

HF2111A

Operation Guide

V 1.0



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1. HF2111A

The HF2111A support GRPS network.


The HF2111A support TCP/IP protocol, with its RS232/RS485 interface, it make traditional UART device easy connecting to IOT.

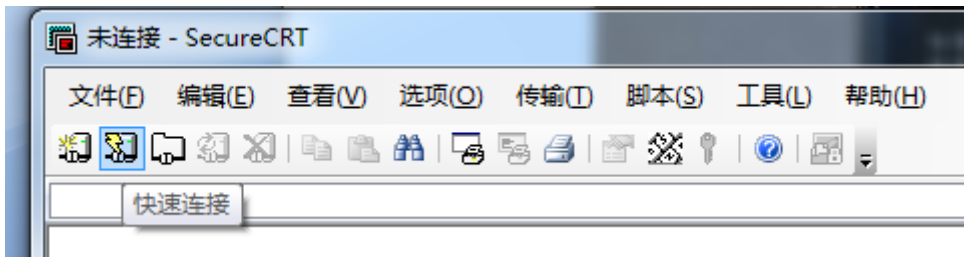


2. SERIAL SETTING

2.1. Serial Tool SecureCRT

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

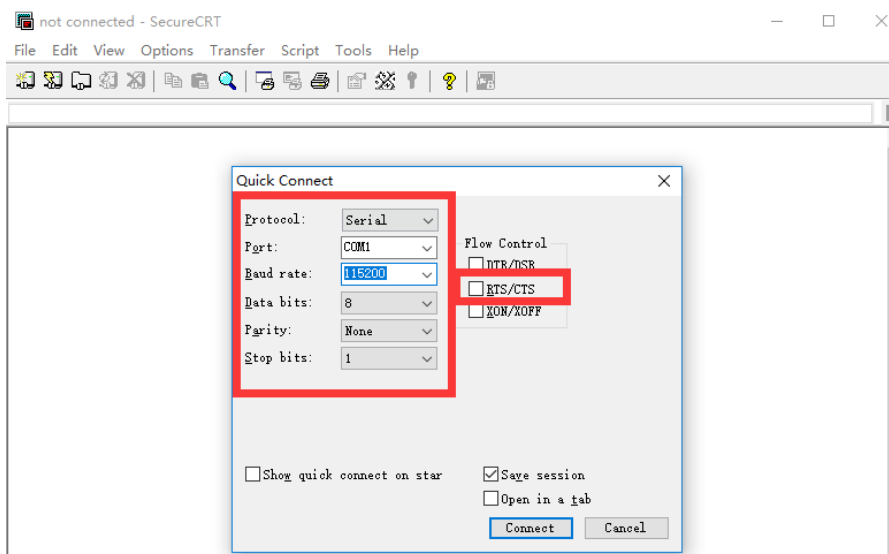
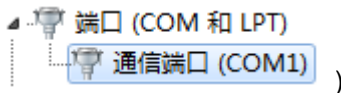
Decompress file and find executable program, then open. Click quick start button  to create connection.



2.2. Configure Serial Parameter

Protocol: Serial

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



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

3. TEST EXAMPLE

3.1. IOTService Tools

IOTService is used for config the module parameters by UART or remotely. Make module easy to use and check status. The download address is as following.

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

The screenshot shows the HF website's download center for IOTService. At the top, there is a search bar and navigation links for Home, IOT Module, IOT Device, Support, News, Company, Cloud, and Mall. Below the navigation is a breadcrumb trail: Home > Download Center > Applications > IOTService. The main content area displays a 'File List' table with the following data:

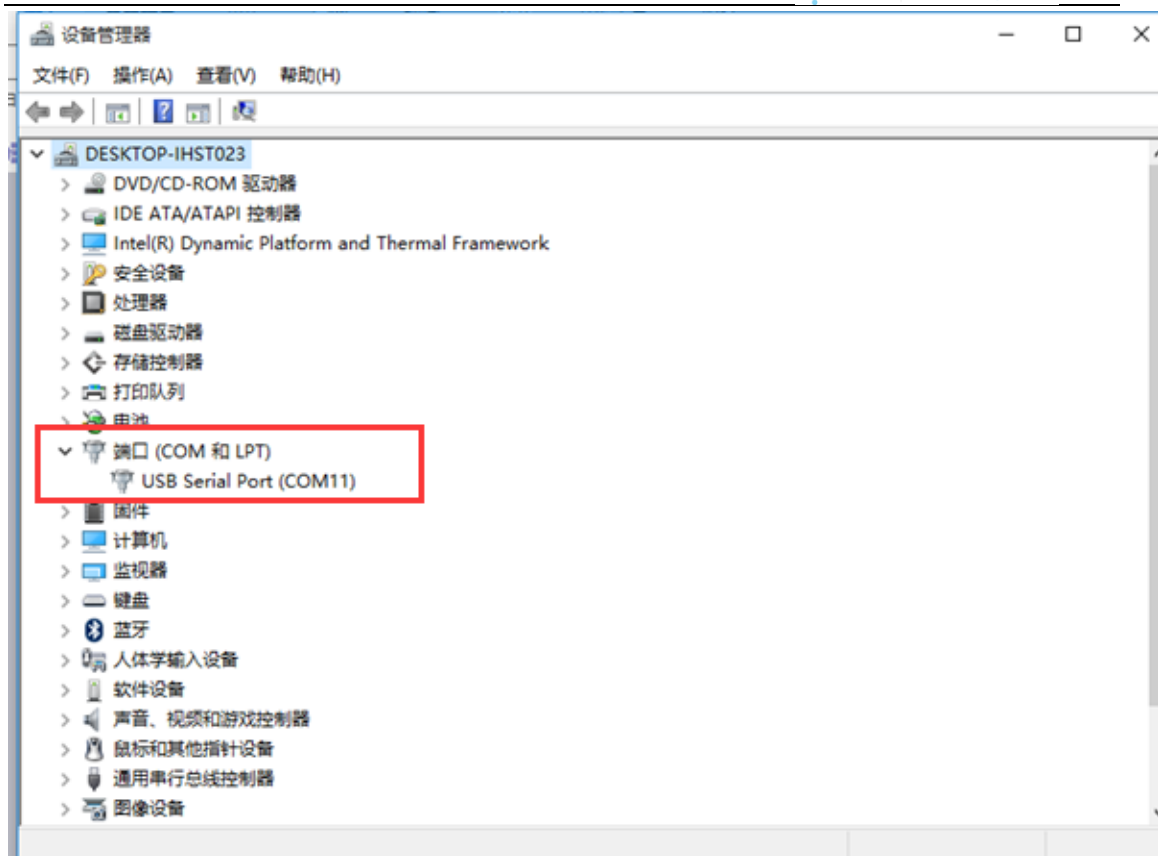
Name	File Name	Download Times	Date Update	Download
IOTService 2.3.00	IOTService 2.3.00.rar	144	12/03/2018 09:33:18	

After download, click the following to update to latest version.

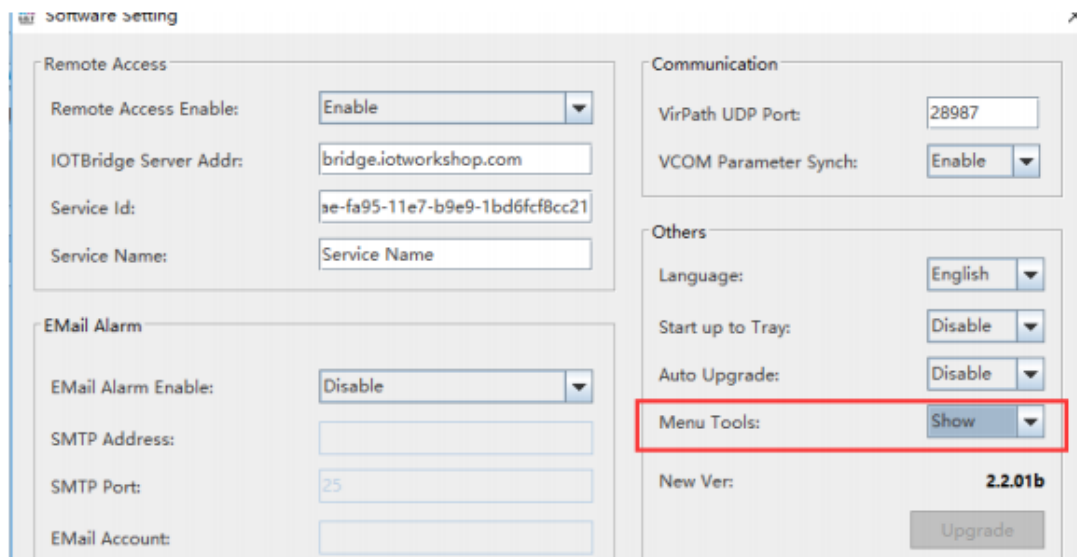
The screenshot shows the 'Software Setting' dialog box for IOTService. It is divided into several sections: 'Remote Access', 'Communication', 'Others', and 'EMail Alarm'. The 'Remote Access' section includes fields for 'Remote Access Enable' (set to 'Enable'), 'IOTBridge Server Addr' (bridge.iotworkshop.com), 'Service Id' (7fa02726-79a), and 'Service Name'. The 'Communication' section includes 'VirPath UDP Port' (28987) and 'VCOM Parameter Synch' (set to 'Enable'). The 'Others' section includes 'Language' (English), 'Start up to Tray' (Disable), 'Auto Upgrade' (Disable), and 'Menu Tools' (Show). The 'EMail Alarm' section includes 'EMail Alarm Enable' (Disable), 'SMTP Address', 'SMTP Port' (25), 'EMail Account', 'EMail Password', and 'EMail Send List'. A red box highlights the 'New Ver:' field, which displays '2.3.04h' and an 'Upgrade' button. At the bottom of the dialog are 'Confirm' and 'Cancel' buttons.

3.2. IOTService Introduction

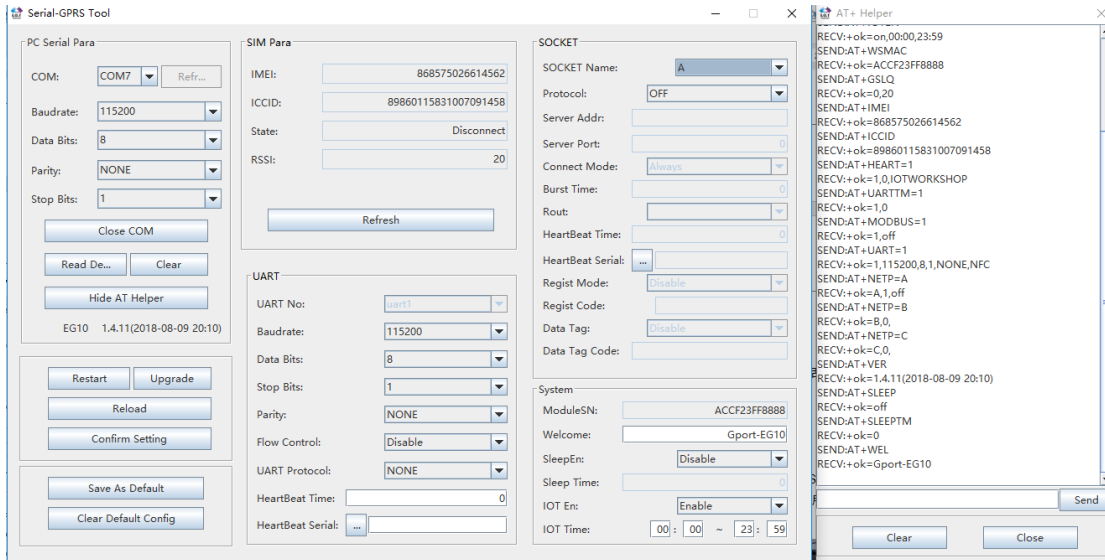
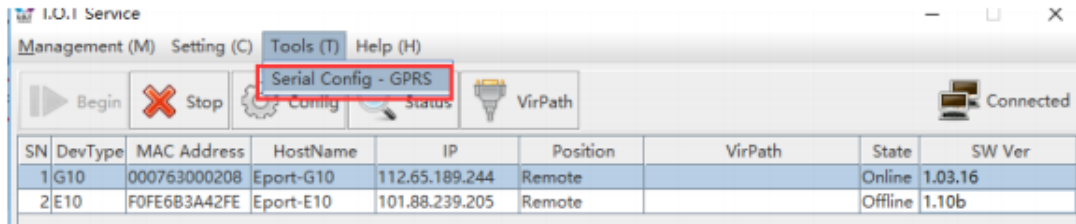
Step1: PC connect to device UART. Note that RS232/RS485/TTL UART is different.



Step 2: Open IOTService, change the following menu as the picture



Step 2: Open IOTService UART tools



Main Menu:

Read Detail: Read product information

Clear: Reset the tools read information, this does not affect the product side.

Show AT Helper: Show AT command procedure

Restart: Reset product

Upgrade: Upgrade product

Reload: Reload product, restore parameters to default.

Confirm Setting: Set parameter

Save As Default: Set current setting parameters as default.

Clear Default Config: Clear saved default parameters

Socket Function:

SOCKET Name: Socket name

Protocol: Protocol, TCP/UDP/HTTP

Server Addr: Server address

Server Port: Server port

Connect Mode: short or long connection.

Burst Time: short connection time.

Rout: UART channel

HeartBeat Time: HeartBeat time

HeartBeat Serial: HeartBeat content, support wildcard character.

Regist Mode: Register Mode

Regist Code: Register Content, support wildcard character.

System Information:

Module SN: Product MAC

Welcome: Bootup information.

~~Sleep En: Reserved~~

~~Sleep Time: Reserved.~~

IOT En: Enable/Disable IOTBridge.

IOT Time: IOTBridge Enable time. Save data flow

UART Information:

Flow Control: hardware flow control.

UART Protoco: UART protocol

HeartBeat Time: UART HeartBeat time

HeartBeat Serial: UART HeartBeat content.

SIM Information:

IMEI: Module IMEI

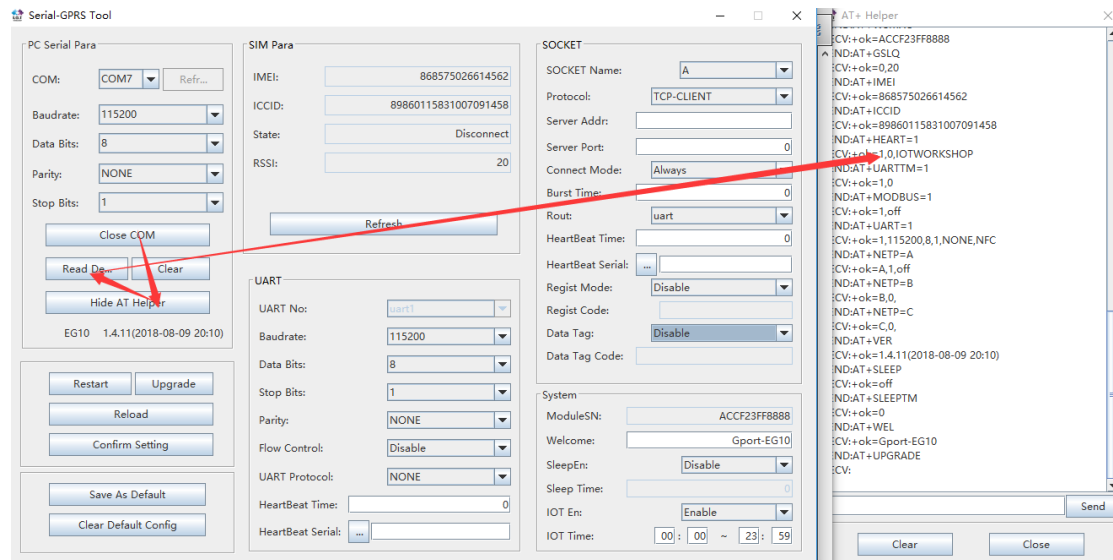
ICCID: Module ICCID

State: GPRS Status

RSSI: GPRS Strength

3.3. Test Case One: IOTService UART Config

Step 1: Open UART and do as following to read product parameters.

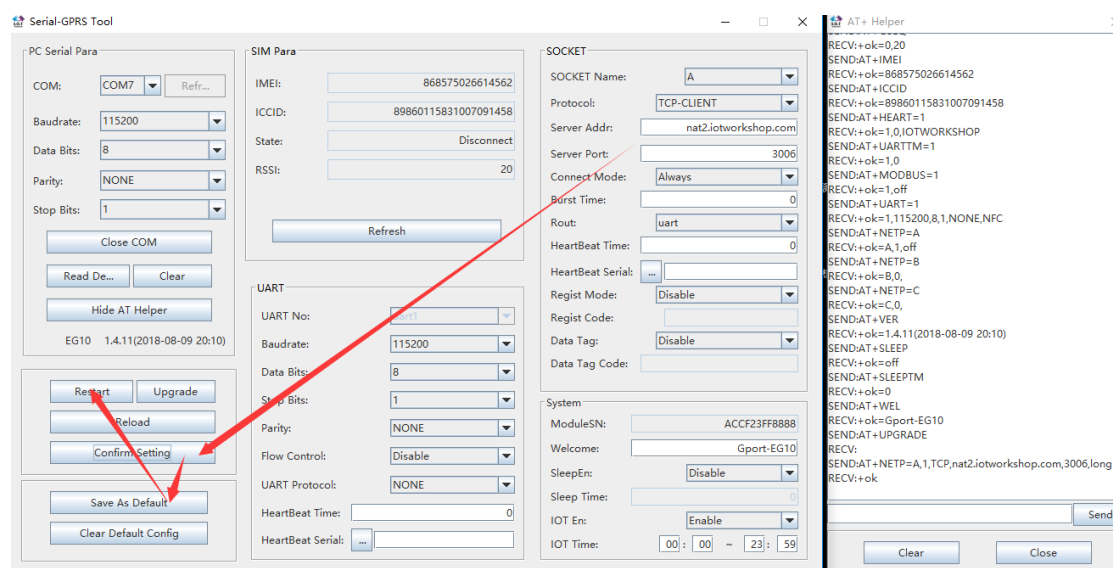


Step 2: The tools show the module parameters. Click **【Confirm Setting】** to change parameter. **【Save As Default】** is used to save current setting to default. Once do reload operation, it will restore to this saved default value. The following set Socket A to our test server. (nat2.iotworkshop.com) and reboot

Test Server: nat2.iotworkshop.com

TCP Port: 3006

UDP Port: 3008

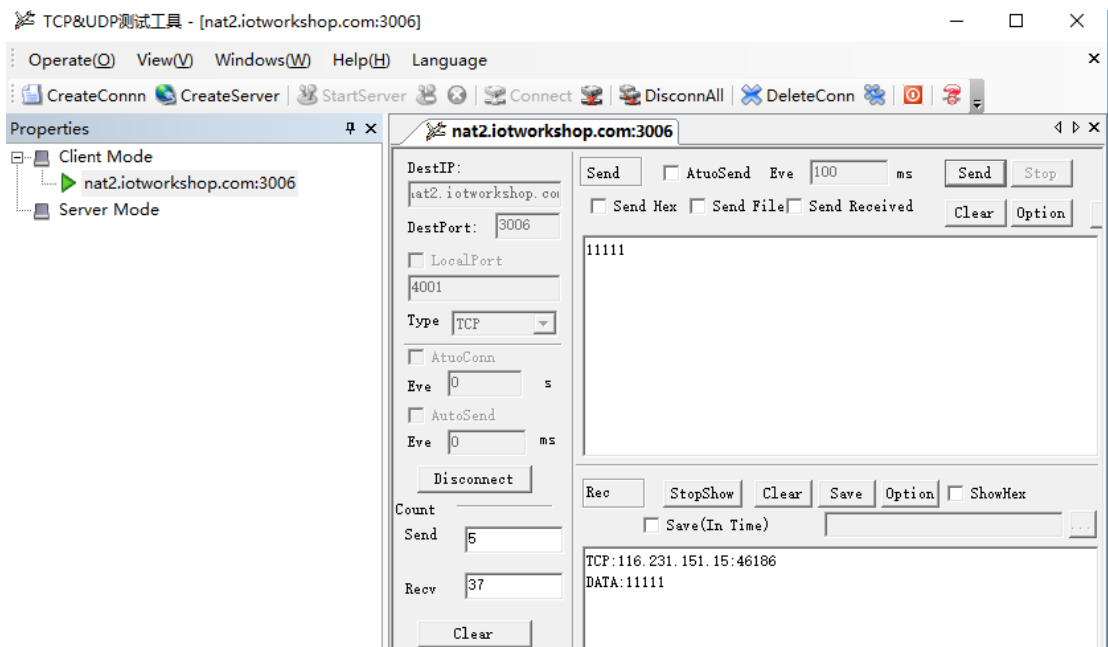


Note: Default UART is 115200,8,N,1.

Step 3: Wait for network connection OK, then send UART data, the server will response as the following picture. Response with protocol type, port number, and data. The product is in throughput mode by power on, if want to send AT command, need to send “+++” and then “a” to enter command mode, AT+ENTM to change back throughput mod.e.



The following use tools to test server data response format.

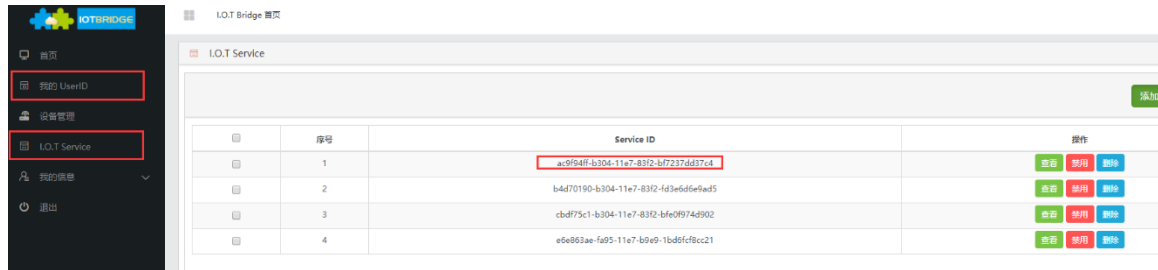


3.4. Test Case Two: IOTService Network Config

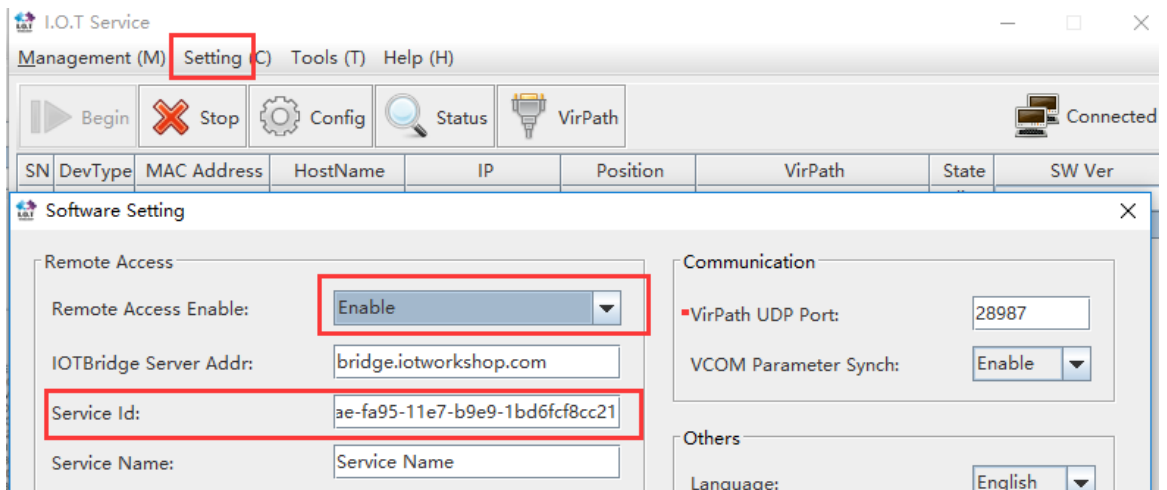
Step 1: Login IOTBridge(<http://bridge.iotworkshop.com/>) to register account.



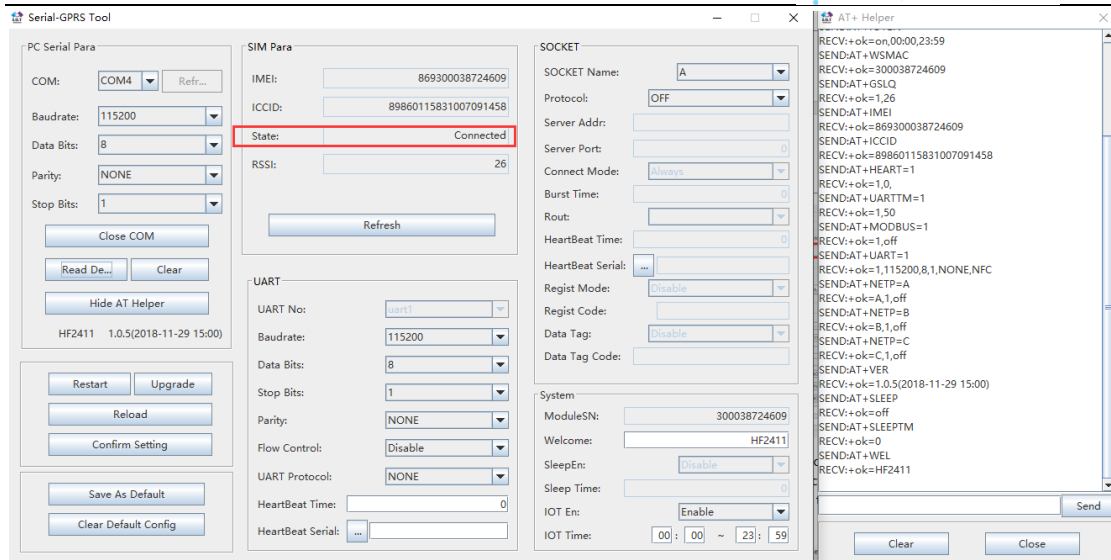
Step 2: Get UserId(device side)and ServiceId(IOTService side)



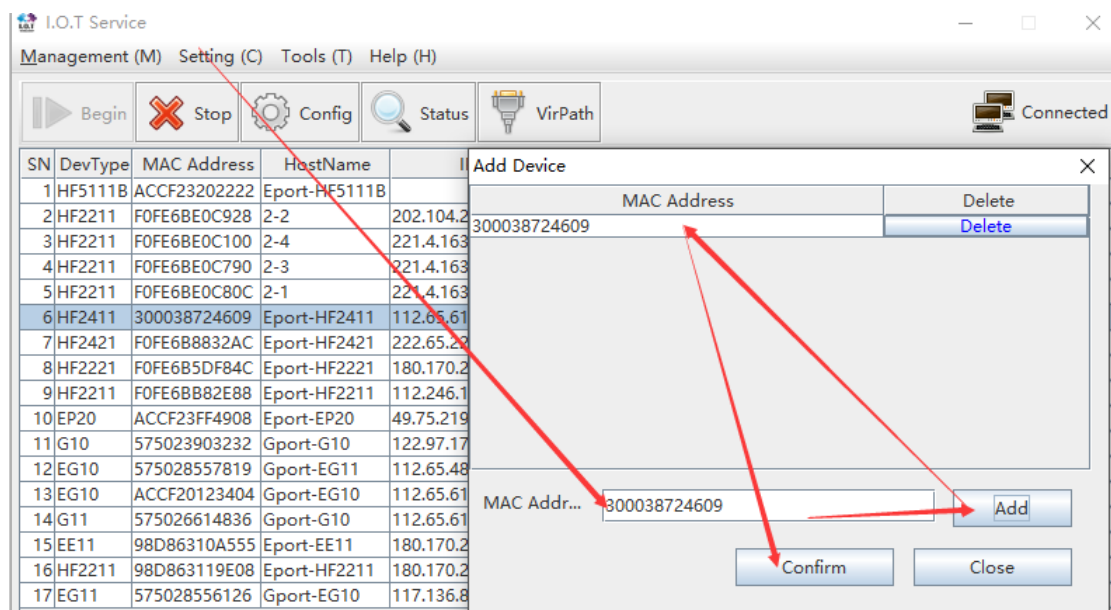
Step 3: Input ServiceId in IOTService.



Step 4: Insert SIM card and power on device, wait for device connects to network. The UART tools also shows the network status.



Step 5: Add MAC in the tools to bound account. (AT+WSMAC to get MAC address, usually it is the latter 12 character of the IMEI), recommend to use AT+IOTUID command to write UserId into the device. Prevent bounded by the other vicious customer.




Step 6: Double click device entering the config page.

I.O.T Service Management (M) Setting (C) Tools (T) Help (H)

Begin Stop Config Status VirPath Connected

SN	DevType	MAC Address	HostName	IP	Position	VirPath	State	SW Ver
1	HF5111B	ACCF23202222	Eport-HF5111B		Local		Offline	1.32.4
2	HF2211	F0FE6BE0C928	2-2	202.104.28.51	Remote		Online	1.31
3	HF2211	F0FE6BE0C100	2-4	221.4.163.98	Remote		Online	1.31
4	HF2211	F0FE6BE0C790	2-3	221.4.163.98	Remote		Online	1.31
5	HF2211	F0FE6BE0C80C	2-1	221.4.163.98	Remote		Online	1.31
6	HF2411	300038724609	Eport-HF2411	112.65.61.208	China.Shanghai		Online	1.0.5
7	HF2421	F0FE6B8832AC	Eport-HF2421	222.65.224.207	Remote		Offline	1.44.05

Device Status



Product ID: HF2411
Software Version: 1.0.5
RTC Time: NTP Disabled
Up Time: 0-Day 0:4:25
Longitude: 0.0
Latitude: 0.0

GSM

ModuleSN: 300038724609
ICCID: 89860115831007091458
IMEI: 869300038724609
Connect: DisConnect
GSLQ: 28
IP Address: 112.65.61.208

UART

UART No: UART
Config: 115200,8,1,NONE
Recv Bytes: 4 Recv Frames: 2
Send Bytes: 7 Send Frames: 2
Fail Bytes: 0 Fail Frames: 0

SOCKET

SOCKET Name: A
Protocol: OFF
Status: Disconnect
Server IP:
Recv Bytes: 0 Recv Frames: 0
Send Bytes: 0 Send Frames: 0
Fail Bytes: 0 Fail Frames: 0

Reload Edit
Restart

Step 7: Can modify the parameters.

Device Setting

System

Welcome: HF2411
SleepEn: Disable
Sleep Time: 0
Longitude: 0.0
Latitude: 0.0
IOT Time: 0 : 0 ~ 23 : 59

UART

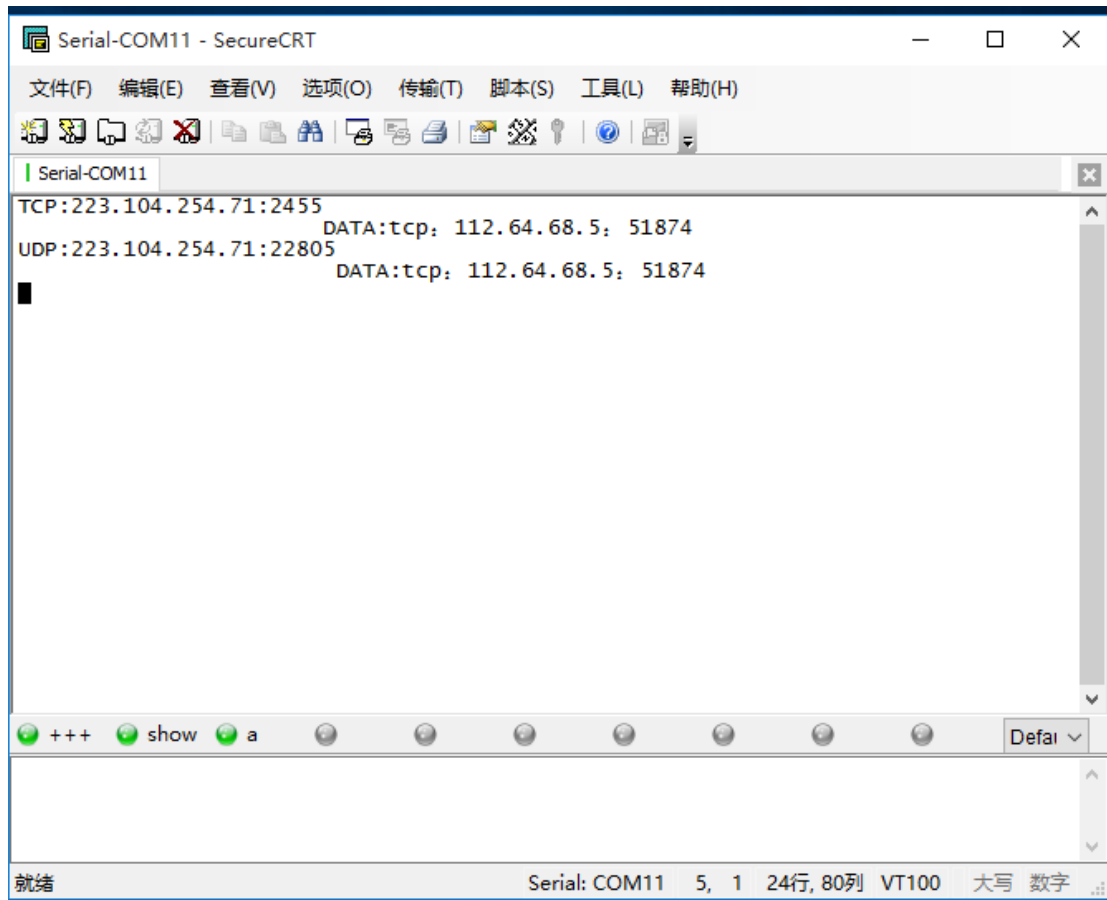
UART No: UART 1
Baudrate: 115200
Data Bits: 8
Stop Bits: 1
Parity: NONE
Flow Control: Disable
UART Protocol: NONE
HeartBeat Time: 0
HeartBeat Serial: ...

SOCKET

SOCKET Name: A
Protocol: TCP-CLIENT
Server Addr: nat2.iotworkshop.com
Server Port: 3006
Connect Mode: Always
Burst Time: 0
Rout: uart
HeartBeat Time: 0
HeartBeat Serial: ...
Regist Mode: Disable
Regist Code: ...
Data Tag: Disable
Data Tag Code:

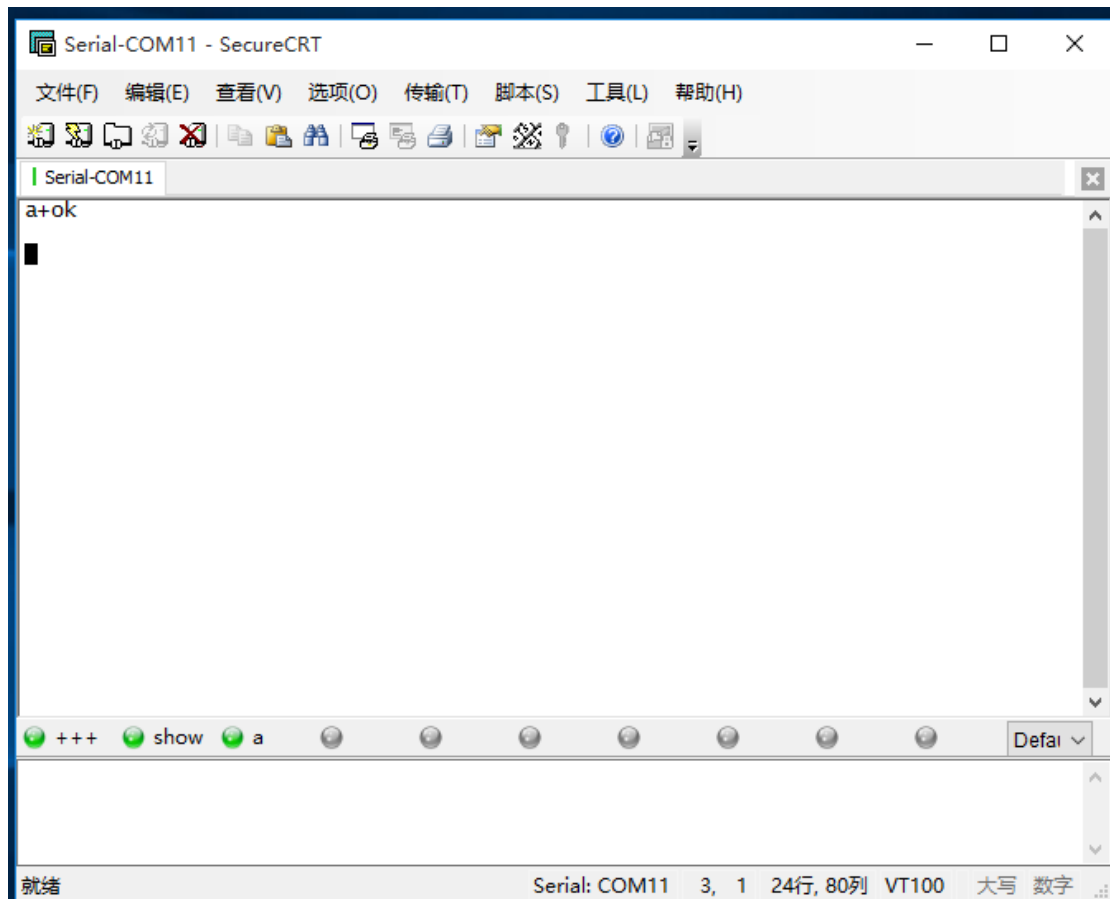
Confirm Cancel
VirPath
Import Export

Step 8: Use our test server to check device function.

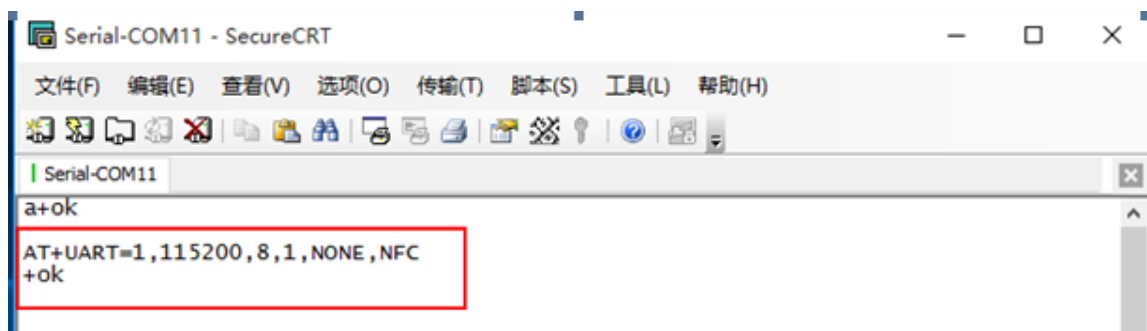


3.5. Test Case Three: Throughput Via SecureCRT

Step 1: Open SecureCRT(Baudrate default:115200), Input “+++” (device will response with “a”)and then “a” (device will response with “+ok”) to enter AT command mode.



AT+UART to query or change setting.



Step 2: Input “AT+NETP=A,1,TCP,nat2.iotworkshop.com,3006,Long” to set socket A, and “AT+Z” to reboot.

```
AT+NETP=A,1,TCP,nat2.iotworkshop.com,3006,Long
+ok
```

Step 3: Wait for network connecting OK. Then send UART data to device, the test server will response with data in defined format(Protocol type, port number and data as following picture).

```

AT+NETP=A,1,TCP,nat2.iotworkshop.com,3006,Long
+ok

+ERR=-1

AT
+ERR=-1

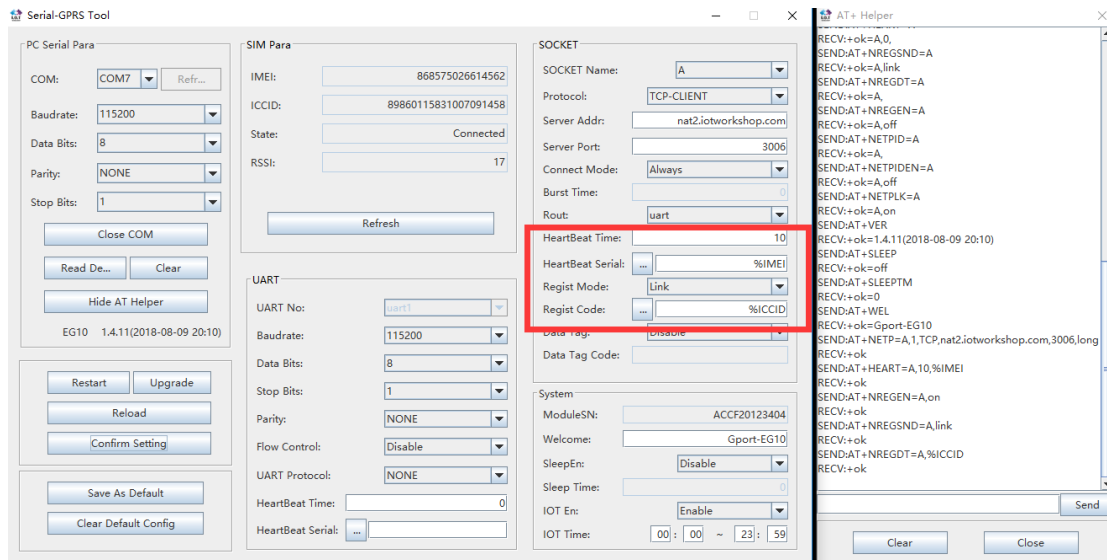
AT+ENTM
+ok

TCP:112.65.48.219:52011 DATA:AAAA
TCP:112.65.48.219:52011 DATA:BBBBBBBBBB
    
```

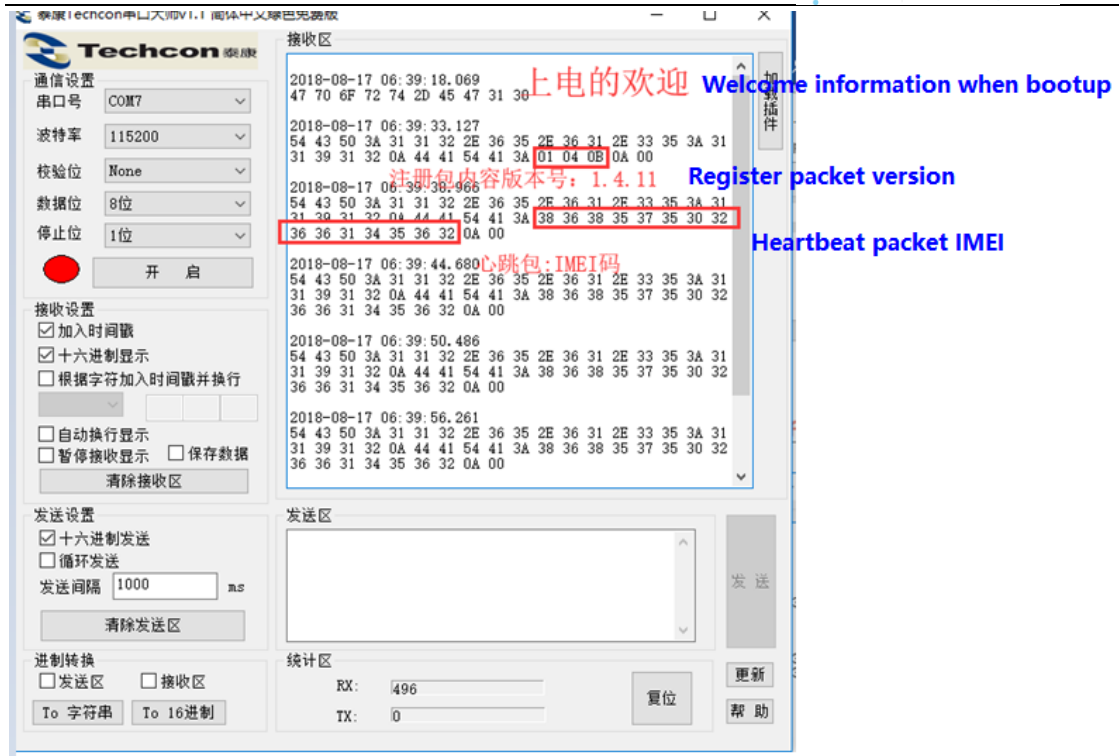
3.6. Test Case Four: Heartbeat and Resister Packet

Step 1: Set the parameter as following..

- AT+HEART=A,10,%IMEI //Enable heartbeat for 10 seconds upload its IMEI.
- AT+NREGEN=A,on //Enable Register Packet
- AT+NREGSND=A,link //Send Register packet when connection established.
- AT+NREGDT=A,%VER //Register content is software version



Step 2: 按上图设置之后重启，数据连接到测试服务器之后按如下的输出显示服务器的回包。



Other example:

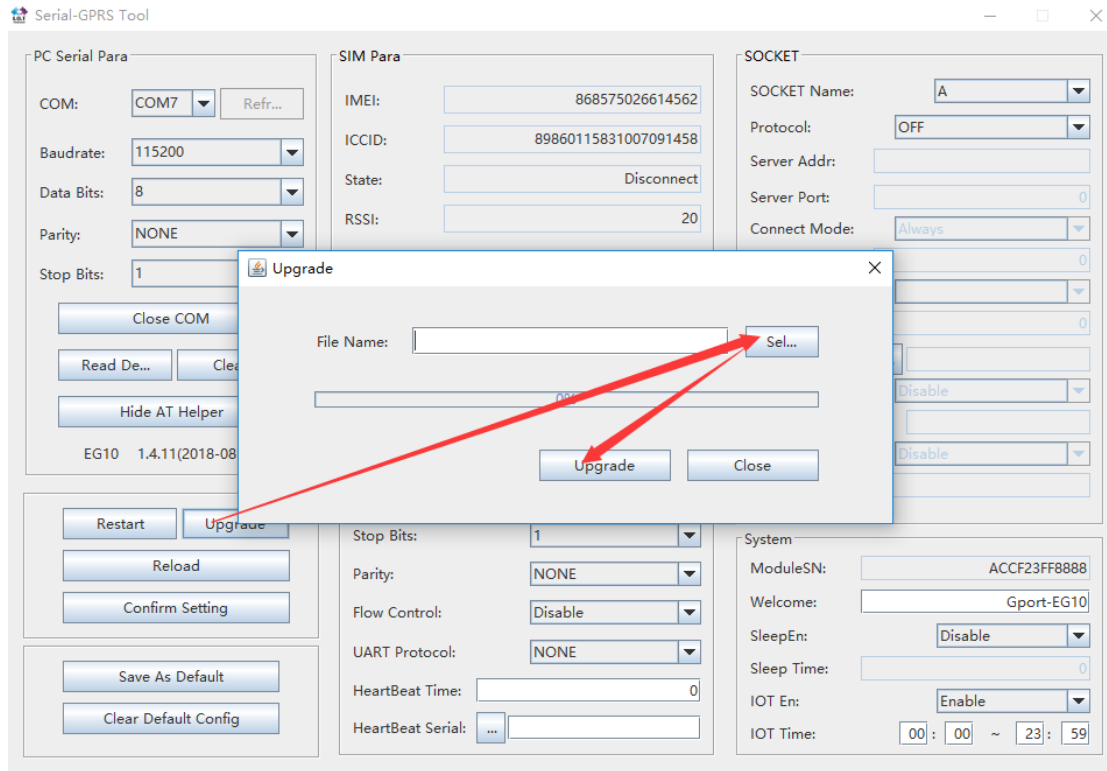
Register Code Requirement: FFFFFFFFA+IMEI+0F

Setting Parameter: %FF%FF%FF%FF%FA%IMEI%0F

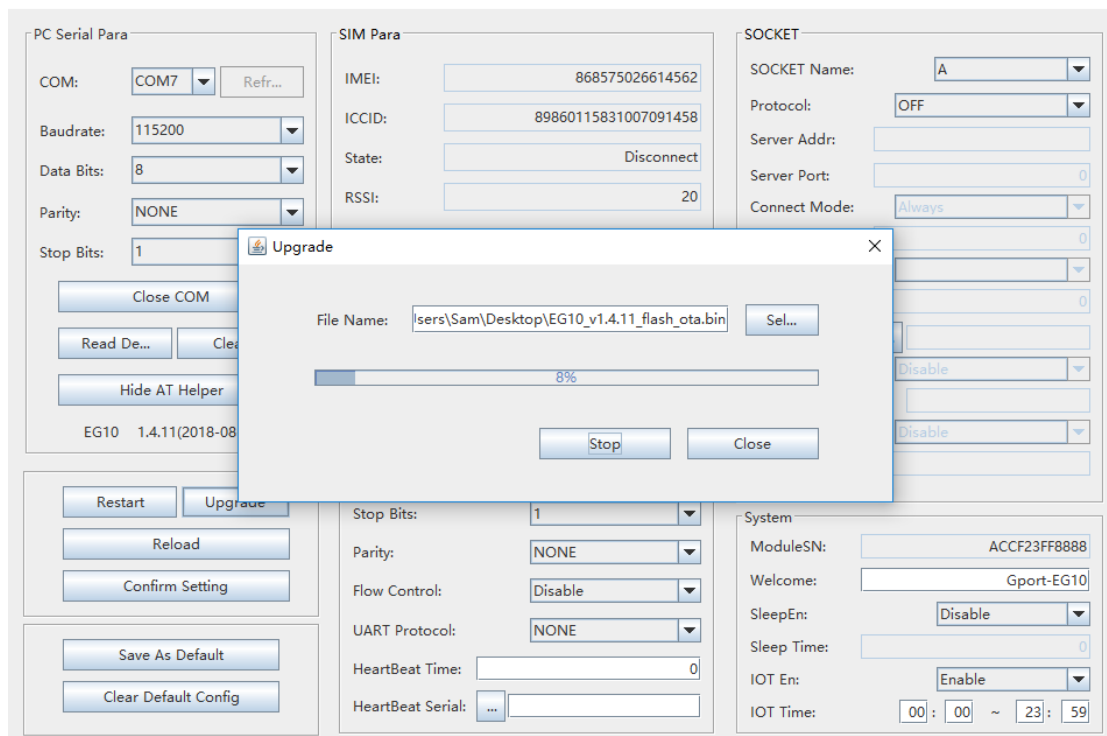
Upload real data: FF FF FF FF FA 38 36 38 35 37 35 30 32 36 36 31 34 35 36 32 0F

3.7. UART Upgrade

Load the firmware.



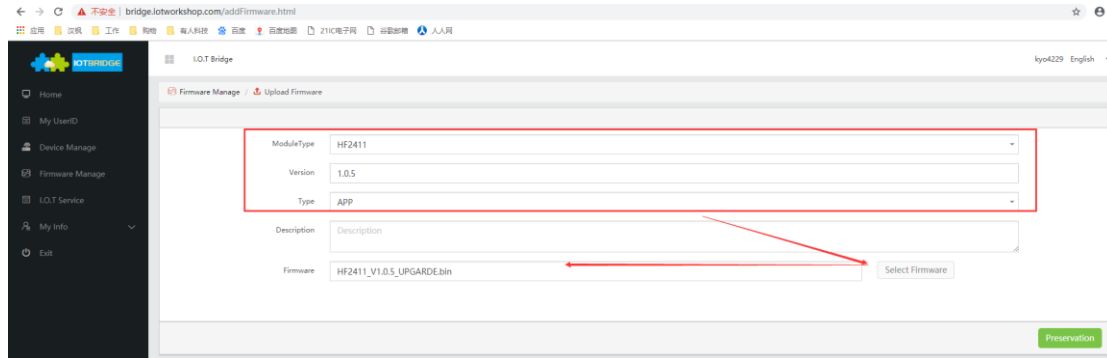
Do reboot after upgrade success.



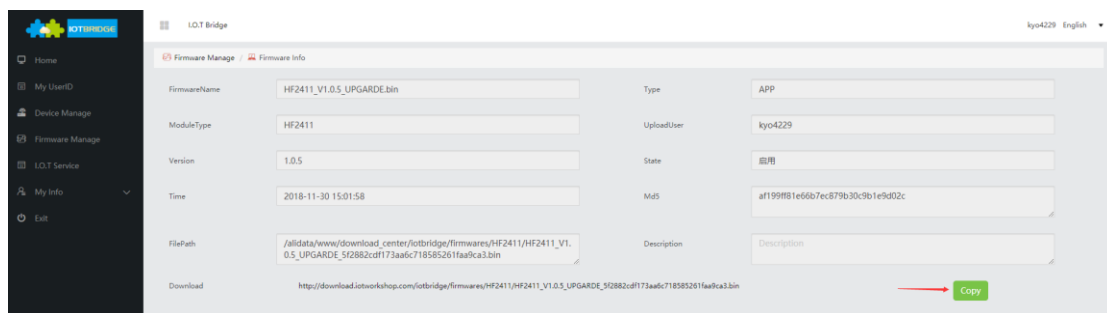
3.8. Remote Upgrade

Step 1: Remote upgrade is using our IOTBridge cloud, download firmware from our IOTBridge. Bound device to account as the previous steps.

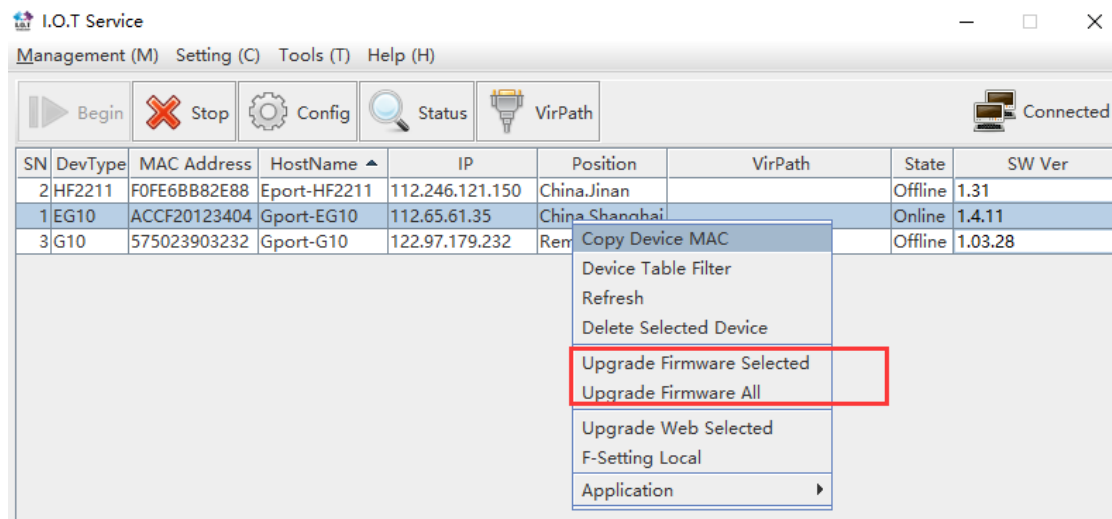
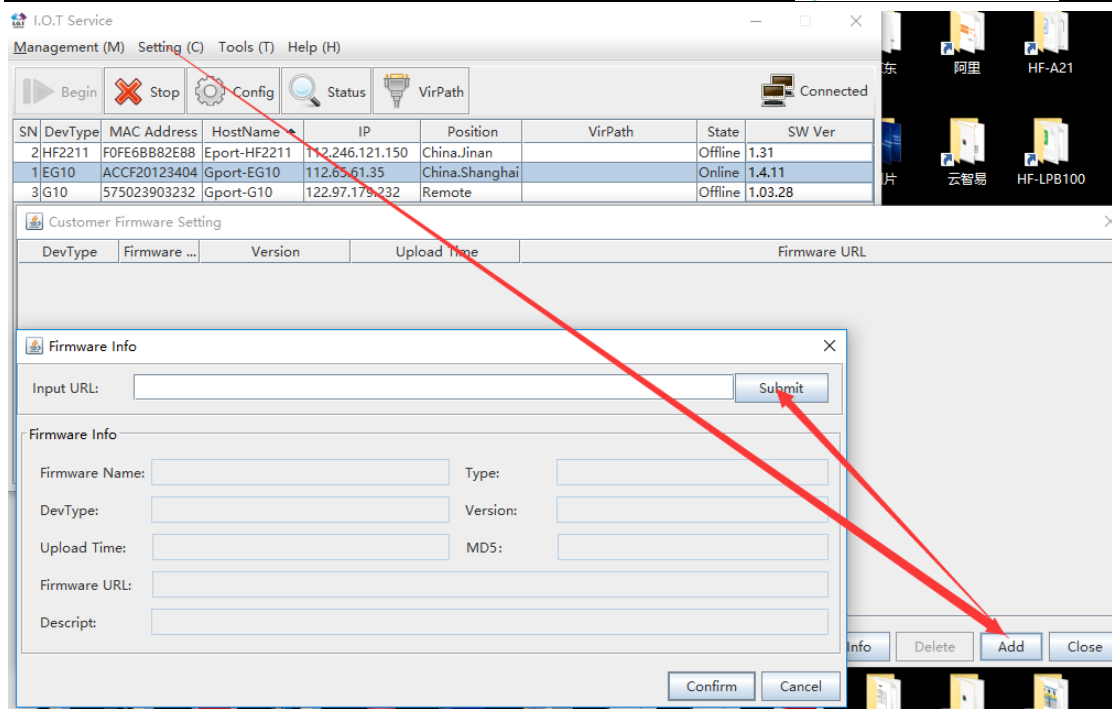
Step 2: Login <http://bridge.iotworkshop.com/>, upload firmware in IOTBridge.



Step 3: Copy the download link as following.



Step 4: Copy the download link into the IOTService tools. And do upgrade operation.



APPENDIX A: REFERENCES

A.1. Test Tools

IOTService Configure Software:

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