

Elfin-EG1X

RS232/RS485 to GPRS

Operation Guide

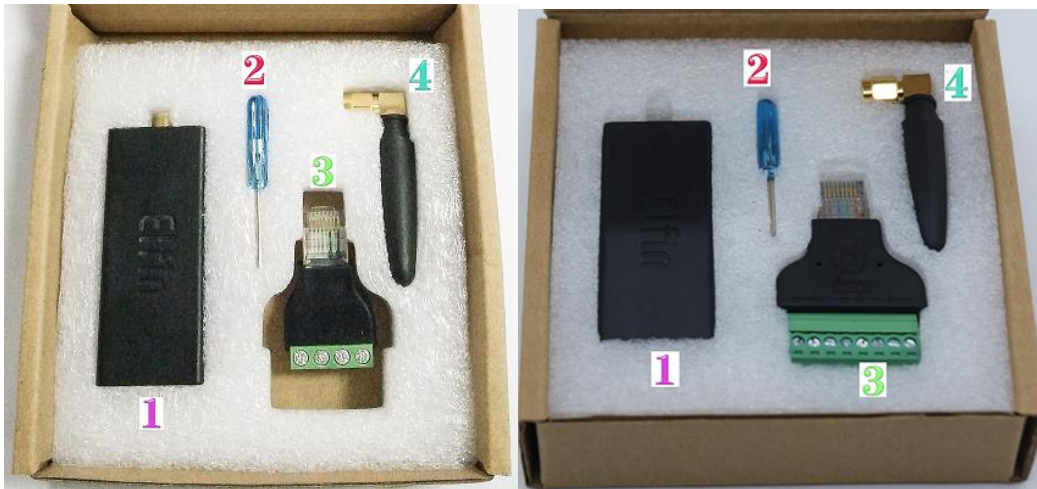
 <p>Elfin-EG10 RS232 ↑ GPRS SIM Input: 5-18VDC@10W 1. Reload 2. TXD 3. RXD 4. VCC 5. GND</p>	Elfin-EG10
 <p>Elfin-EG11 RS485 ↑ GPRS SIM Input: 5-18VDC@10W 1. Reload 2. A+ 3. B- 4. VCC 5. GND</p>	Elfin-EG11

1. ELFIN-EG1X EVK	3
1.1. ELFIN-EG10 4PIN CONNECTOR.....	3
1.2. ELFIN-EG11 4PIN CONNECTOR.....	3
1.3. ELFIN-EG10 8PIN CONNECTOR.....	4
1.4. ELFIN-EG11 8PIN CONNECTOR.....	4
1.5. EG10 INTERFACE CONVERSION CABLE.....	4
1.6. EG11 INTERFACE CONVERSION CABLE.....	5
2. SERIAL SETTING	6
2.1. SERIAL TOOL SECURECRT	6
2.2. CONFIGURE SERIAL PARAMETER	6
3. TEST EXAMPLE	7
3.1. IOTSERVICE TOOLS	7
3.2. IOTSERVICE INTRODUCTION.....	7
3.3. TEST CASE ONE: IOTSERVICE UART CONFIG.....	11
3.1. TEST CASE TWO: IOTSERVICE NETWORK CONFIG	13
3.2. TEST CASE THREE: THROUGHPUT VIA SECURECRT.....	17
3.3. TEST CASE FOUR: HEARTBEAT AND RESISTER PACKET.....	18
3.4. TEST CASE FIVE: VIRTUAL COM	19
3.5. TEST CASE SIX: SMS THROUGHPUT	20
3.6. TEST CASE SEVEN: HTTP REQUEST.....	21
3.7. SMS AT COMMAND.....	23
3.8. UART UPGRADE.....	25
3.9. REMOTE UPGRADE	26
APPENDIX A: REFERENCES	28
A.1. TEST TOOLS.....	28

1. ELFIN-EG1X EVK

Elfin support GPRS/GSM network. Elfin-EG10 is RS232 interface and Elfin-EG11 is RS485 interface. The EVK include the following attachment.

- Elfin-EG1X product
- Screw driver
- RJ45 to Terminal Transformer (4PIN or 8PIN)



1.1. Elfin-EG10 4PIN Connector



1.2. Elfin-EG11 4PIN Connector



1.3. Elfin-EG10 8PIN Connector



1.4. Elfin-EG11 8PIN Connector



1.5. EG10 Interface Conversion Cable



Figure 1. Interface Conversion Cable

1.6. EG11 Interface Conversion Cable




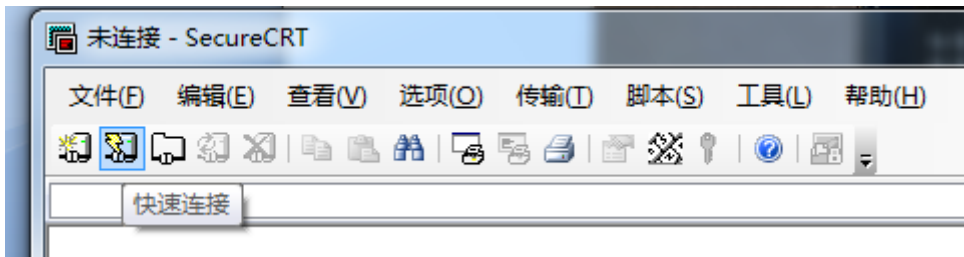
Figure 2. Interface Conversion Cable

2. SERIAL SETTING

2.1. Serial Tool SecureCRT

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

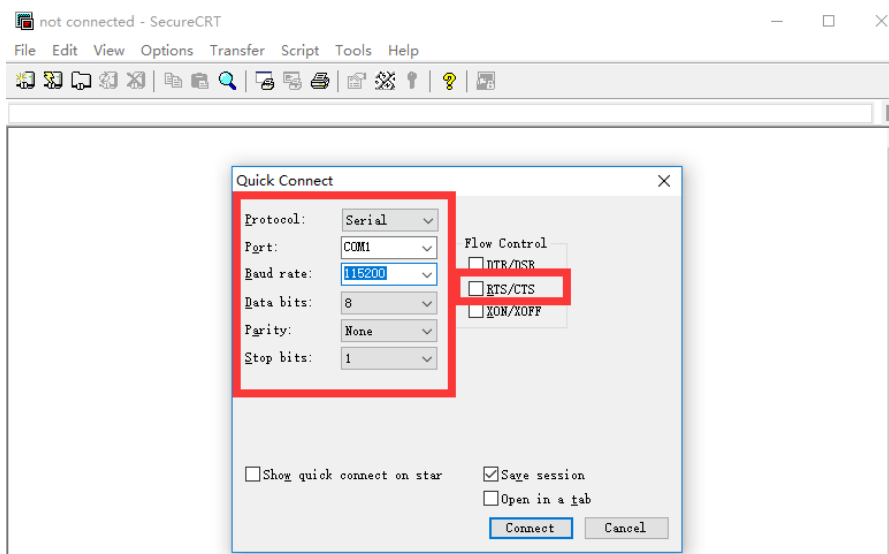
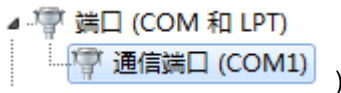
Decompress file and find executable program, then open. Click quick start button  to create connection.



2.2. Configure Serial Parameter

Protocol: Serial

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



Notes: Elfin-EE1X 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. The file list table is as follows:

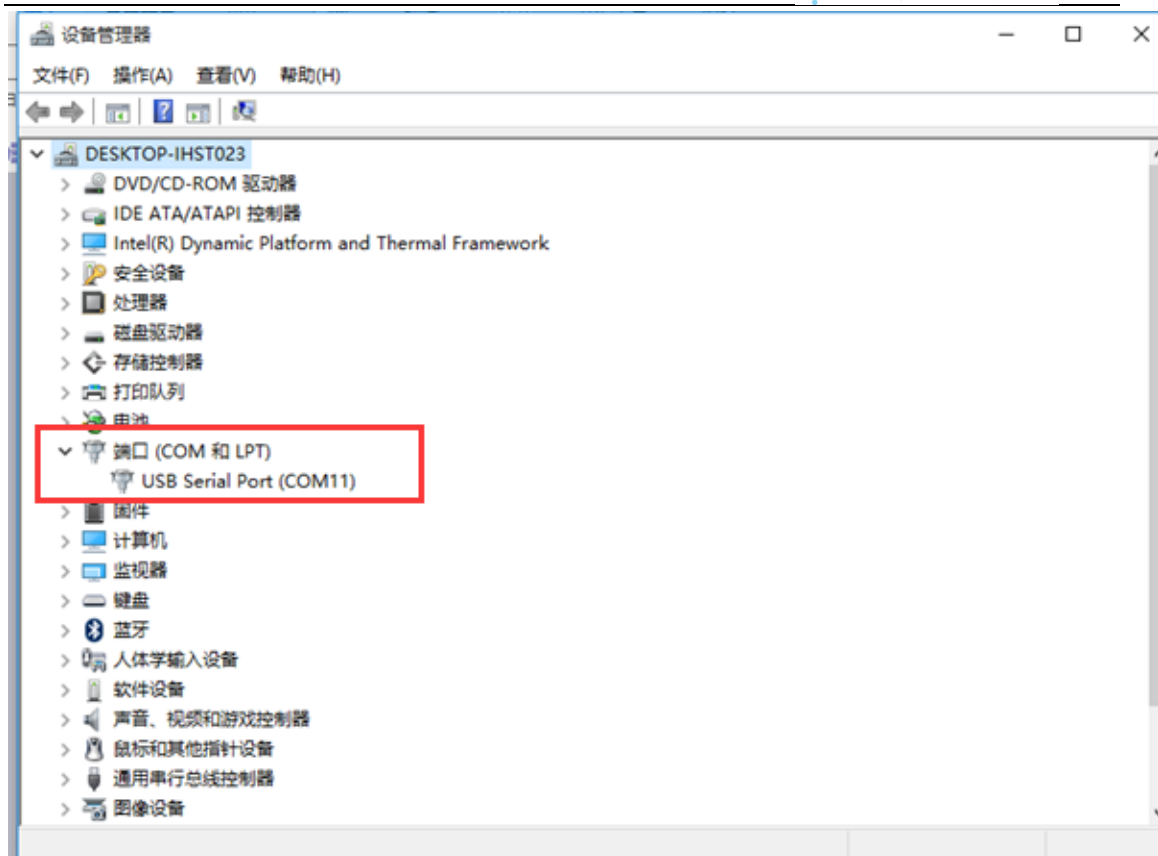
Name	File Name	Download Times	Date Update	Download
IOTService 2.3.00	IOTService 2.3.00.rar	144	12/03/2018 09:33:18	

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

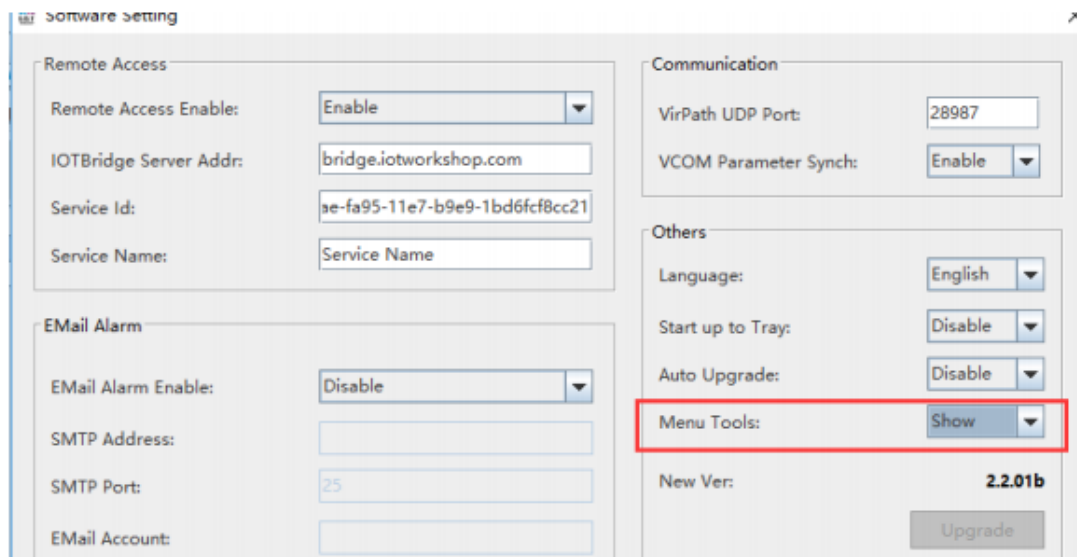
The screenshot shows the 'Software Setting' dialog box. The 'New Ver' field is highlighted in red, indicating the latest version available for upgrade, which is 2.3.04h. Below the version number is an 'Upgrade' button. Other settings include Remote Access (Enabled), IOTBridge Server Addr (bridge.iotworkshop.com), Service Id (7fa02726-79a), and Email Alarm (Disabled).

3.2. IOTService Introduction

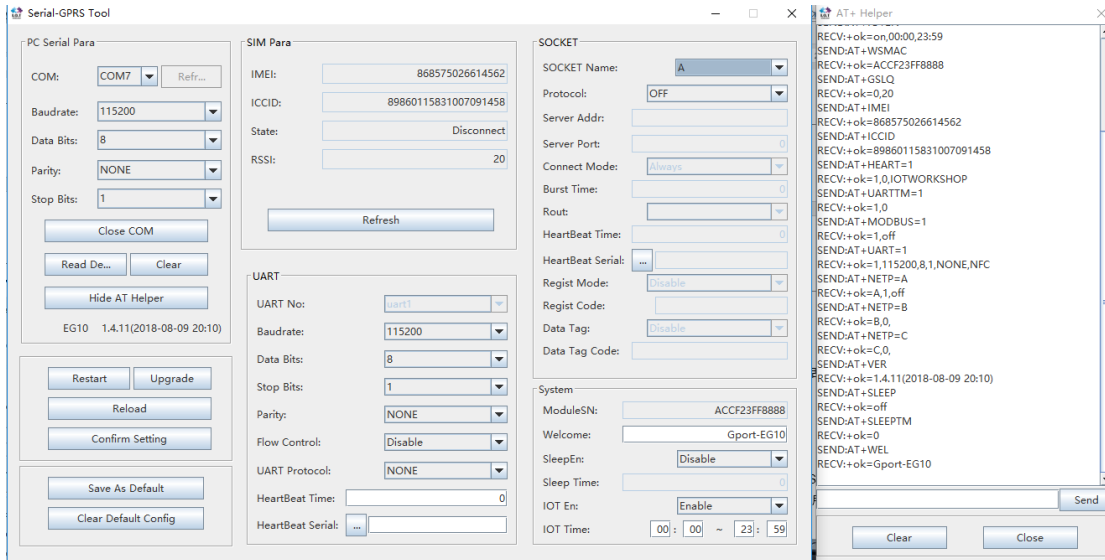
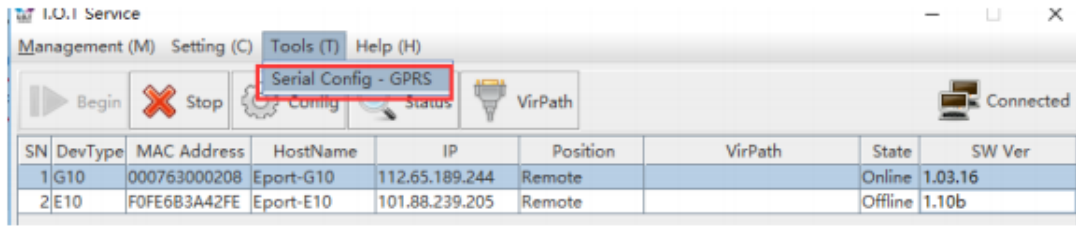
Step1: PC connect to device UART. Note that RS232/RS485/TTL UART is different.



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

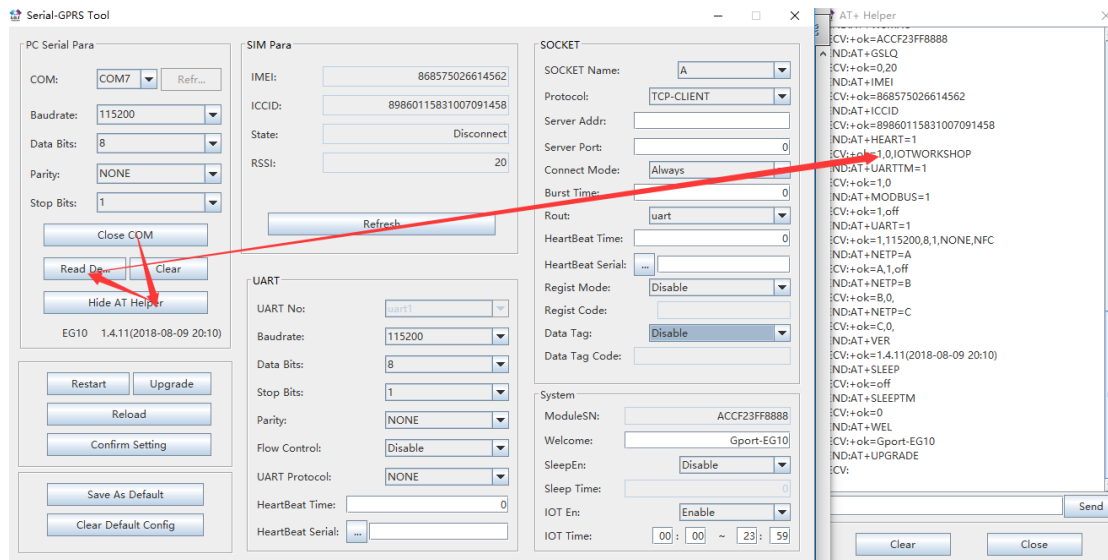
ICCID: Module ICCID

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.

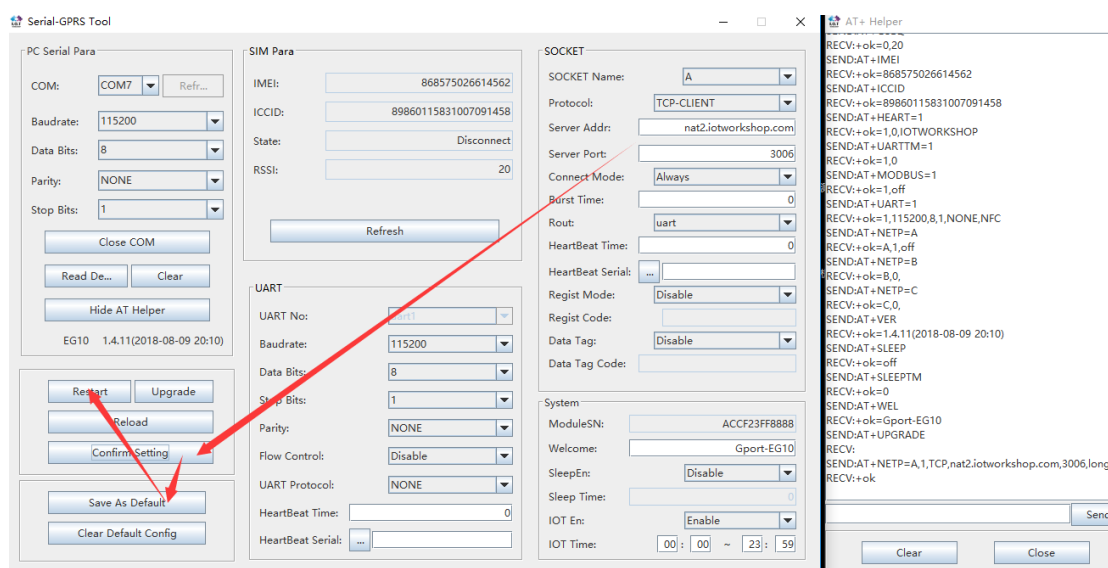


Step 2: The tools show the module parameters. Click **【Confirm Setting】** to change parameter. **【Save As Default】** is used to save current setting to default. Once do reload operation, it will restore to this saved default value. The following set Socket A to our test server. (nat2.iotworkshop.com)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

Test Server: nat2.iotworkshop.com

TCP Port: 3006

UDP Port: 3008

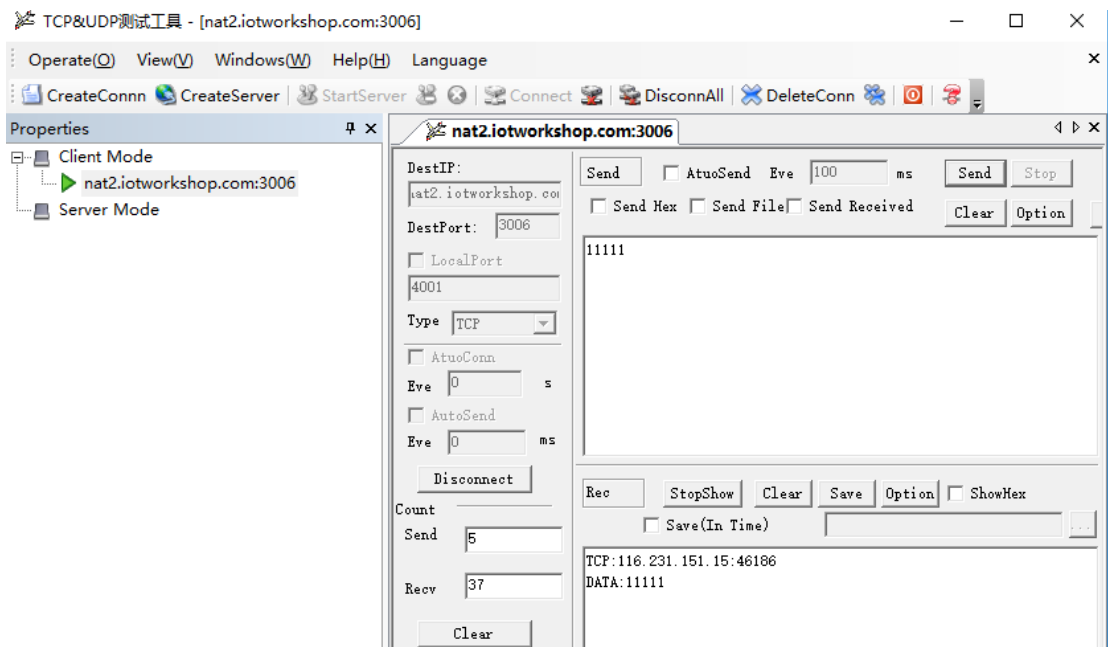


Note: Default UART is 115200,8,N,1.

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 mode.



The following use tools to test server data response format.

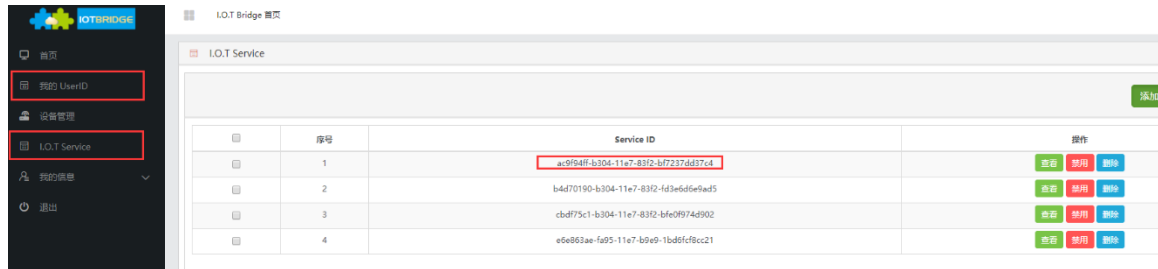


3.1. Test Case Two: IOTService Network Config

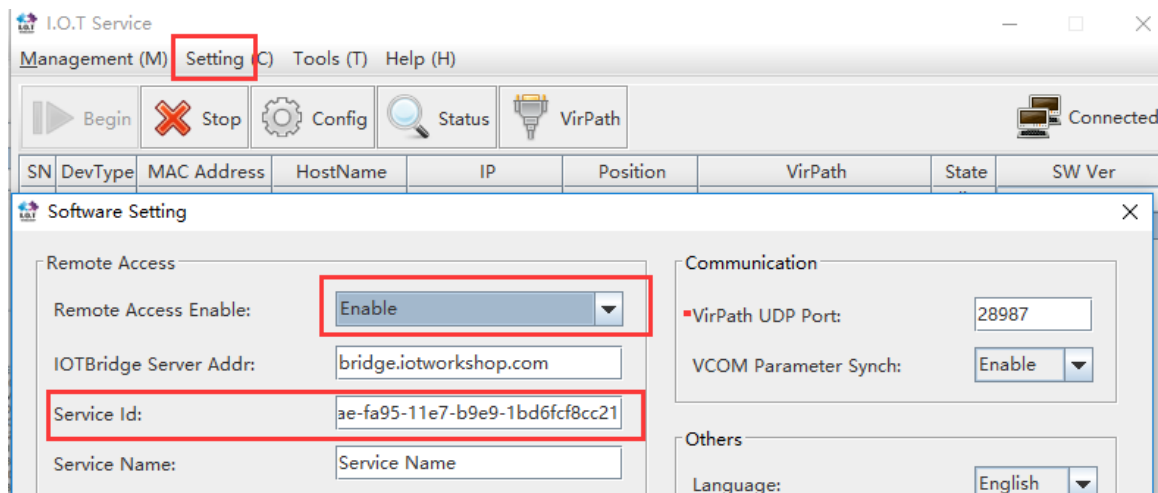
Step 1: Login IOTBridge(<http://bridge.iotworkshop.com/>) to register account.



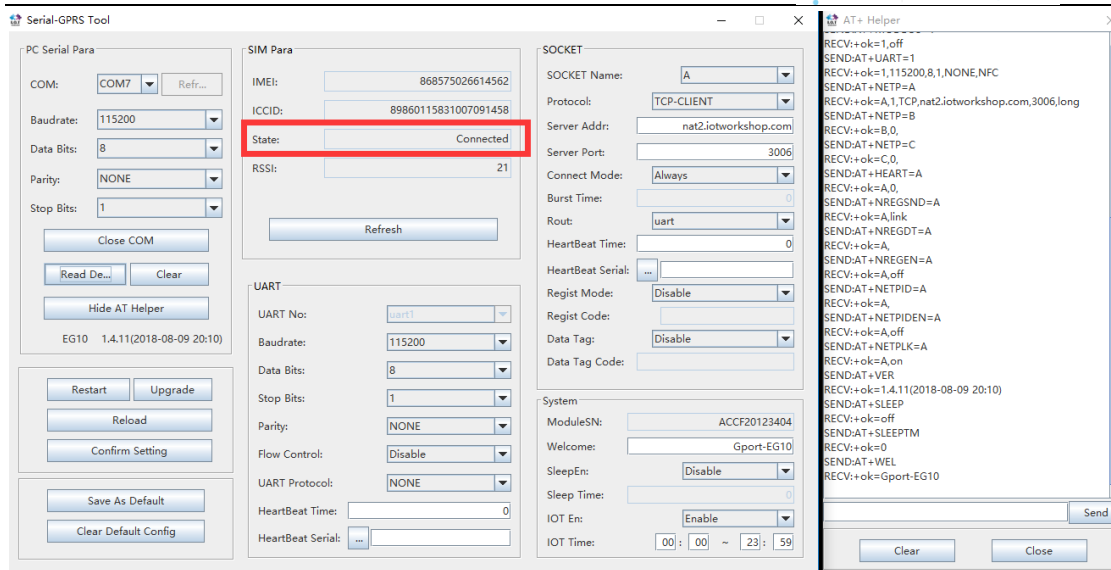
Step 2: Get UserId(device side)and ServiceId(IOTService side)



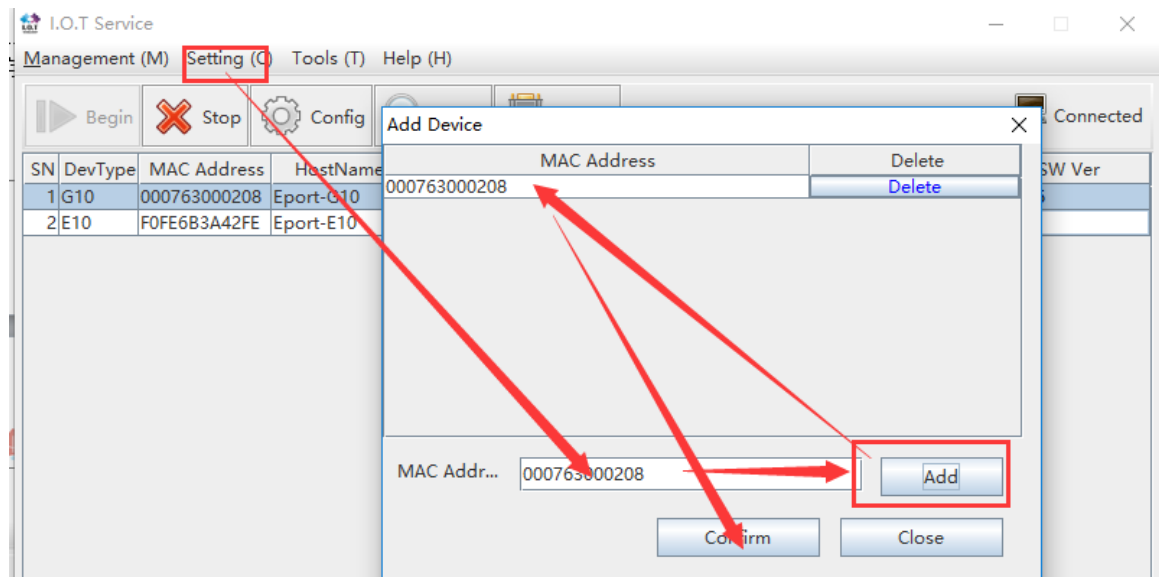
Step 3: Input ServiceId in IOTService.



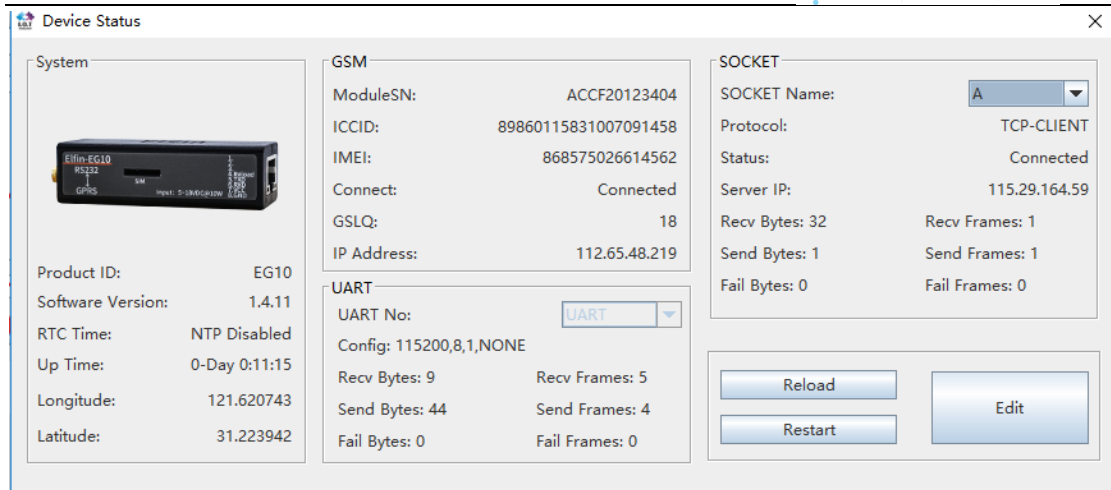
Step 4: Insert SIM card and power on device, wait for device connects to network. The UART tools also shows the GPRS status.



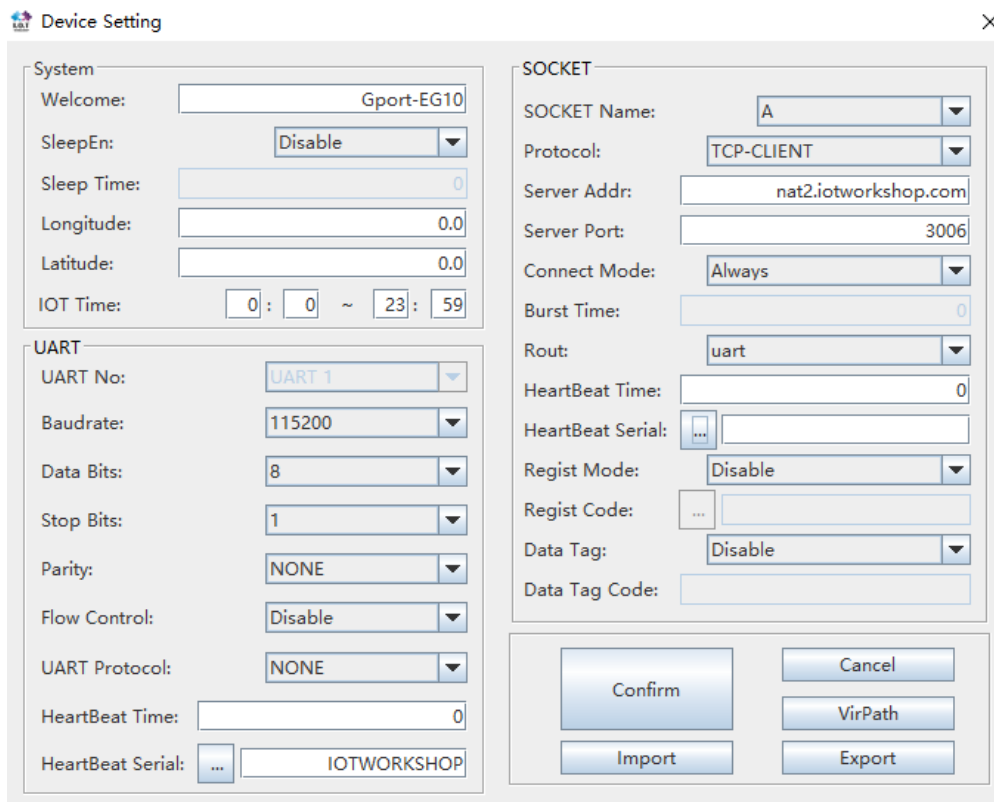
Step 5: Add MAC in the tools to bound account. (AT+WSMAC to get MAC address, usually it is the latter 12 character of the IMEI), recommend to use AT+IOTUID command to write UserId into the device. Prevent bounded by the other vicious customer.



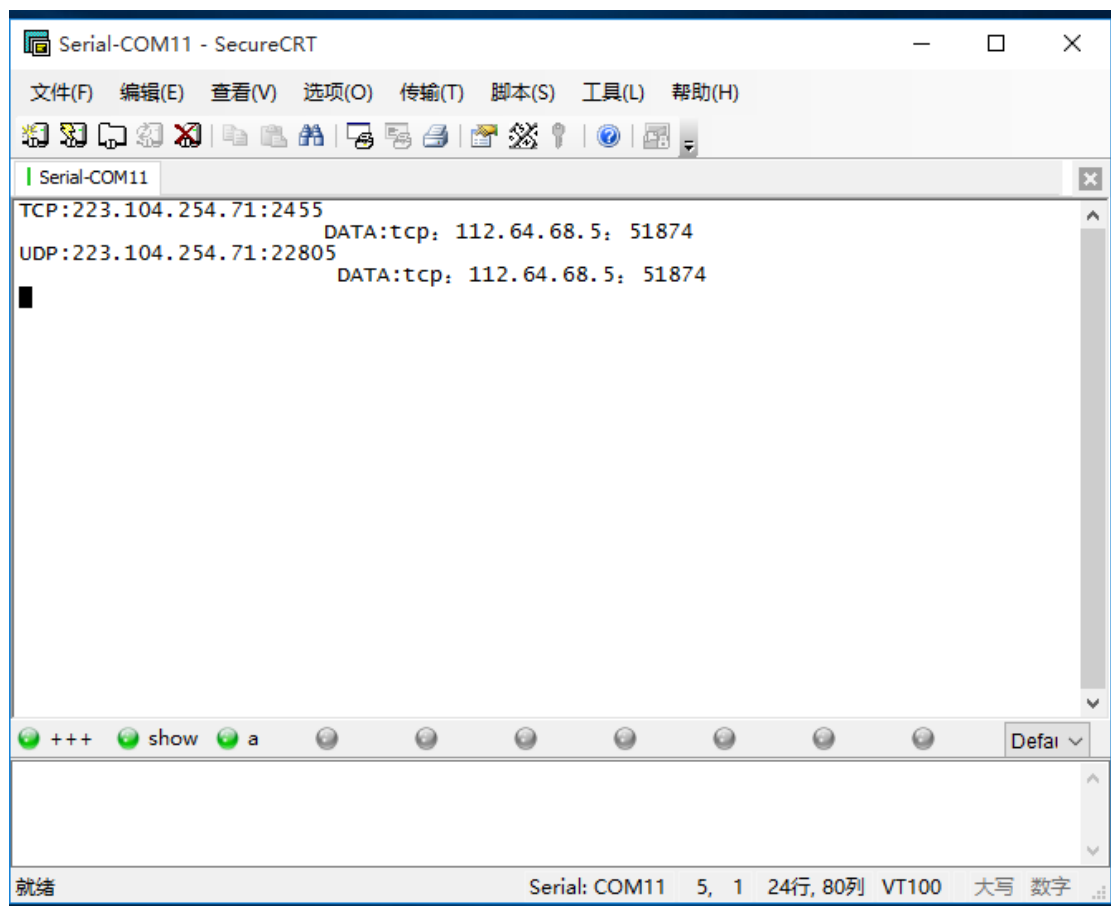
Step 6: Double click device entering the config page.



Step 7: Can modify the parameters.

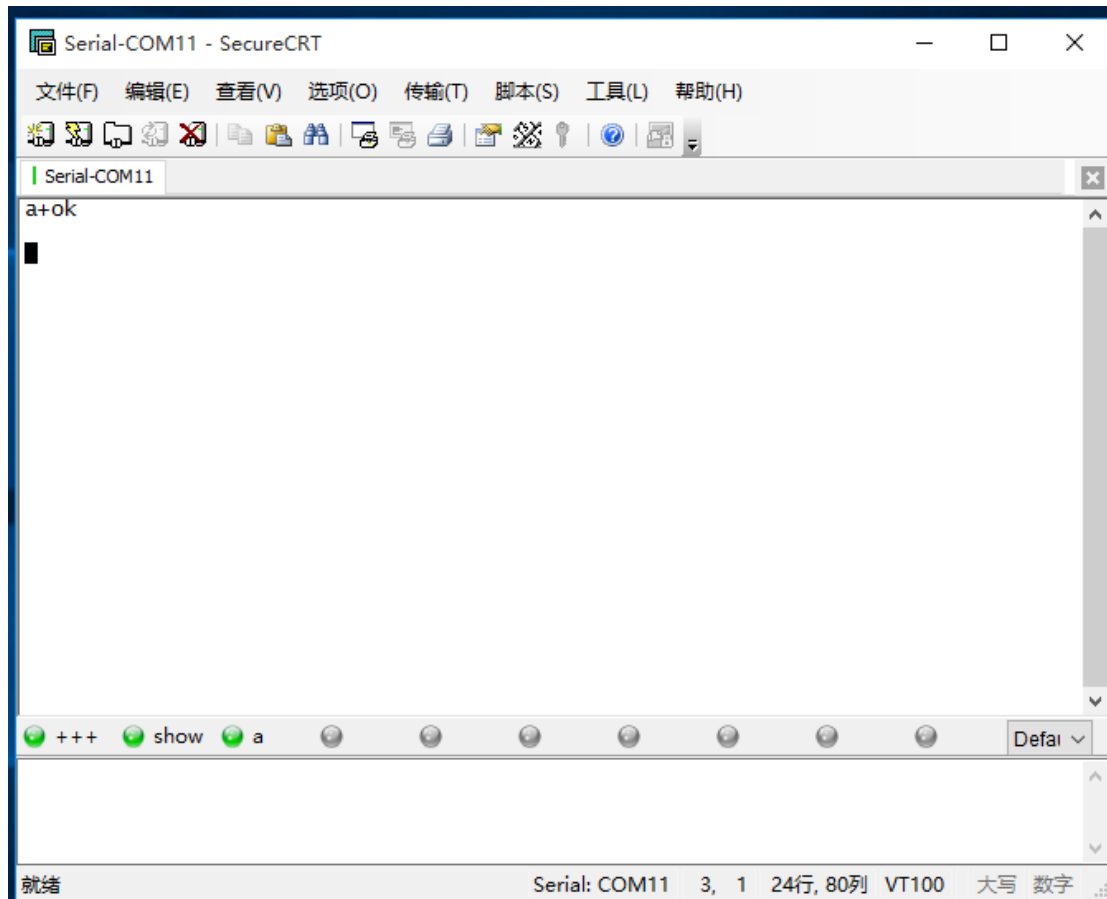


Step 8: Use our test server to check device function.



3.2. 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

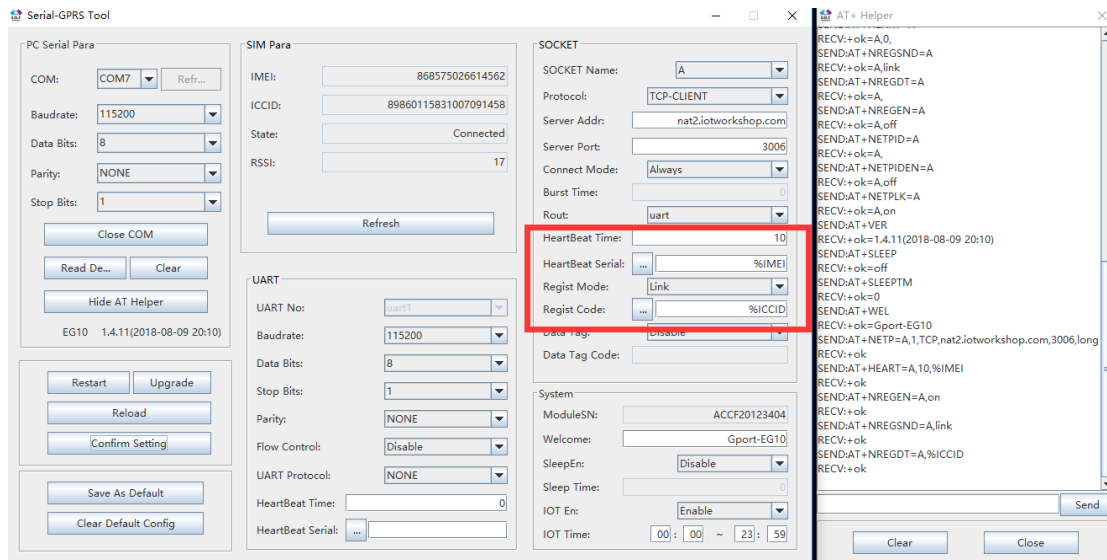
AT+ENTM
+ok

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

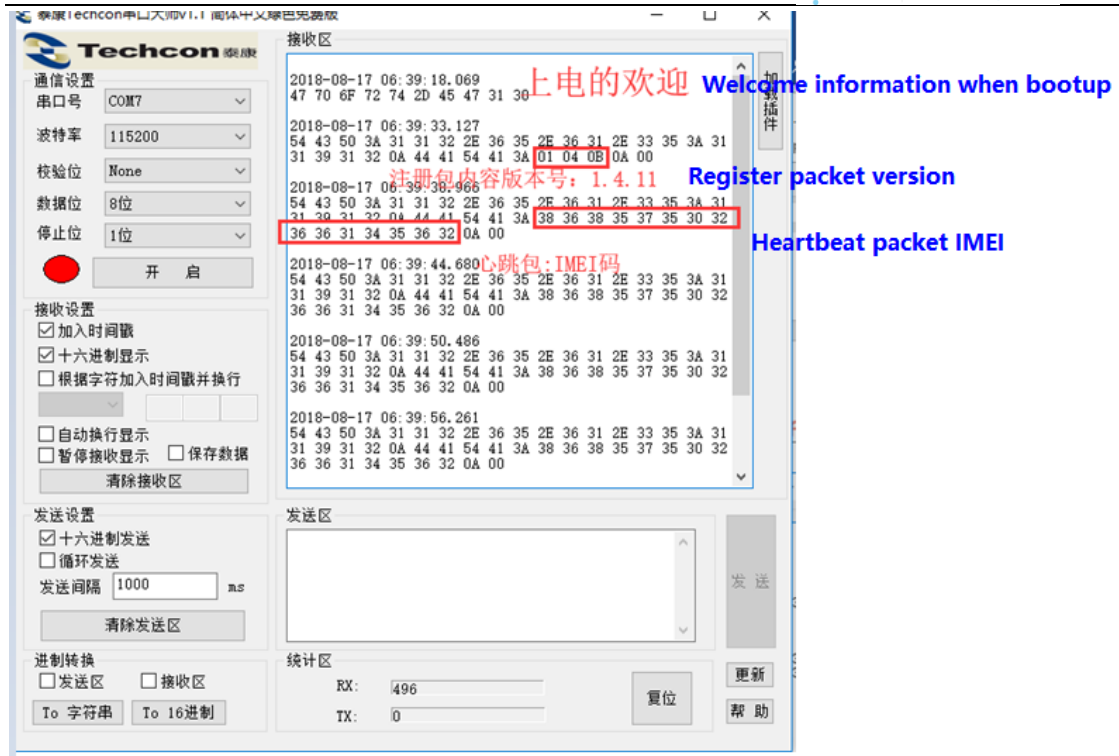
3.3. Test Case Four: Heartbeat and Register Packet

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:

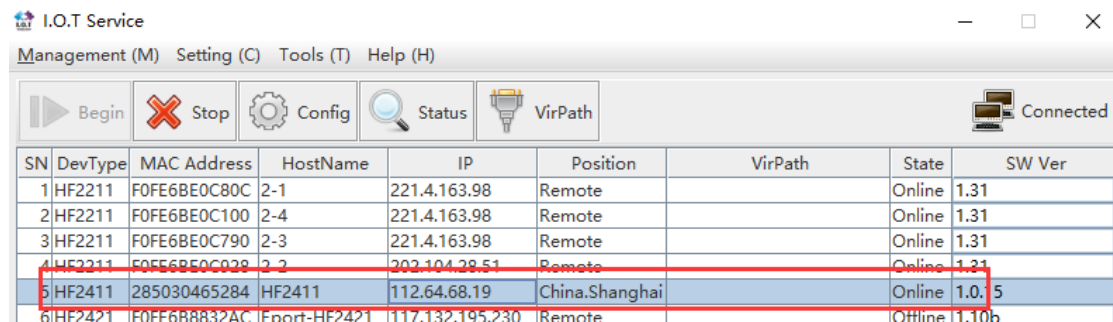
Register Code Requirement: FFFFFFFFA+IMEI+0F

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

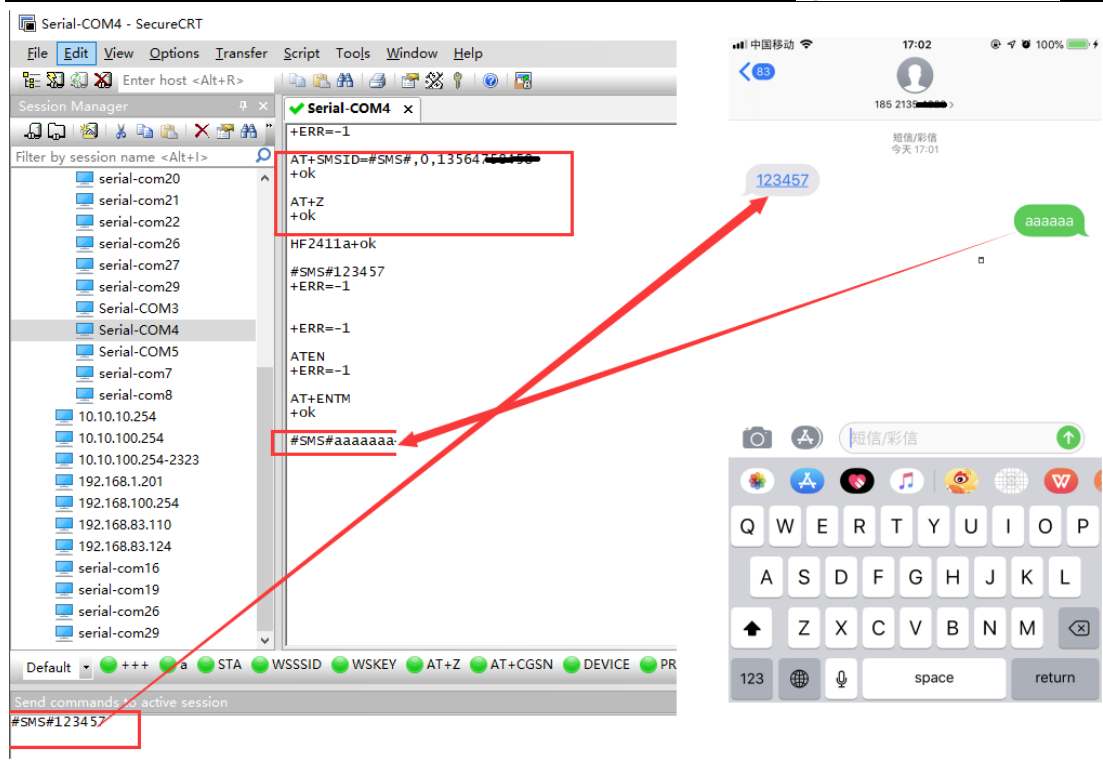
Upload real data: FF FF FF FF FA 38 36 38 35 37 35 30 32 36 36 31 34 35 36 32 0F

3.4. Test Case Five: Virtual COM

Step 1: Add device to IOTService according to Case Two.

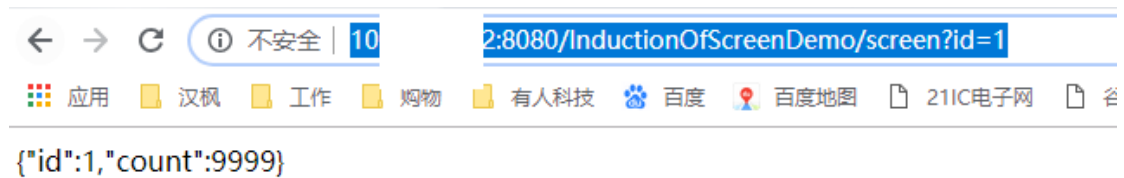


Step 2: Click into the config page, fill the Vircom Socket ID with C(A/B/C all can be used for virtual COM, must choose off socket to use for virtual COM).

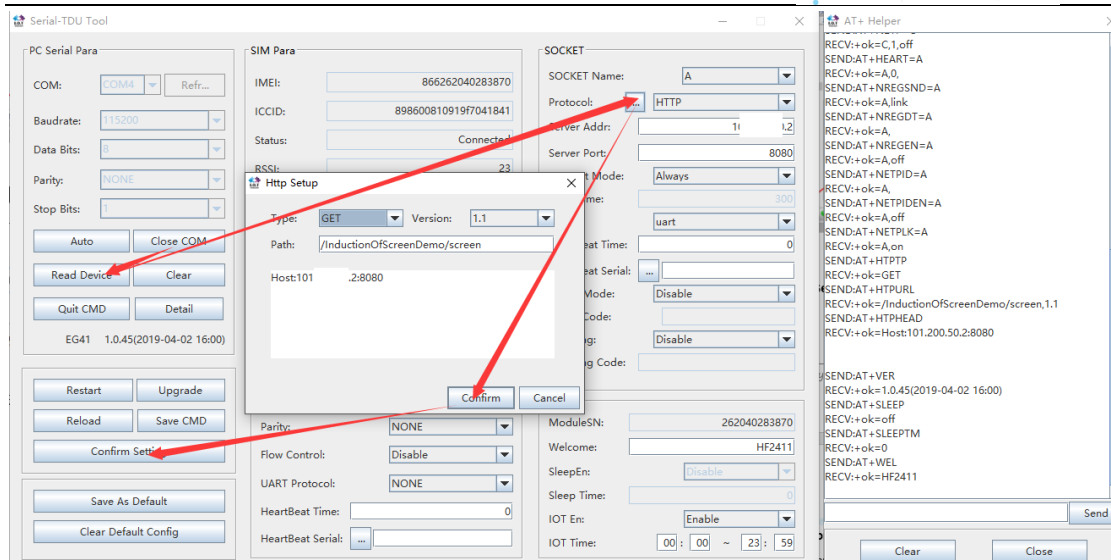


3.6. Test Case Seven: HTTP Request

Step 1: Browser open <http://XX.XX.XX.2:8080/InductionOfScreenDemo/screen?id=1>, got the response as following:



Step 2: Input the HTTP parameters as the following steps.



Protocol: HTTP

Server Addr: Server address, IP or domain name.

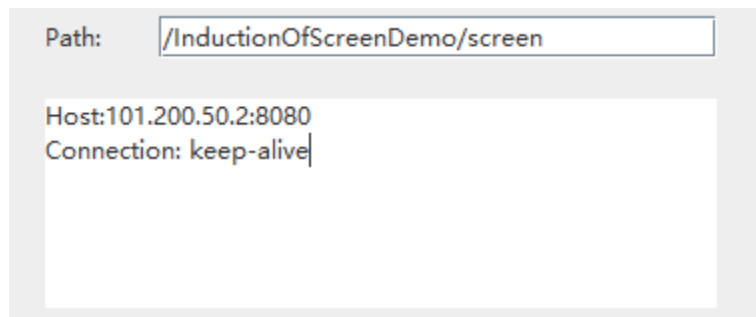
Server Port: Server port.

Type: HTTP Type, GET or POST.

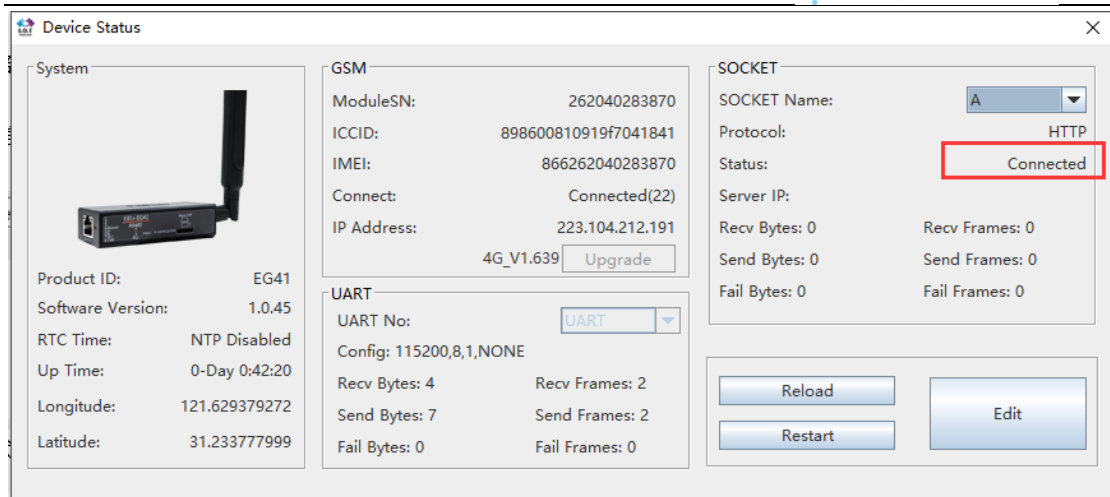
Version: HTTP Version, 1.1.

Path: HTTP path

HTTP header input: Input HTTP header. Usually is Host information.



Step 3: Reboot and wait for SOCKA connection.



Step 5: UART send data id=1, and got response of the server.



Note:

Refer to "4G_2G DTU products function" for more detail.

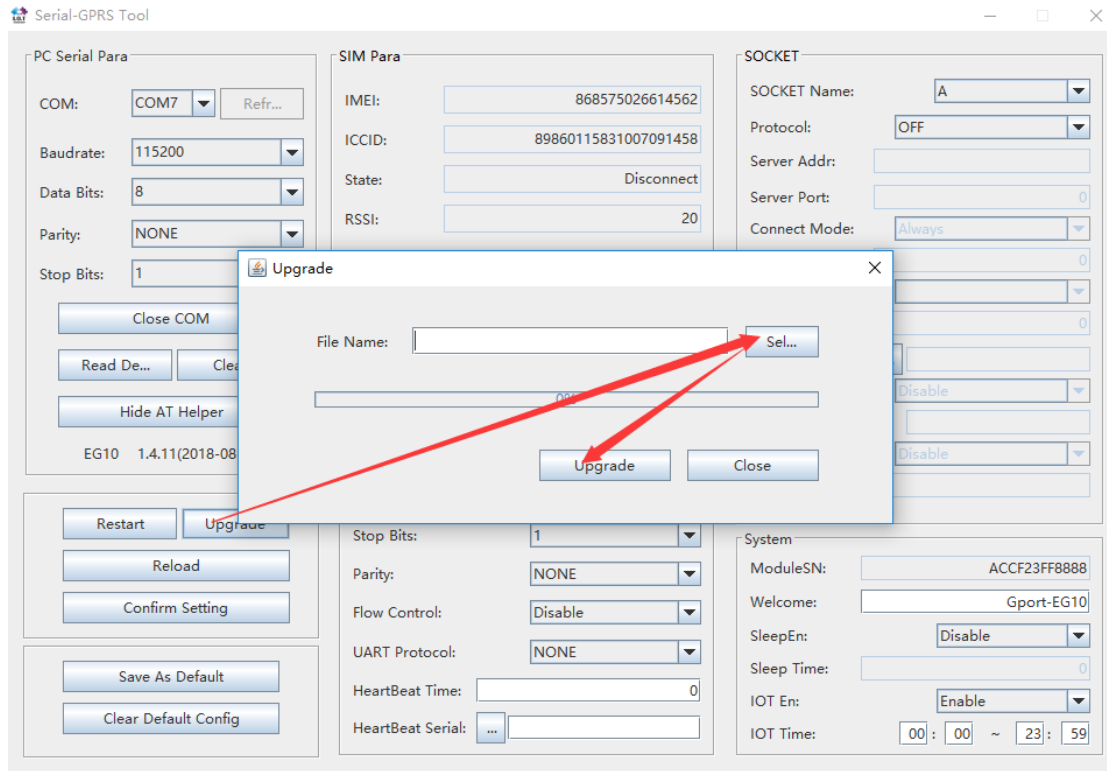
3.7. SMS AT Command

All AT command support using SMS to set. AT+Z do reboot operation, so it won't response.

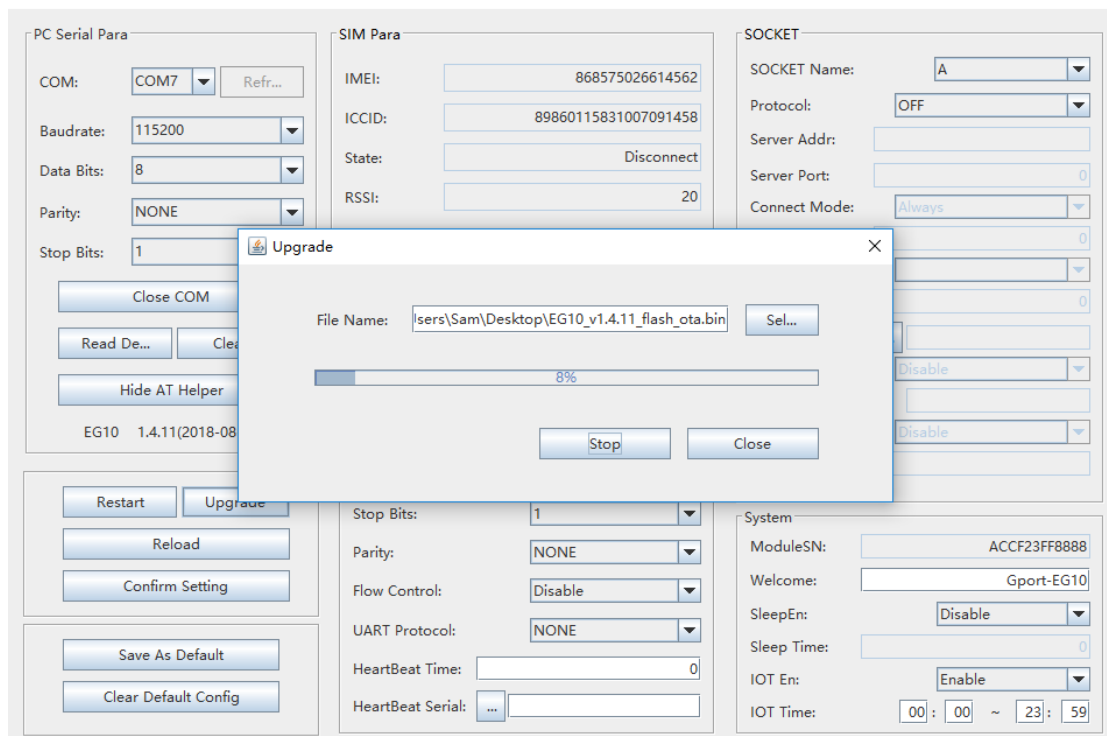


3.8. UART Upgrade

Load the firmware.



Do reboot after upgrade success.



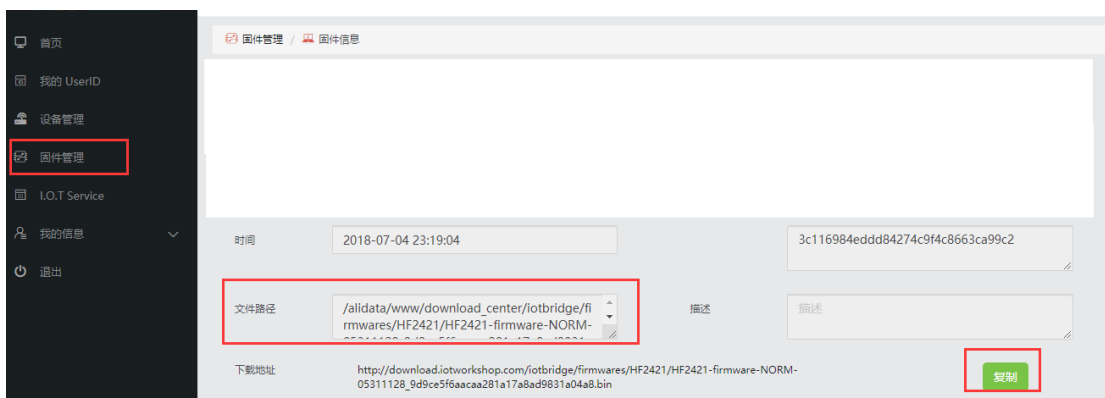
3.9. Remote Upgrade

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

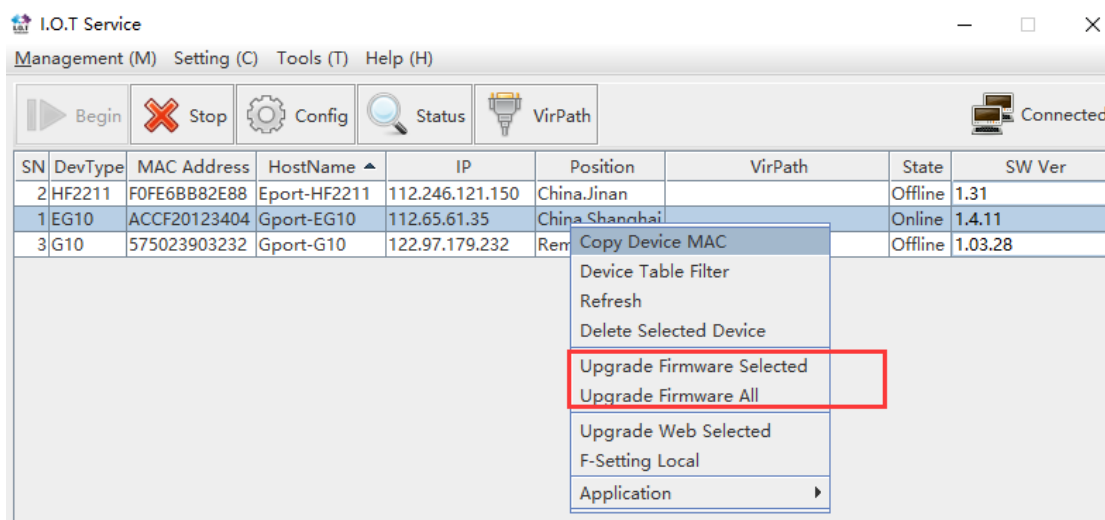
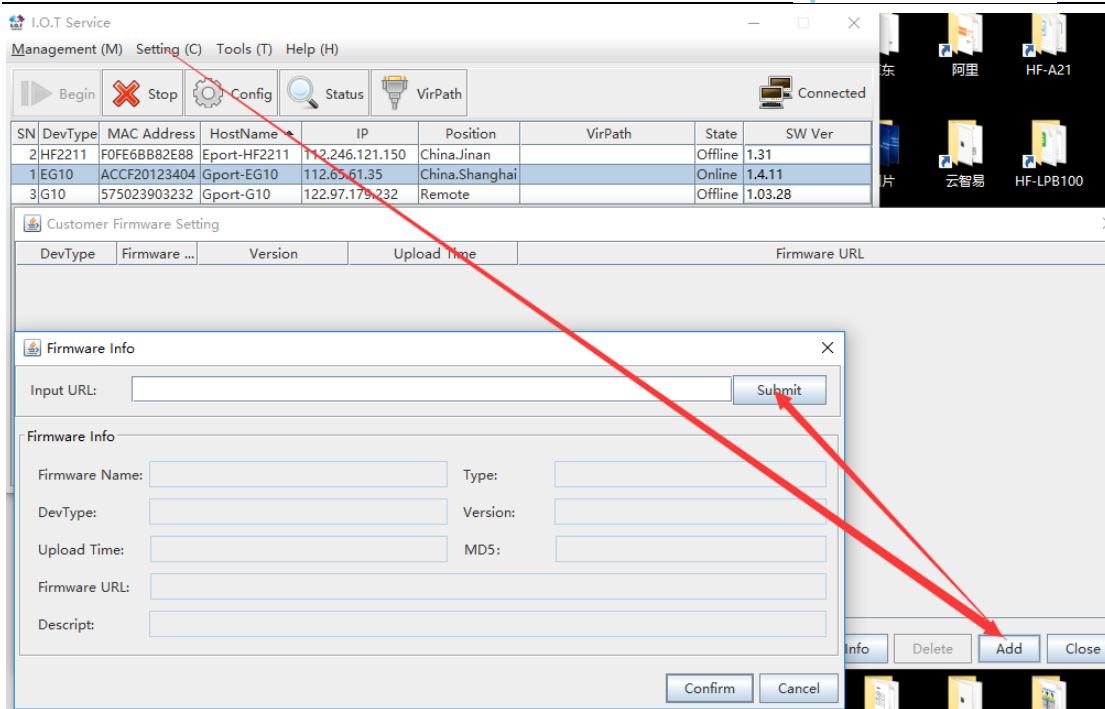
Step 2: Login <http://bridge.iotworkshop.com/>, upload firmware in IOTBridge.



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