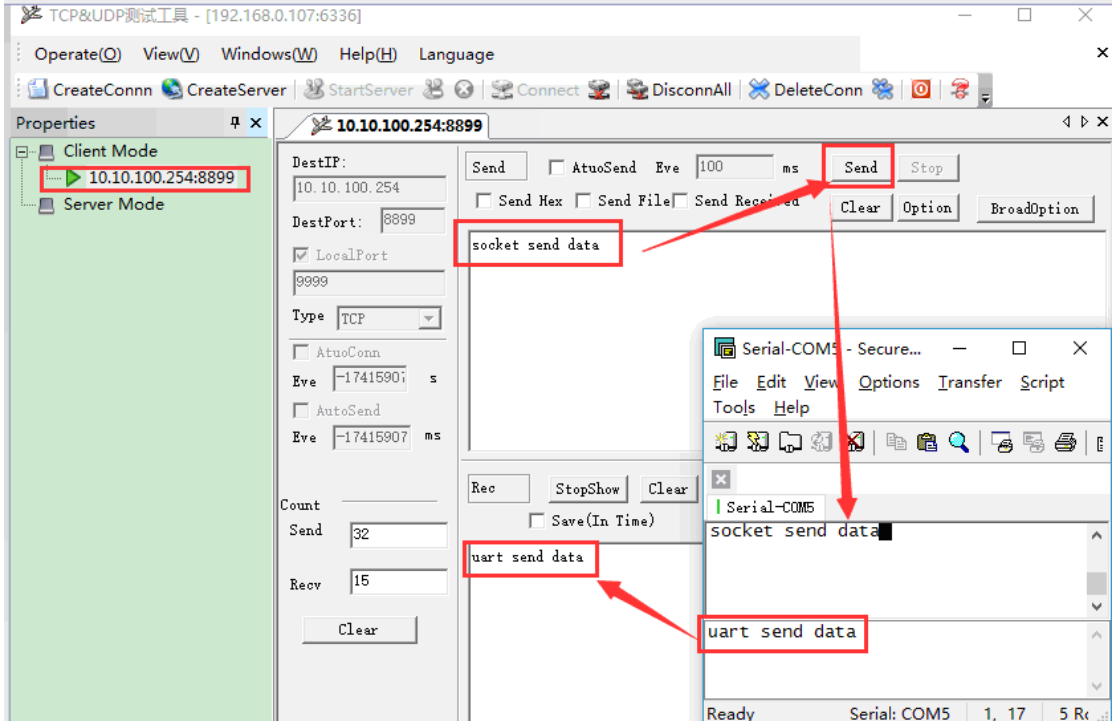


Step 5：Mutual data transmission between TCP and serial port.



3.4. TCP Server Test two in AP Mode

One serial port and socket test data in the following chapter, and this chapter is about dual serial ports and sockets.

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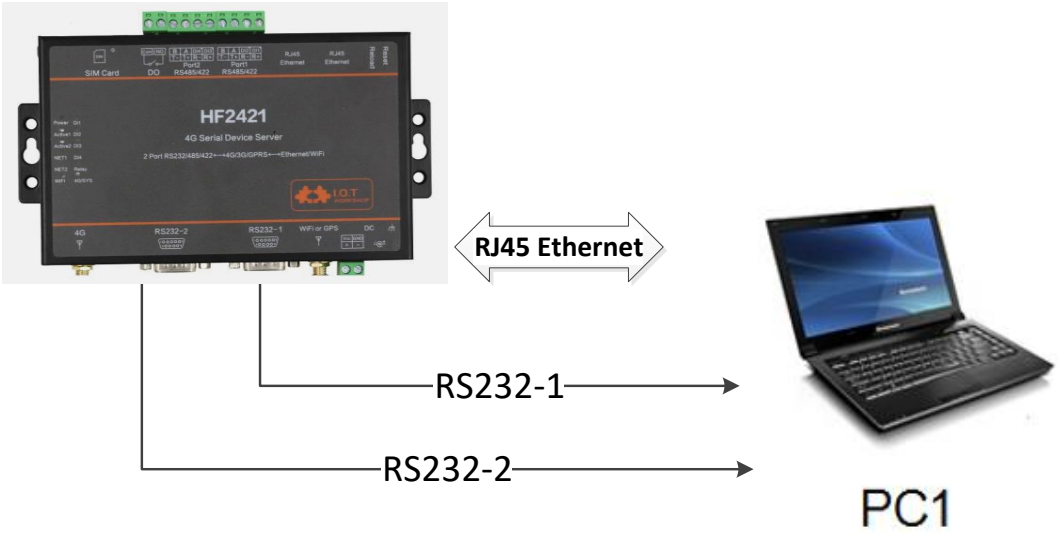
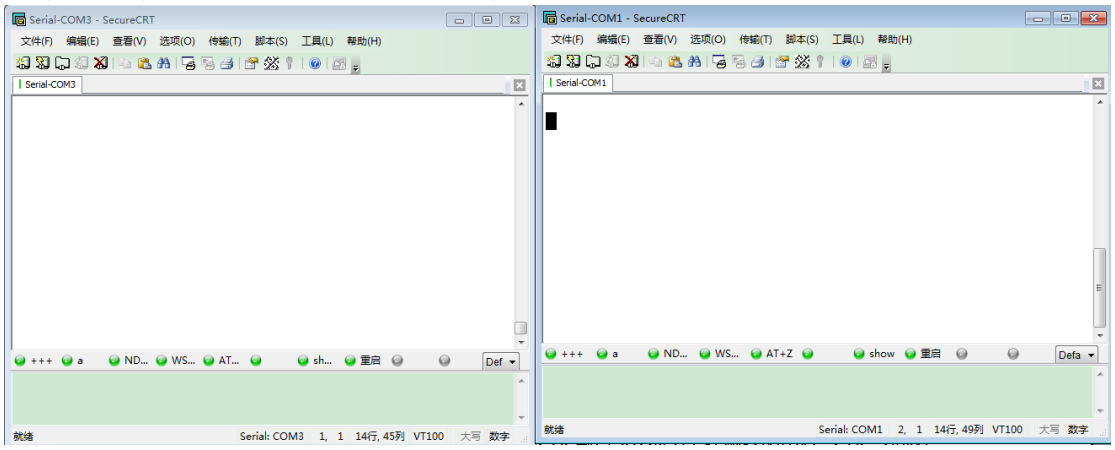
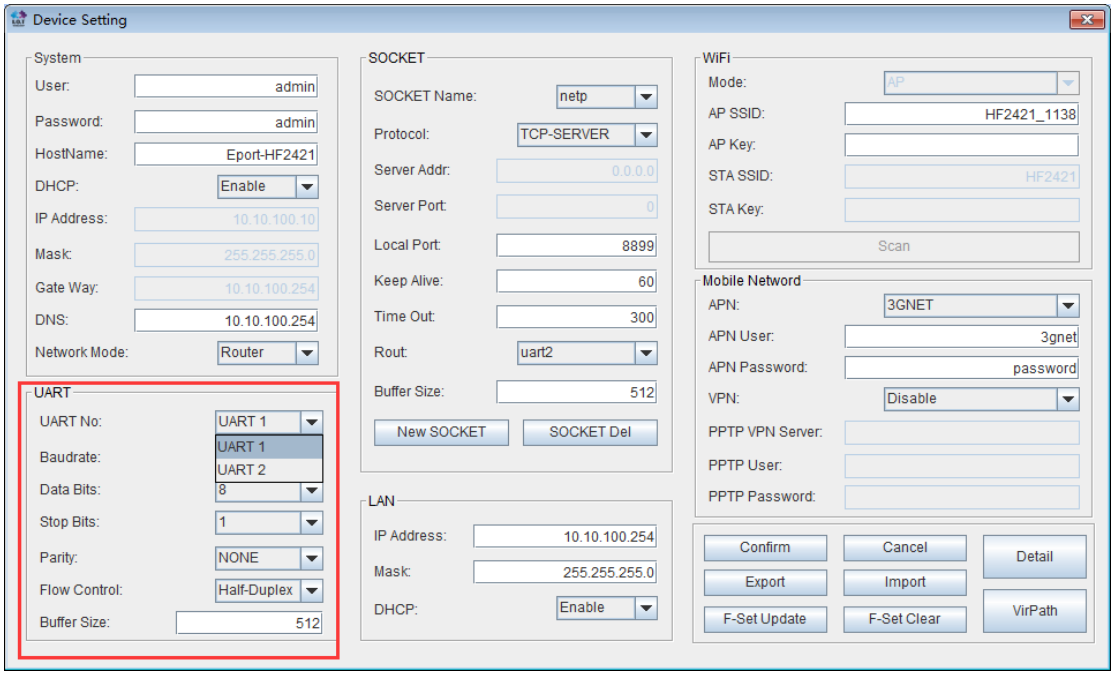
Step 1：Using serial port to connect to interface RS232-1,RS232-2 and PC.



Step 2：Open SecureCRT, two serial ports has appeared connected on.



Step 3：Open IOTService and click device setting. Two serial parameter can be set as follow:



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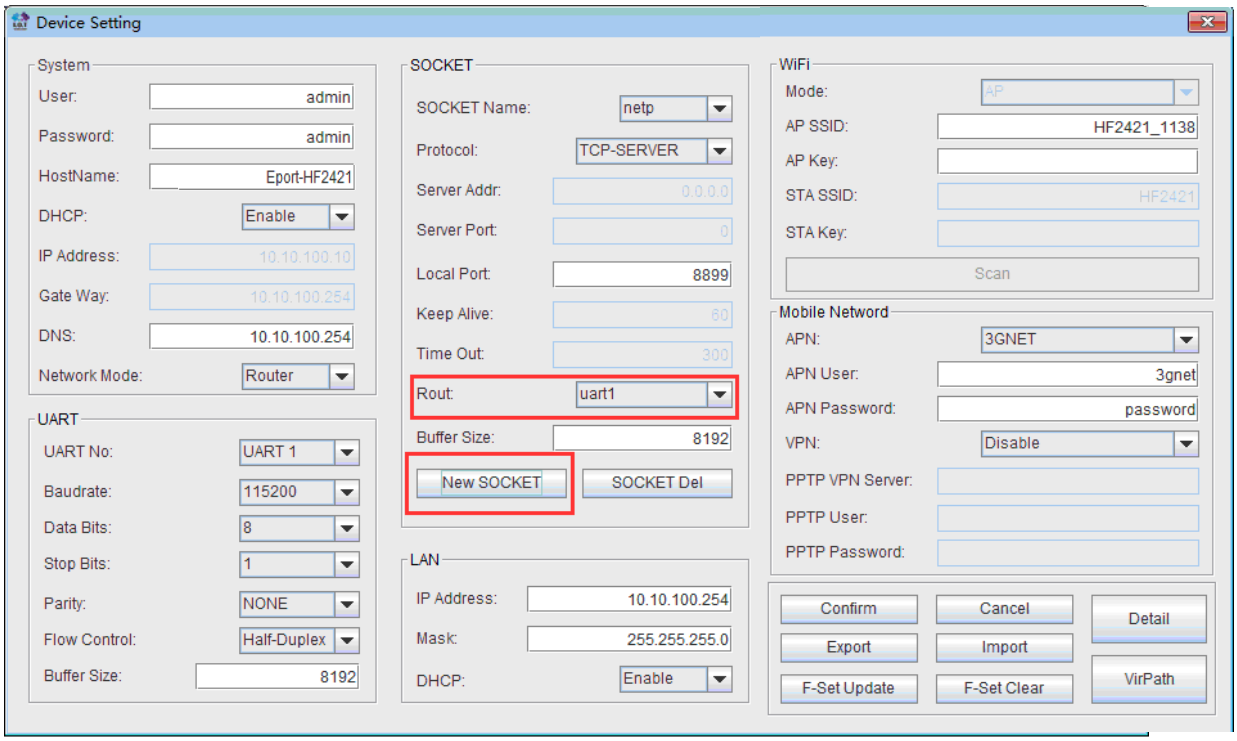
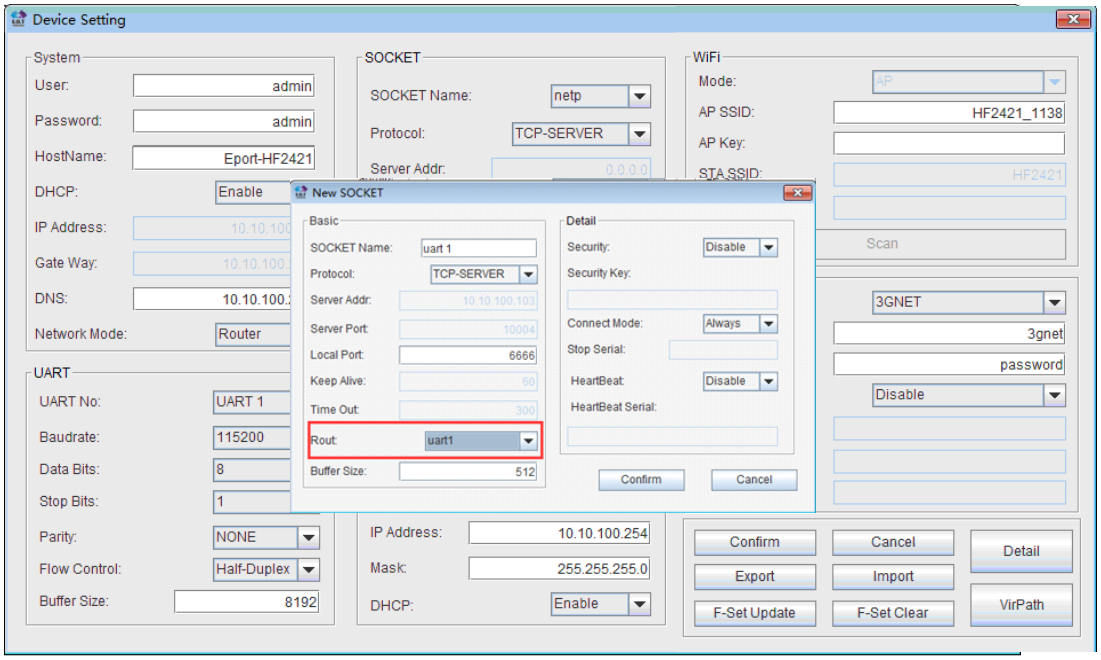
Step 4 : Create two sockets and choose two relative serial port(RS232-1 and RS232-2).





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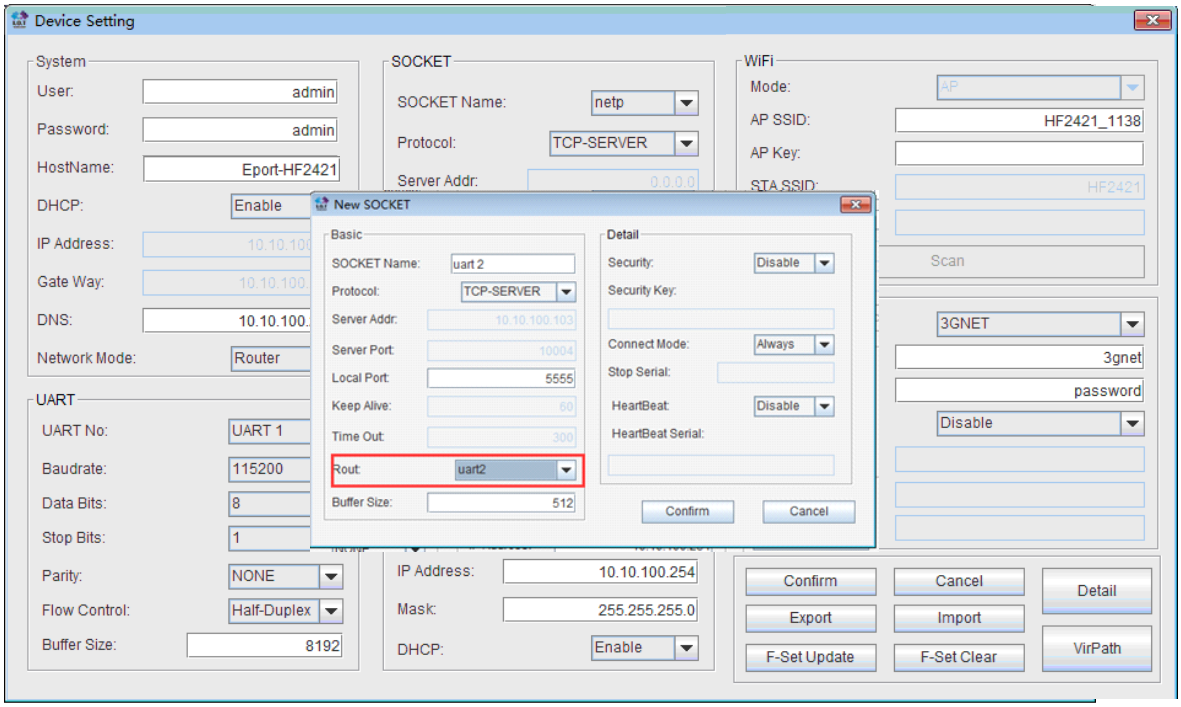
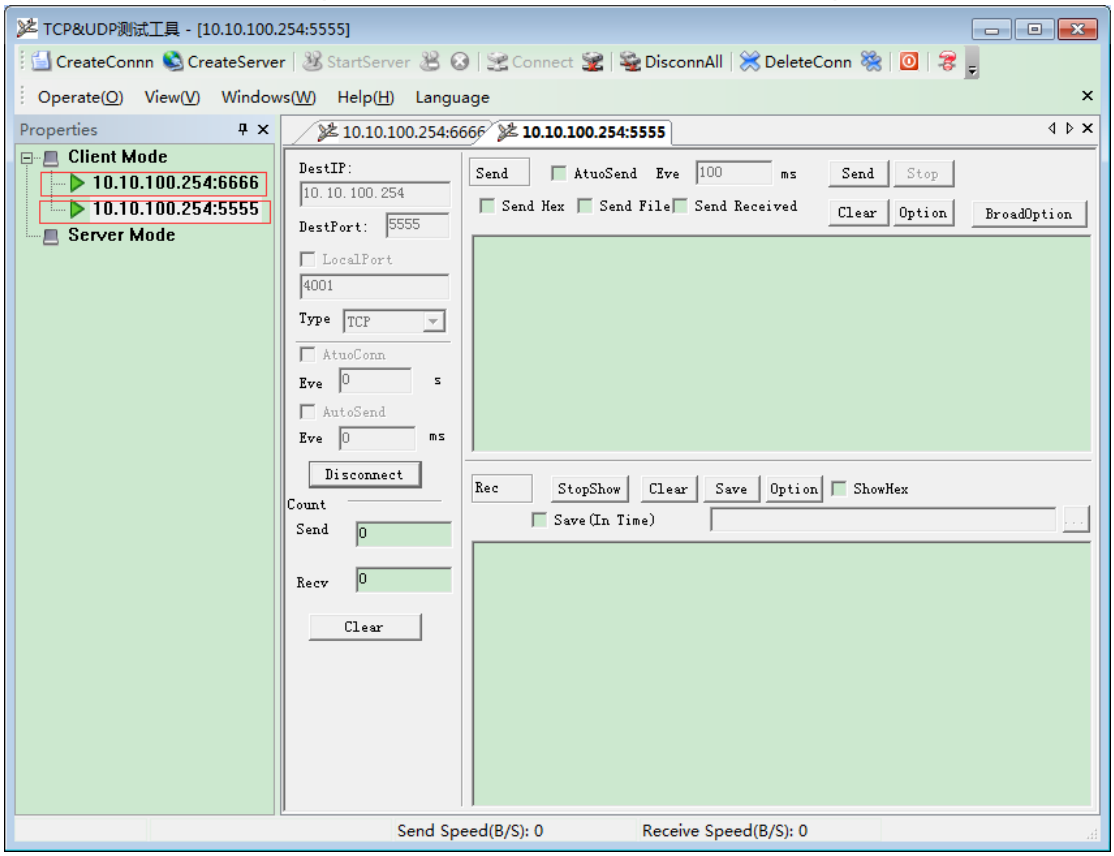


Step 5：Reset device. Open TCP&UDP test tool and create two clients, uart1 and uart2 is the same as Step 4. The method of creation is like chapter 3.3.



Step 6：Mutual data communication between TCP and two serial ports.

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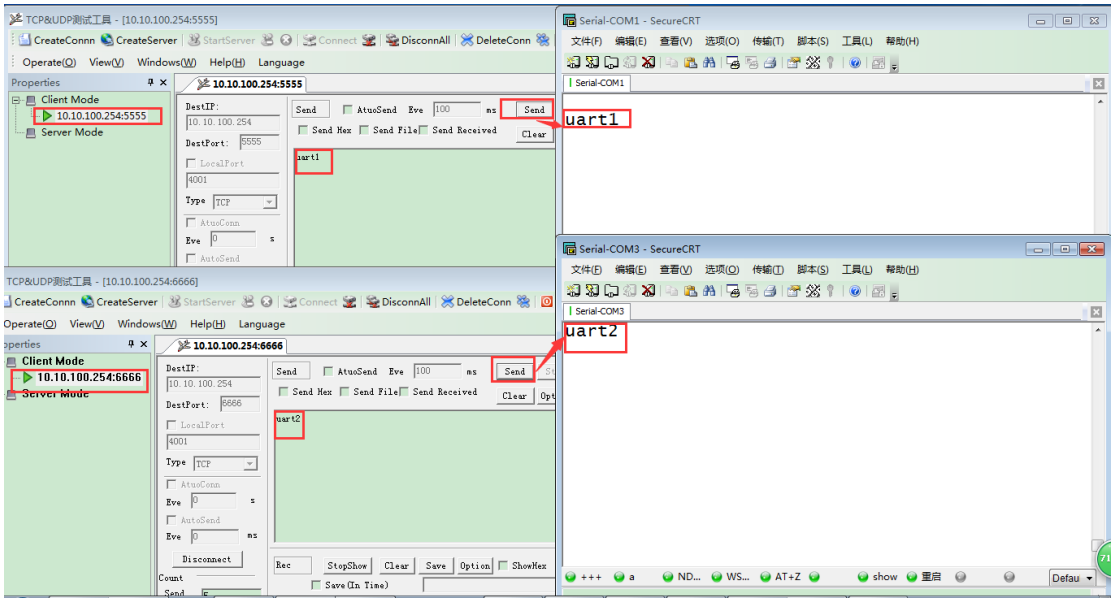
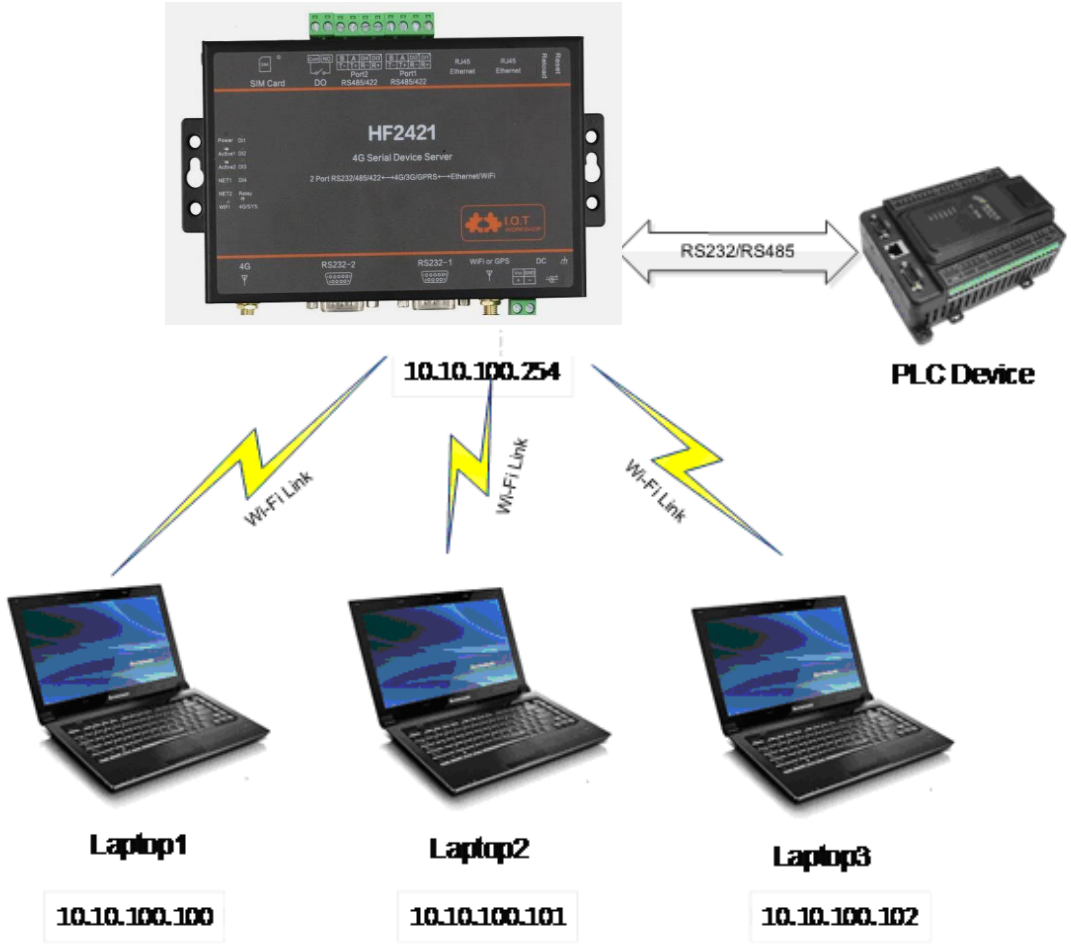


3.5. AP Wireless Networking

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:



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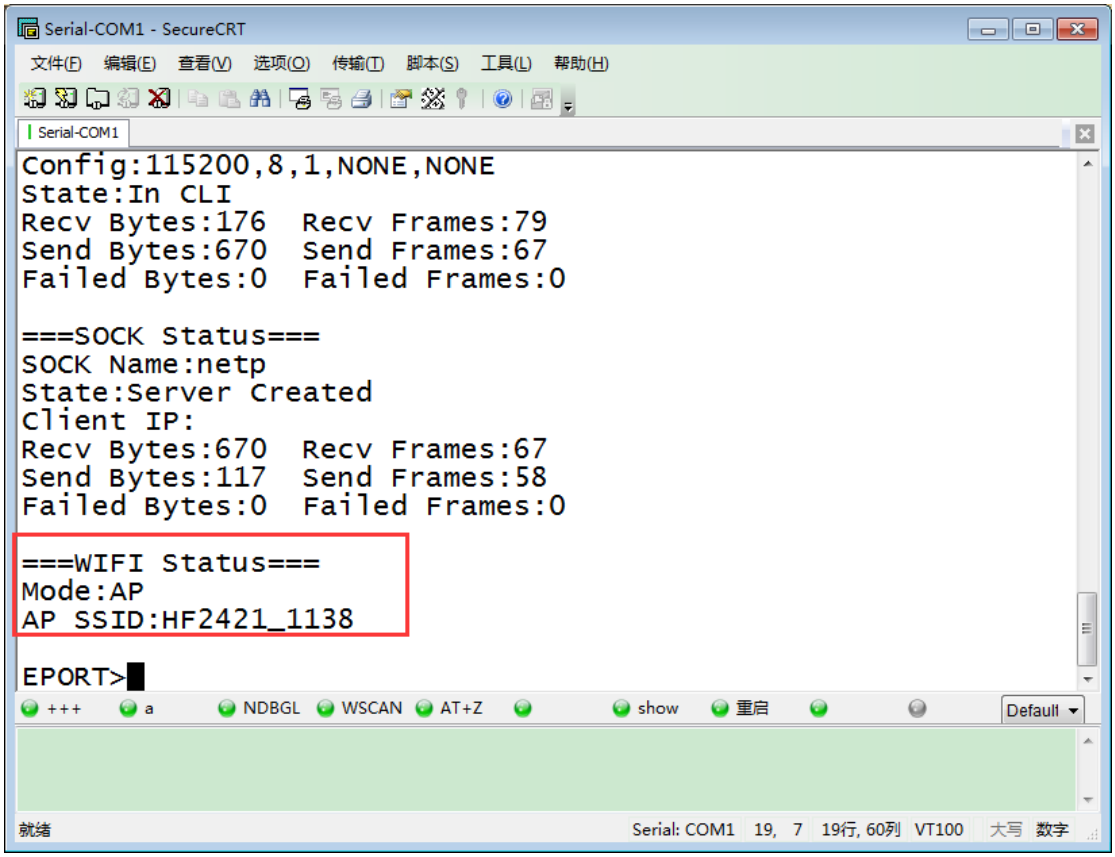
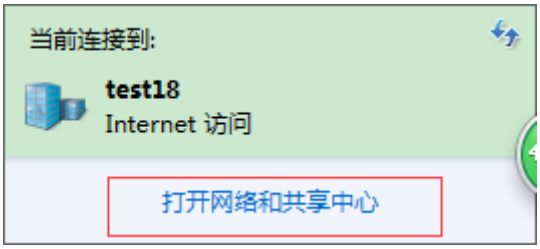
Step 1：Before configure it as AP mode, AP SSID of AP should be understood first. The default is "HF2421_+MAC(after 4 bits)". It can also search by command "show" in CLI command. Figure is shown as below:



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



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Step 3: Open network connection and connect to HF2421AP from Step 1.

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

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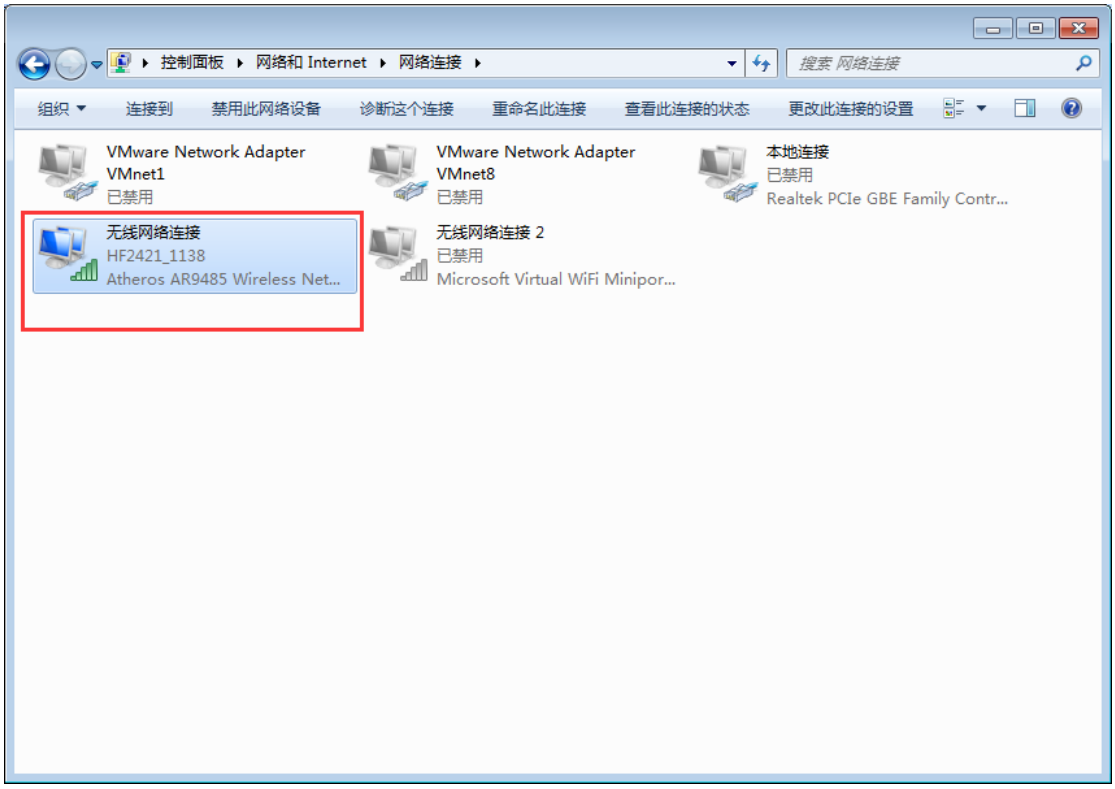
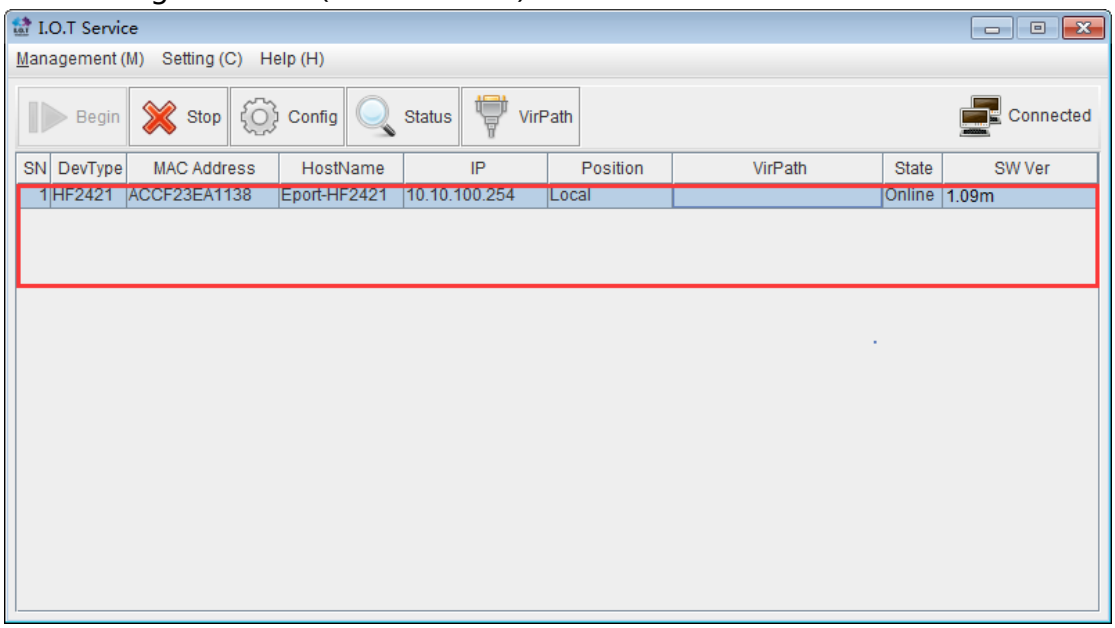


Step 5 : Open IOTService and device is connected. It will assign IP address of network segment of AP(10.10.100.XXX).



Test method is the same as chapter 3.3, so there is no more description.

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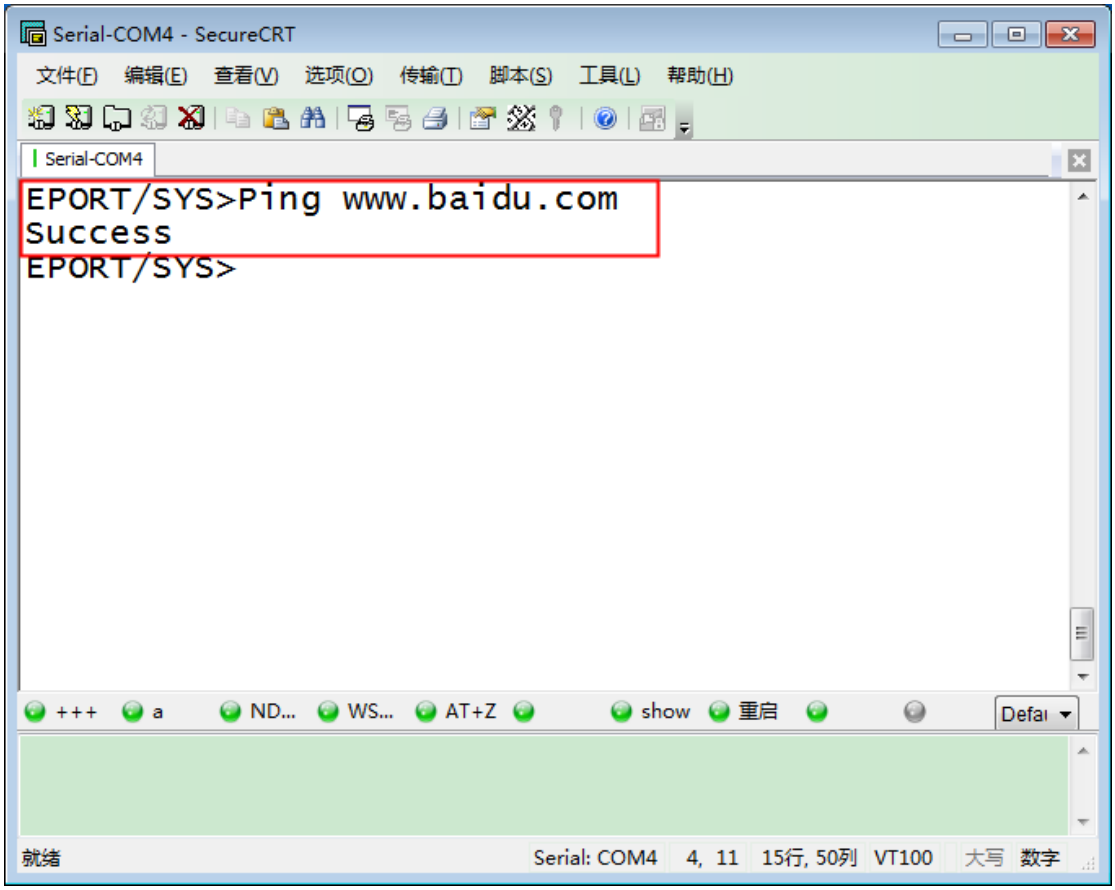
4. REMOTE DATA COMMUNICATION BASED ON 4G/3G

4.1. 4G/3G and VPN Networking

Step 1 : HF2421 supports 4G/3G/GPRS sim card. Insert sim card before using this function.

Step 2 : After device boots up, it needs about 10s to wait. Open SecureCRT and make sure that serial port is connected with PC(serial parameter and setting can refer to chapter two). Enter into cmd mode->SYS->Ping: Enter a server address, like Ping www.baidu.com-> Success means get online successfully.



Step 3 : Enter Network catalog under command EPORT/SYS.

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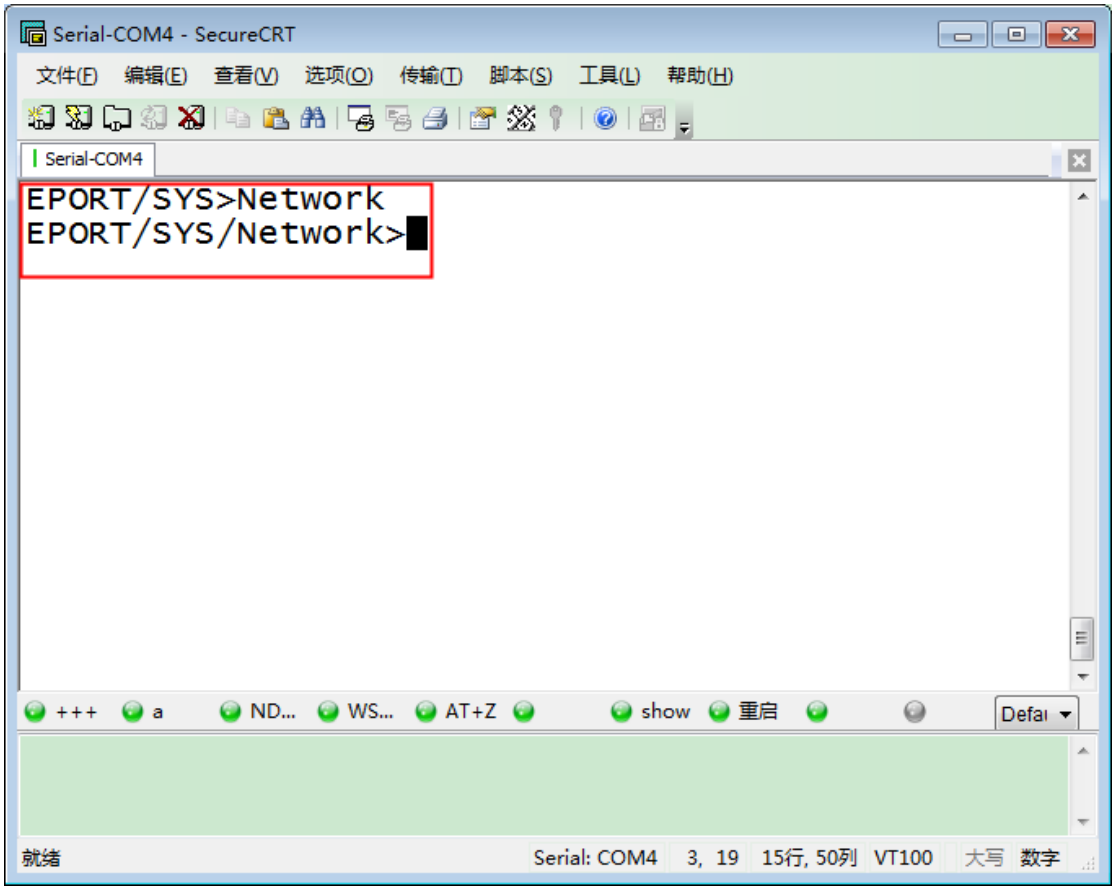

Step 4：Set parameter information of VPN. Take test server from our company as an example. SET-OK means success.

Note: If cannot set VPN, please update following firmware(up-to-data firmware is 1.09m). Update method please refer to chapter 3.13 in HF2421 user manual.

Firmware address: http://pan.baidu.com/s/1pLgDEQJ

- Server Address：Test address is 112.124.43.15
- User Name：hiflying
- Password：test123

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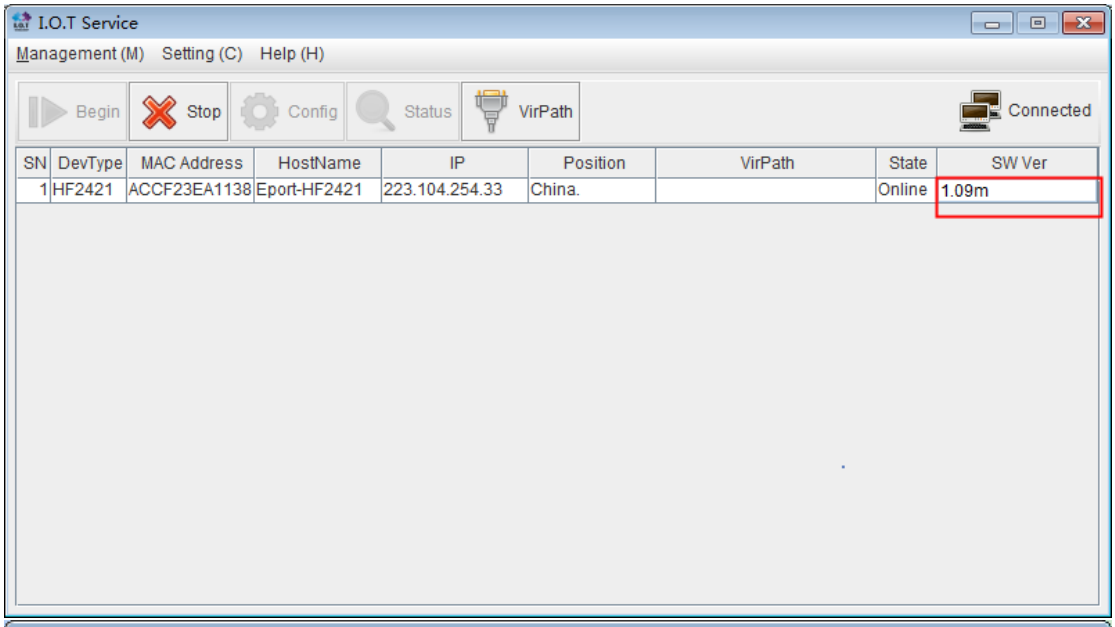

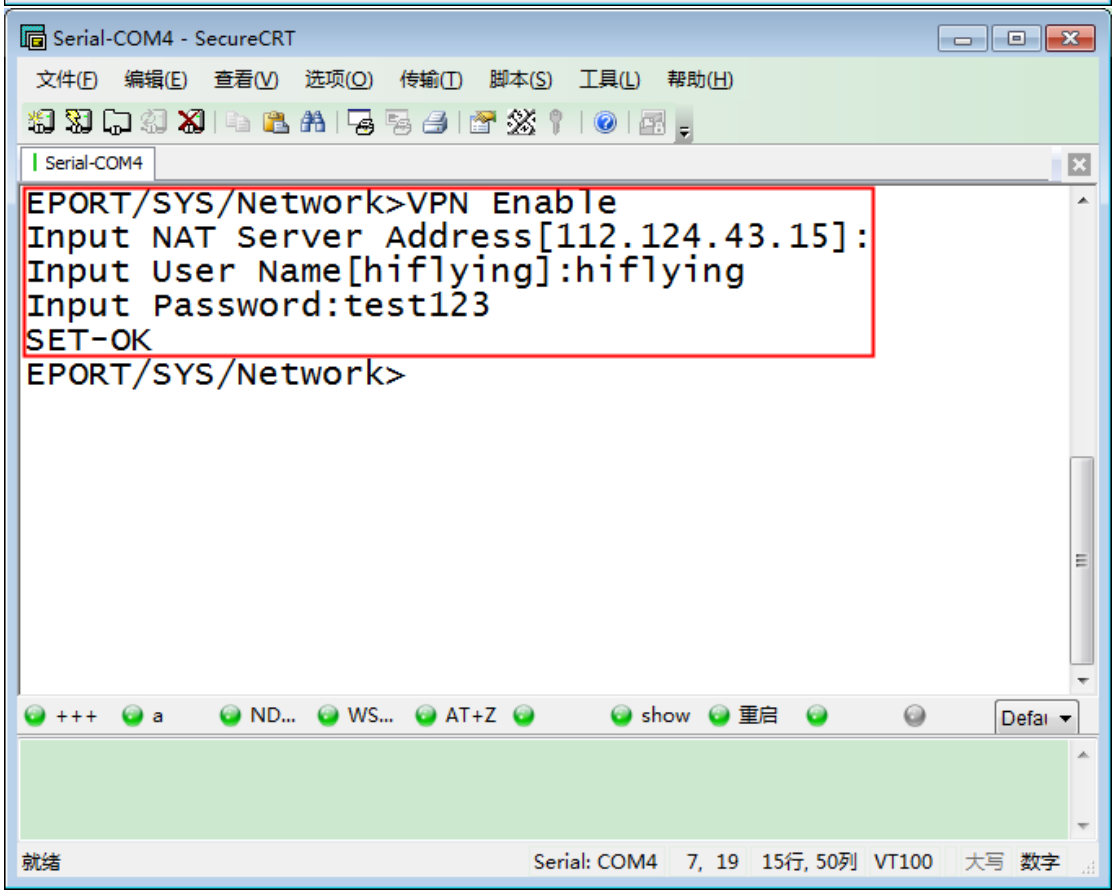

Step 5：VPN test address is 192.168.18.1, and following figure represents successful connection.

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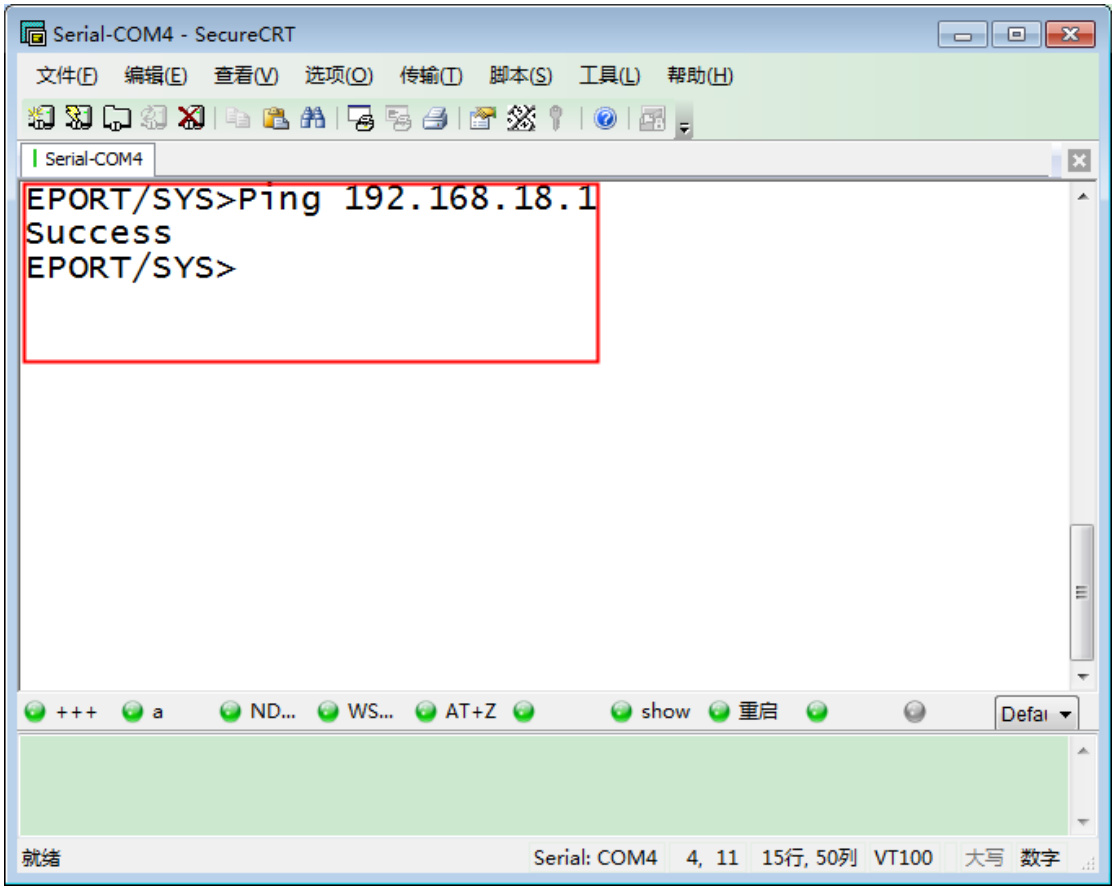

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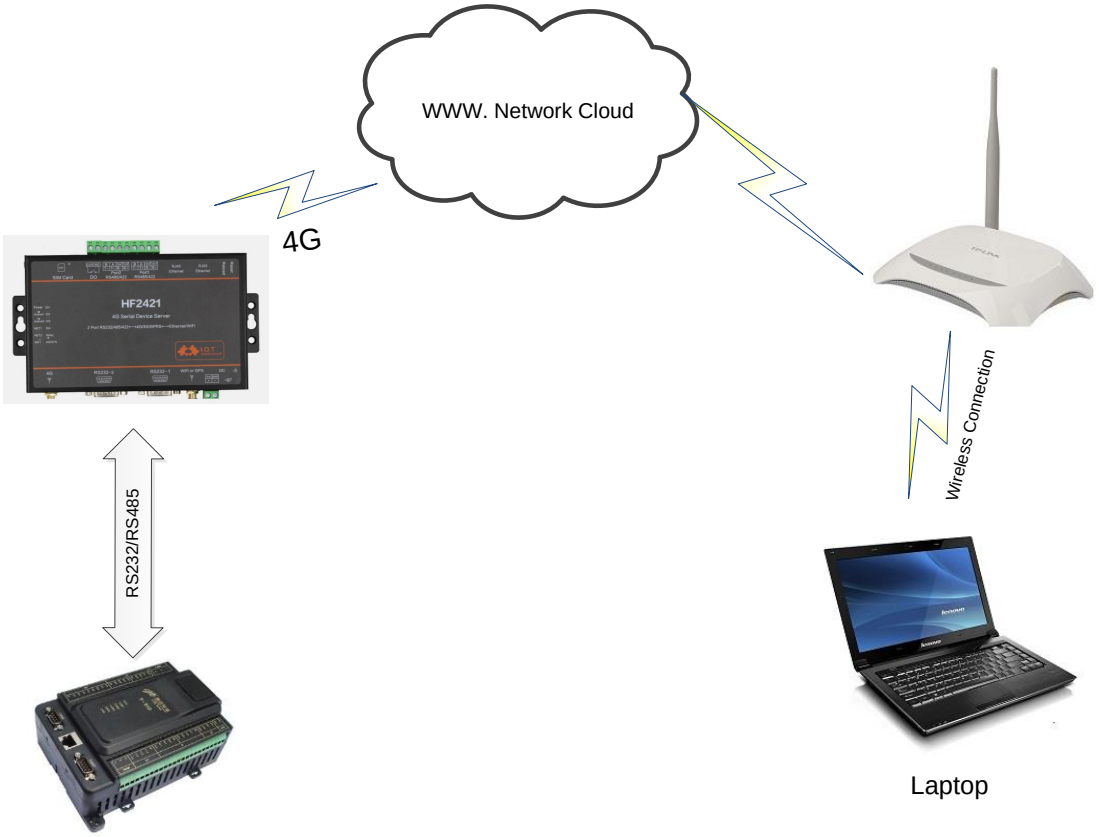
4.2. HF2421 Remote Network



In last chapter, serial device has already connected to public network and it can achieve remote communication transmission. This chapter will stimulate data communication between virtual serial port and physical serial port under different networks. Upper is remote data communication.

Step 1：Register IOTBridge account, the method of registration can refer to chapter 8 in IOTService tool introduction. There will not be explained anymore.

Step 2：Download up-to-date IOTServce(now is 2.0.09b)

IOTService address：http://pan.baidu.com/s/1dF1q1bj

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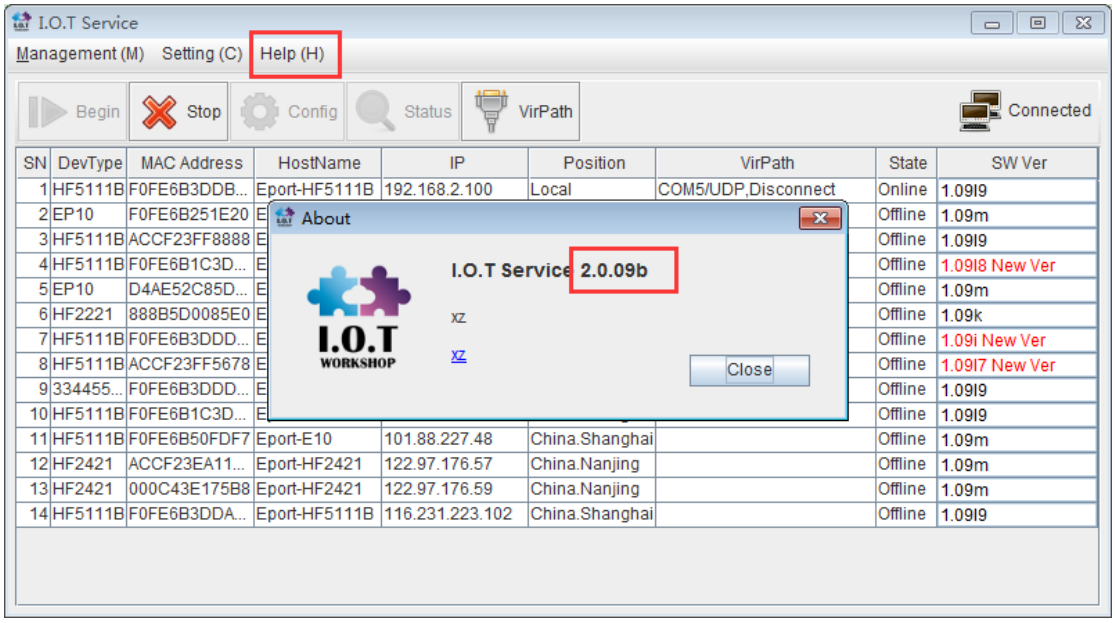

SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF5111B	F0FE6B3DDB...	Eport-HF5111B	192.168.2.100	Local	COM5/UDP,Disconnect	Online	1.09I9
2	EP10	F0FE6B251E20	E				Offline	1.09m
3	HF5111B	ACCF23FF8888	E				Offline	1.09I9
4	HF5111B	F0FE6B1C3D...	E				Offline	1.09I8 New Ver
5	EP10	D4AE52C85D...	E				Offline	1.09m
6	HF2221	888B5D0085E0	E				Offline	1.09k
7	HF5111B	F0FE6B3DDD...	E				Offline	1.09i New Ver
8	HF5111B	ACCF23FF5678	E				Offline	1.09I7 New Ver
9	334455...	F0FE6B3DDD...	E				Offline	1.09I9
10	HF5111B	F0FE6B1C3D...	E				Offline	1.09I9
11	HF5111B	F0FE6B50FDF7	Eport-E10	101.88.227.48	China.Shanghai		Offline	1.09m
12	HF2421	ACCF23EA11...	Eport-HF2421	122.97.176.57	China.Nanjing		Offline	1.09m
13	HF2421	000C43E175B8	Eport-HF2421	122.97.176.59	China.Nanjing		Offline	1.09m
14	HF5111B	F0FE6B3DDA...	Eport-HF5111B	116.231.223.102	China.Shanghai		Offline	1.09I9

Step 3 : Wireless connection between serial device and PC WiFi. Open IOTService and copy mac address of serial device. It will be used in step 7.

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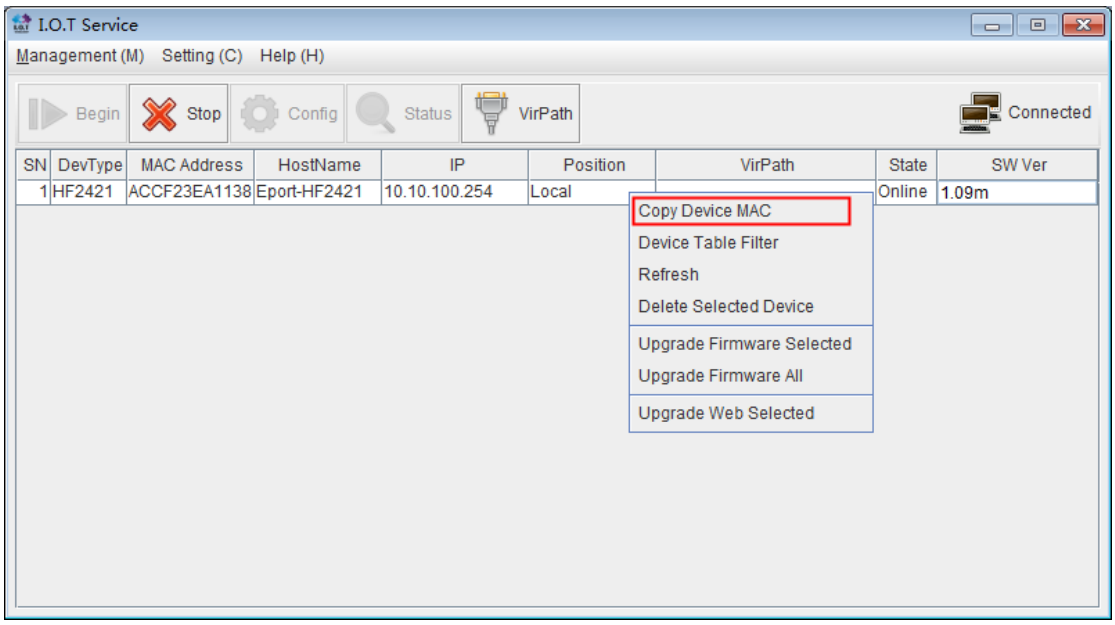
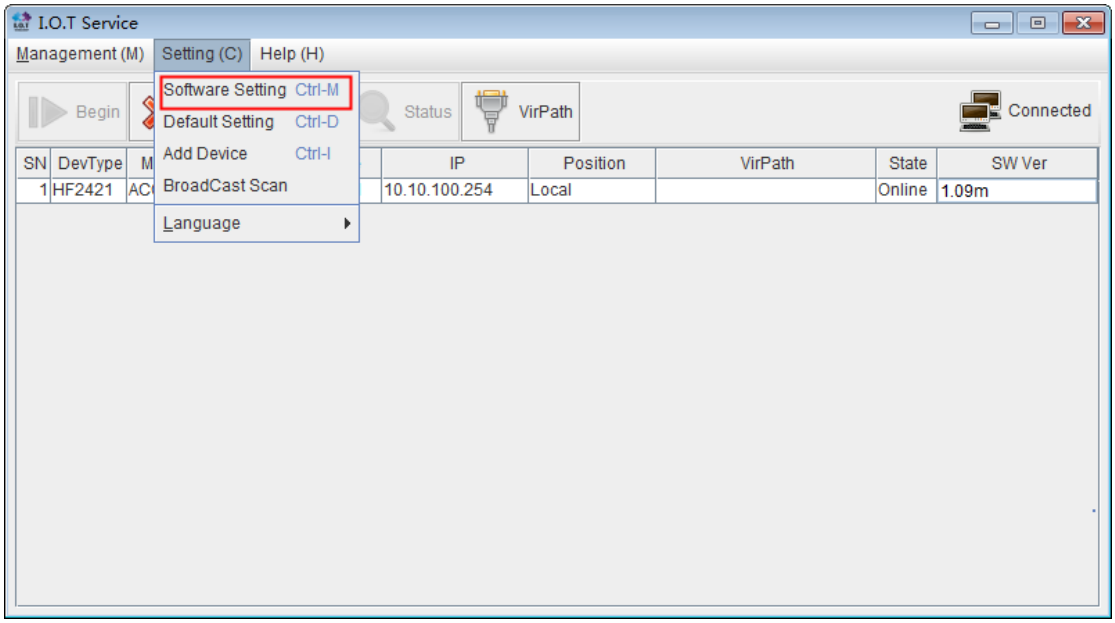


Step 4： Modify server address of IOTService of following figure and type in service ID into it.



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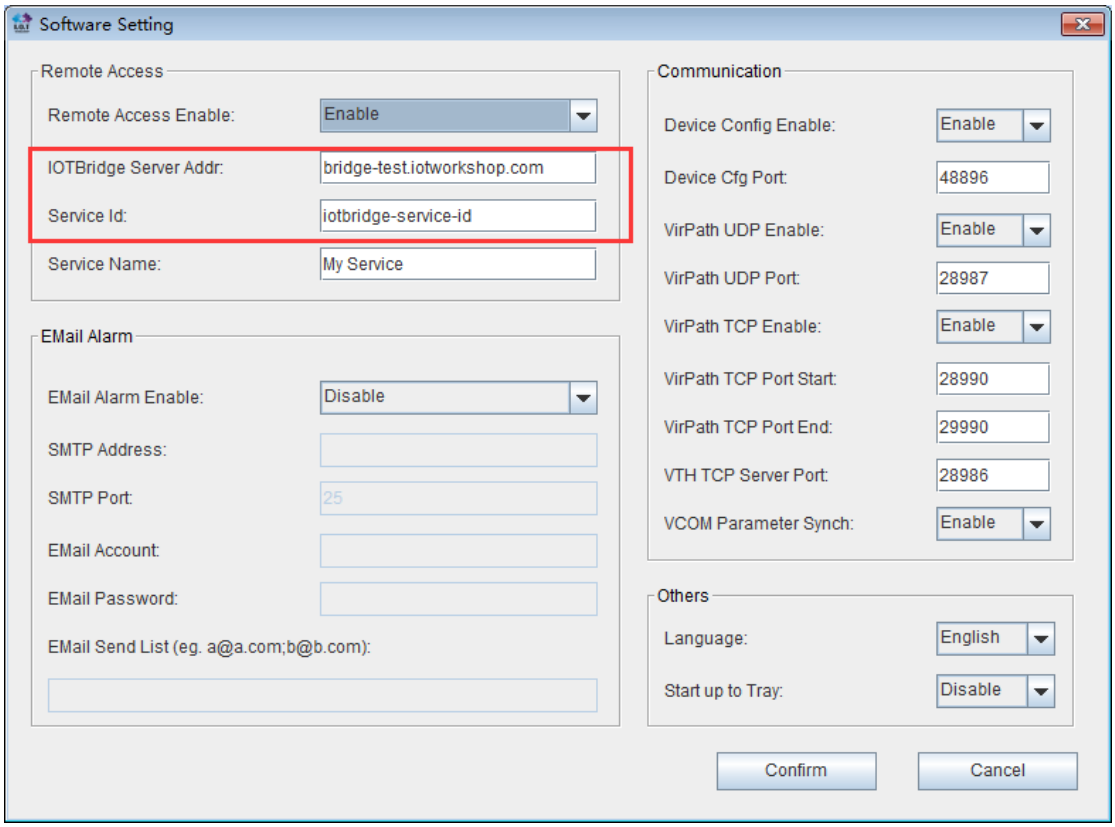

Step 5：Using SecureCRT to open serial port and enter EPORT/SYS> catalog and set registered UserID. Specific method please refer to chapter 8 in IOTService introduction.

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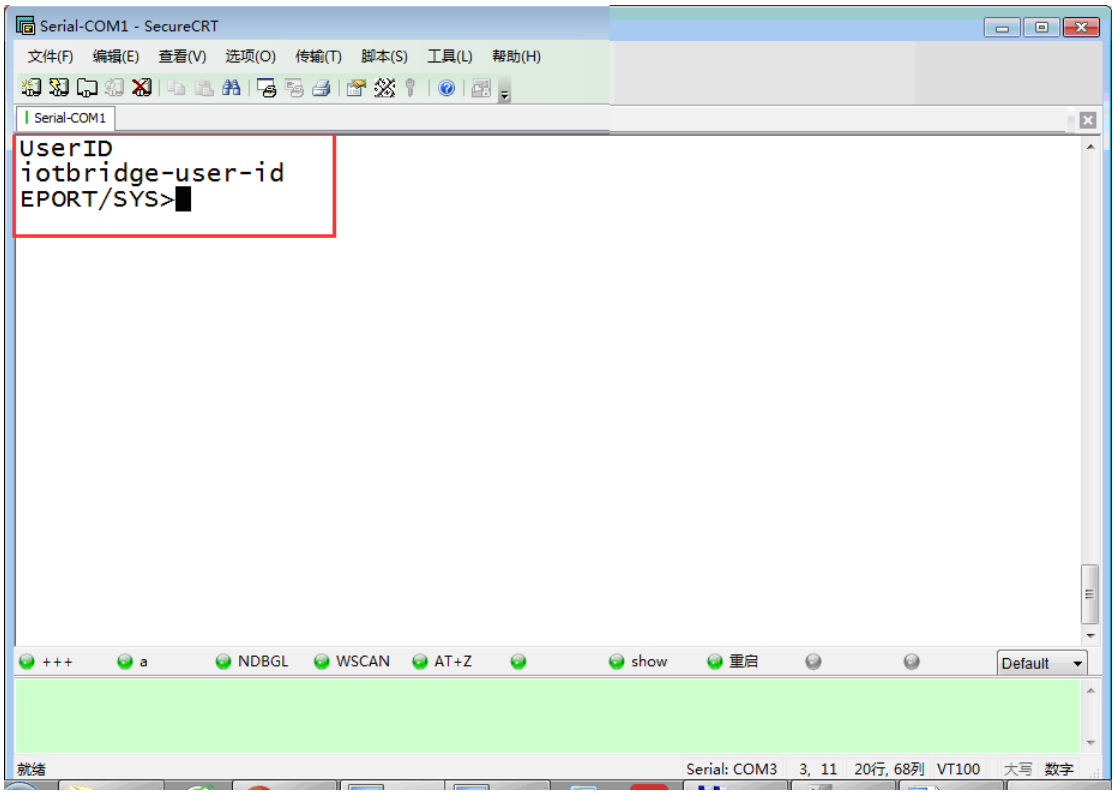

Step 6 : Set server address and type "+++" to enter cmd mode->SYS->NAT Enable-> input server address(same as IOTService) -> set port(default is ok)-> SET-OK. Specific can refer following setting.

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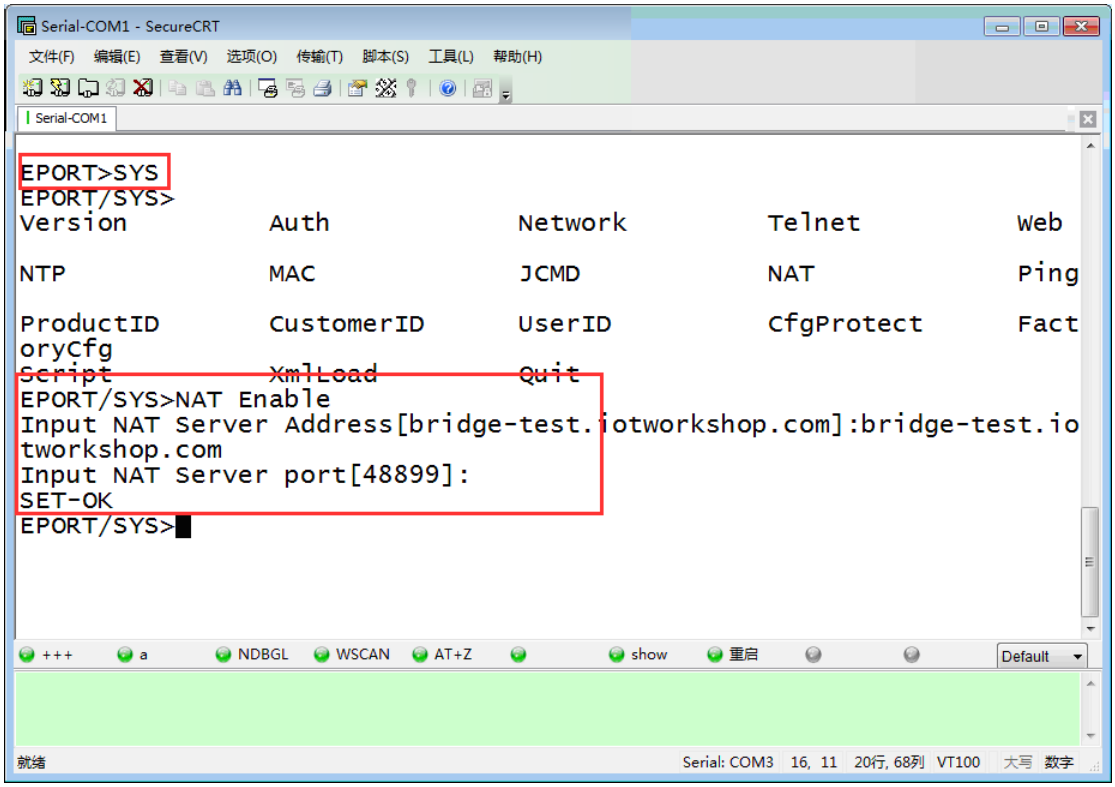

Step 7 : Change PC to connect public network(refer to first figure in this chapter) and maintain different network same as serial device. Open IOTService and add appeared remote device. After then, IP address of device has been changed.(If it is not convenient to search mac address, IOTBridge can be used for searching device information. Specific operation method, please refer to Chapter 8 in IOTService introduction)

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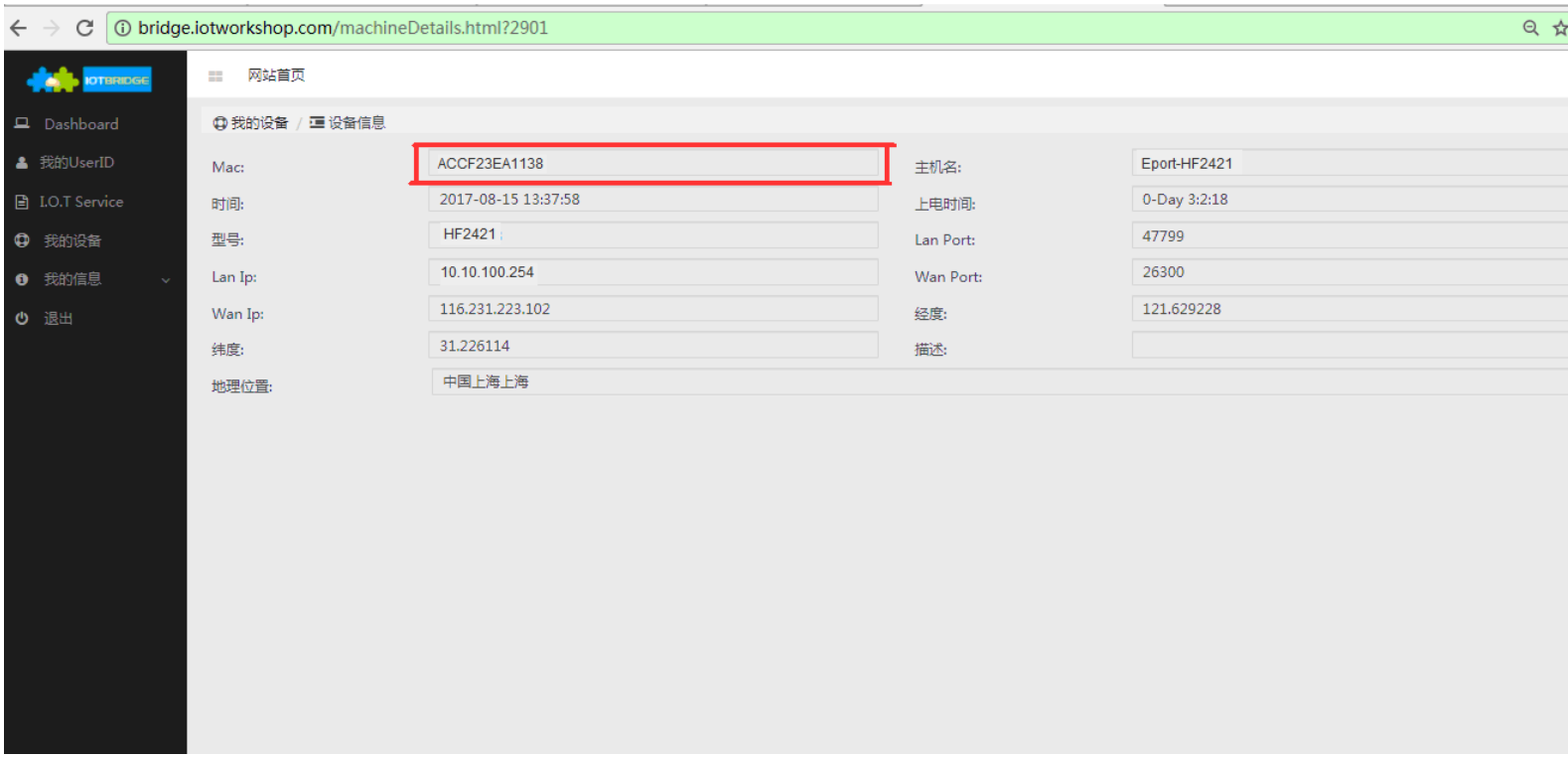

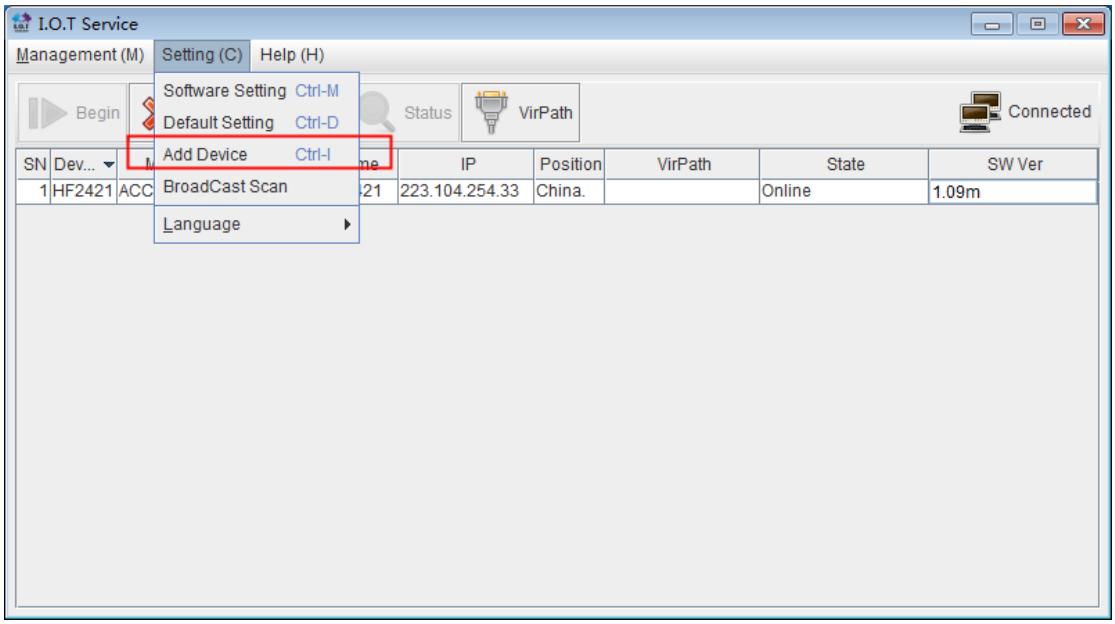

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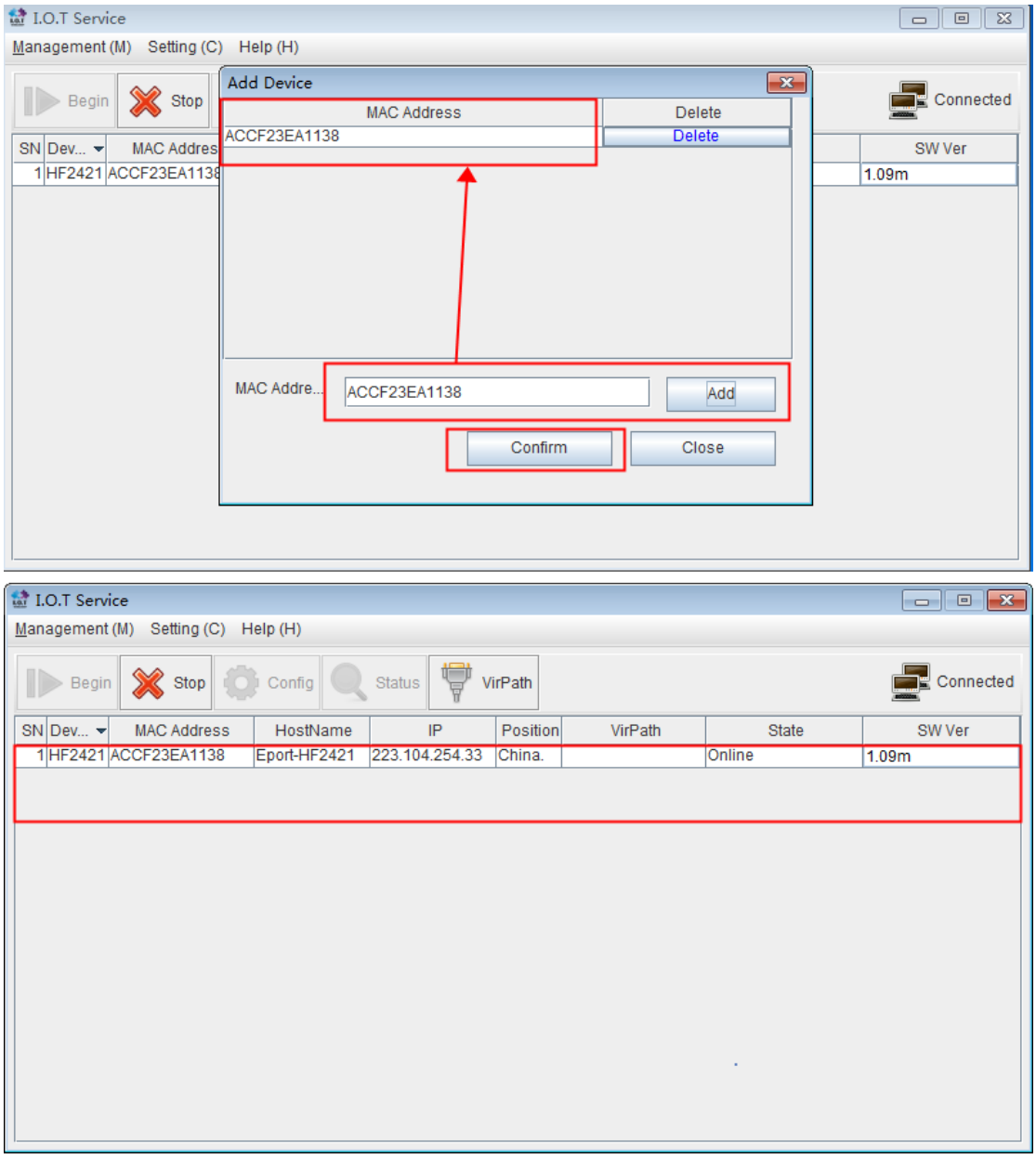

Step 8：Edit device and create virtual serial port. Only UDP connection supported.

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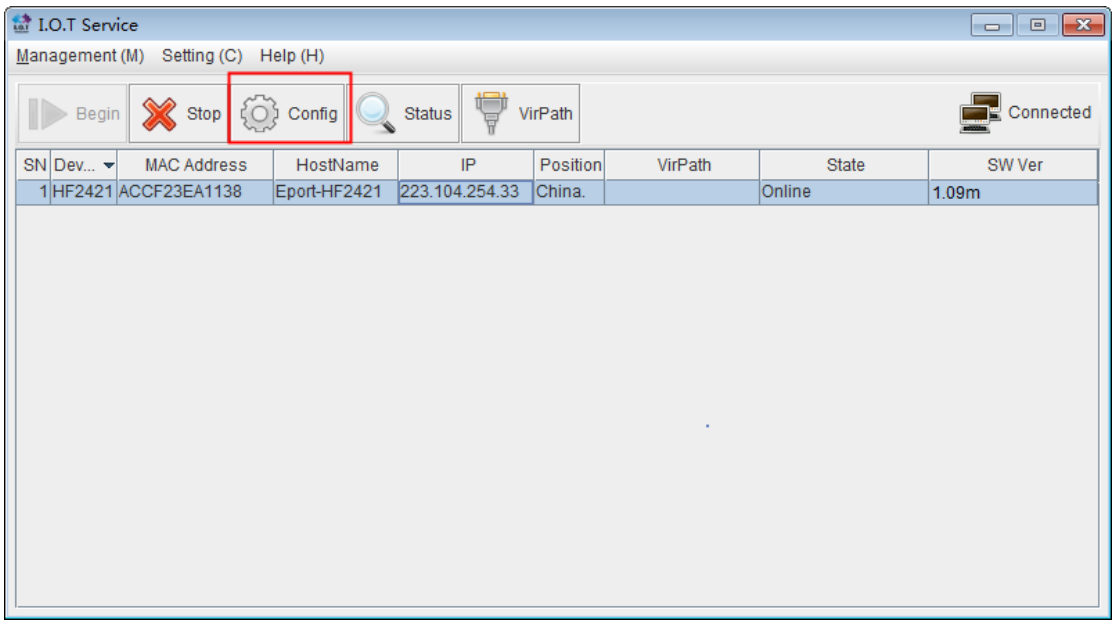

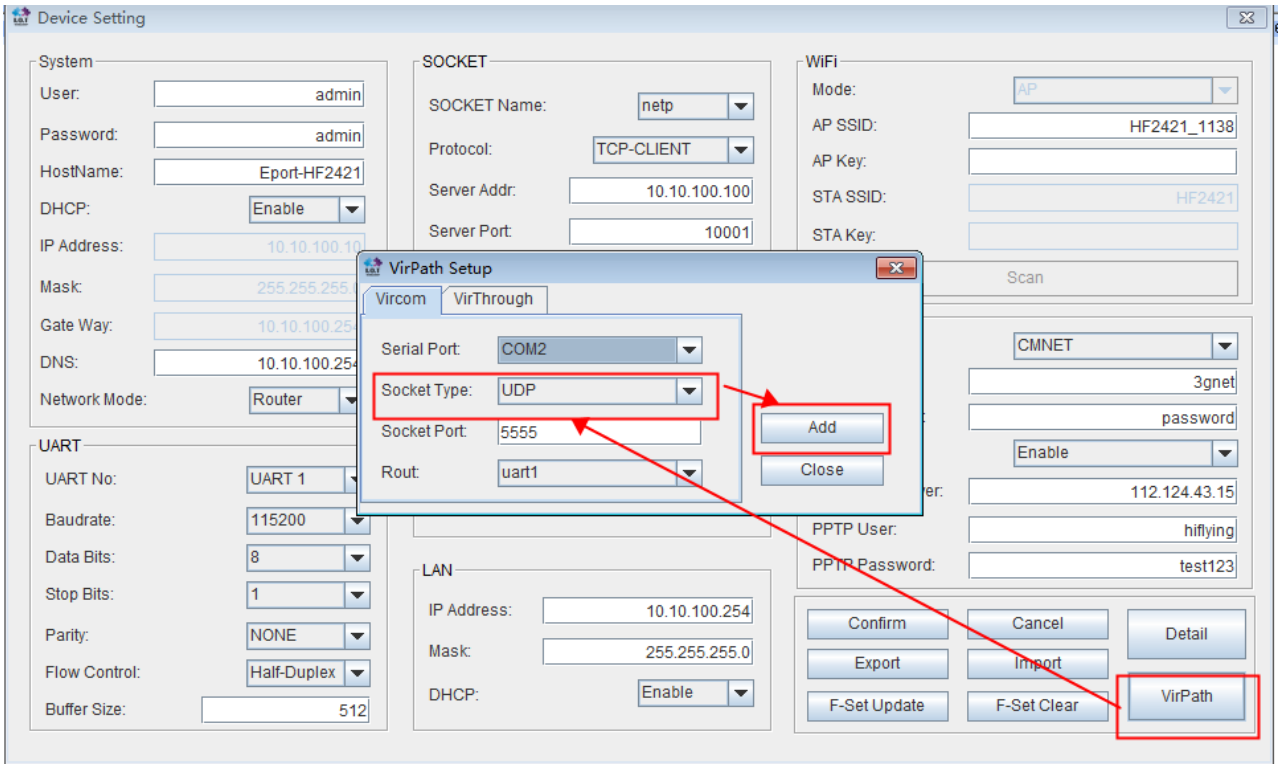

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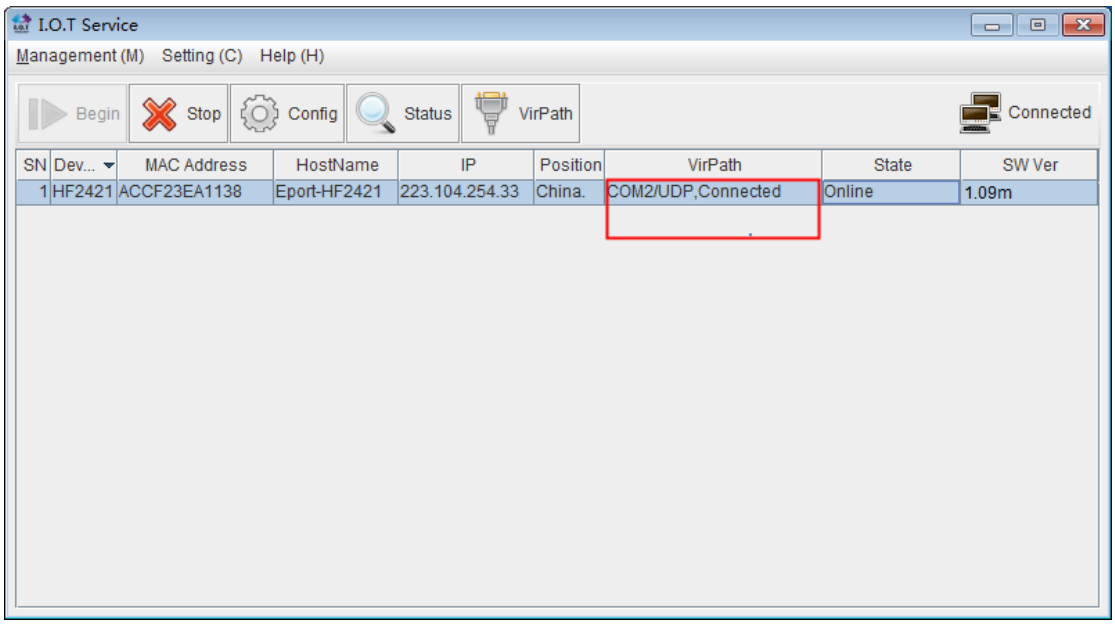

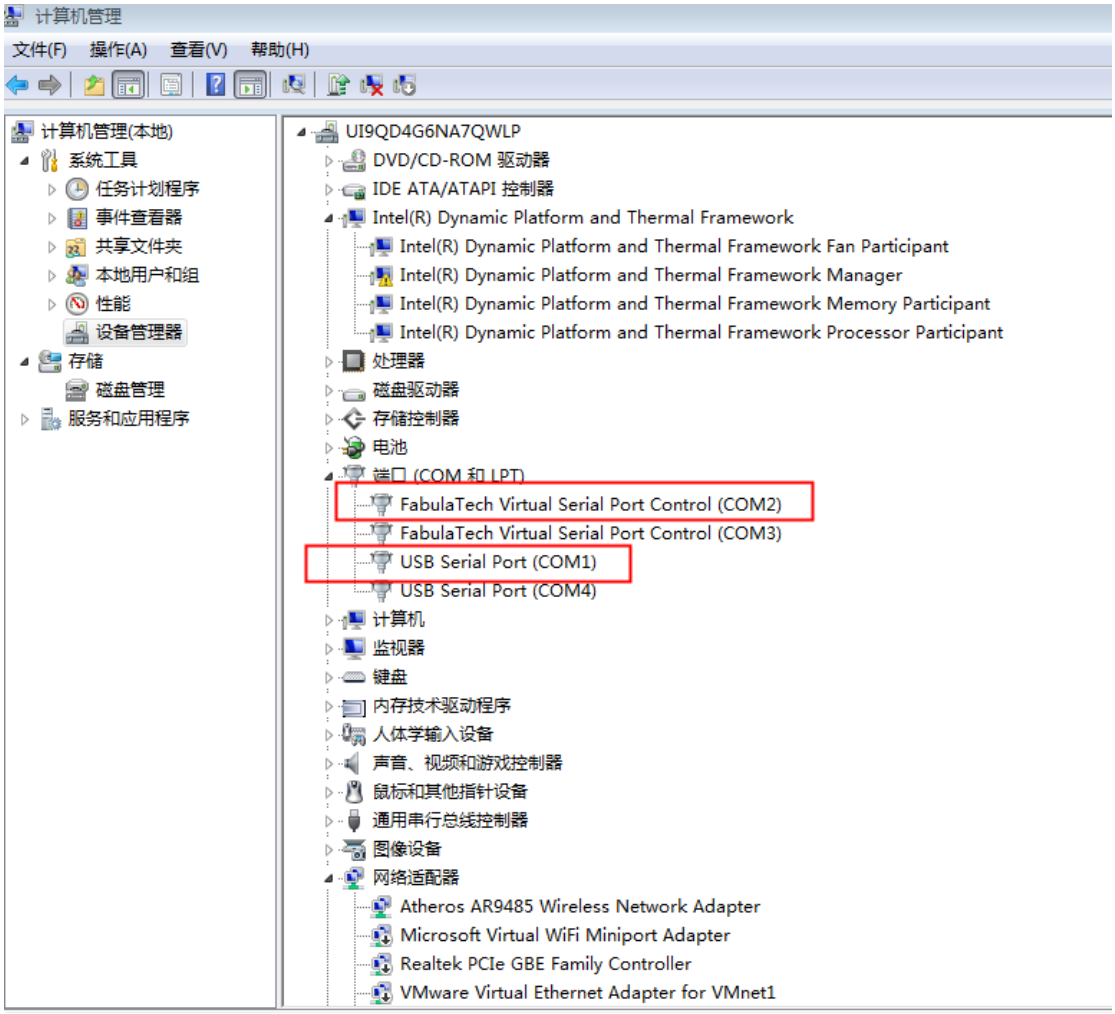

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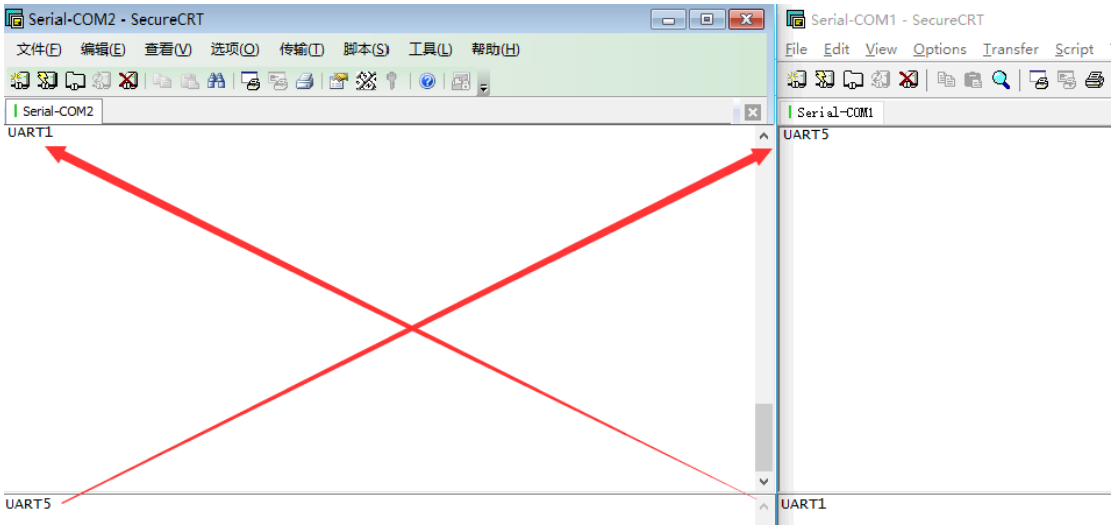
Step 9：Open physical serial port of device and input command “Exit” to enter into transparent mode. And send or receive data with virtual serial port.



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