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LBT-T300-M400-C1 4G Routing Equipment User Manual

V1.4

Revise history

Version	Date	Author	Description
V1.0	2020/6/11	Document Group	Initial
V1.1	2020/7/15	Document Group	Synchronization software V2.3 Synchronous hardware V1.1 Add remote diagnosis function (only applicable to Qualcomm platform module)
V1.2	2020/9/28	Document Group	Add center dimensions
V1.3	2021/11/30	Document Group	Updated the image of hardware V1.3
V1.4	2022/3/22	Document Group	Added security Settings and MAC/IP/Port filtering Added NC3/AC3/JC3 module parameter Settings in remote diagnosis

Content

Chapter 1. Overview	- 4 -
Chapter 2. WEBUI Management System	- 6 -
2.1 Login	- 6 -
2.2 Home	- 7 -
2.3 Internet	- 9 -
2.3.1 WAN	- 9 -
2.3.2 LAN	- 9 -
2.3.3 Mobile Net	- 10 -
2.3.4 Wi-Fi	- 11 -
2.3.5 Client	- 12 -
2.4 Firewall	- 13 -
2.4.1 WIFI MAC Filter	- 13 -
2.4.2 Port Forward	- 13 -
2.4.3 DMZ	- 14 -
2.4.4 Security Settings	- 15 -
2.4.5 MAC/IP/Port Filter	- 15 -
2.5 App	- 16 -
2.5.1 PING Net	- 16 -
2.5.2 Serial App	- 17 -
2.5.3 Auto Reboot	- 18 -
2.6 Admin	- 19 -
2.6.1 User Management	- 19 -
2.6.2 Time	- 19 -
2.6.3 Telnet Service	- 20 -
2.6.4 Remote Diag	- 21 -
2.6.5 Upgrade Management	- 26 -
2.6.6 Reboot	- 30 -

Chapter 1. Overview

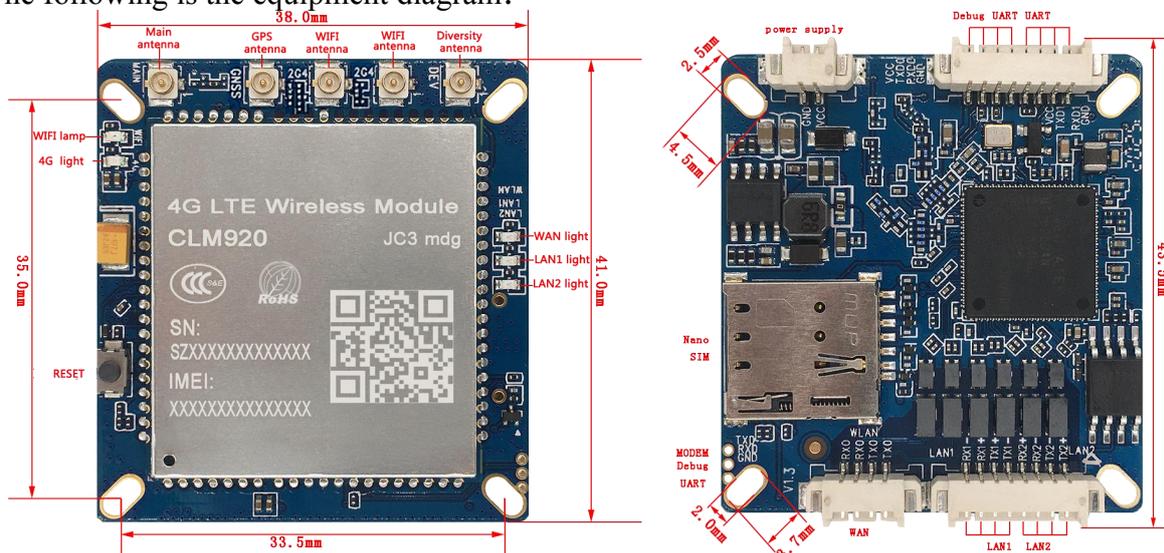
M400-C1 is a 4G routing terminal device that can be freely equipped with Qualcomm MDM9x07 and ASR platform 4G wireless communication module. Support three network ports, support dual WIFI antenna, support serial port transparent transmission function.

The WAN network port can be configured as a LAN port or a WAN port. By default, the IP address is automatically assigned. After the network cable is inserted, the PC can use this device to bring 4G network functions.

The device provides Wi-Fi AP function. The default name of the Wi-Fi SSID is the last four digits of the 4G_AP_MAC address, and the default password is 12345678.

The default address of the device is 192.168.1.1, log in to the <http://192.168.1.1> WEBUI management page, you can make various settings, and the login account is admin:admin.

The following is the equipment diagram:



Note:

- 1) The DC power supply voltage range is 6V to 25V, it is recommended to use the matching power adapter.

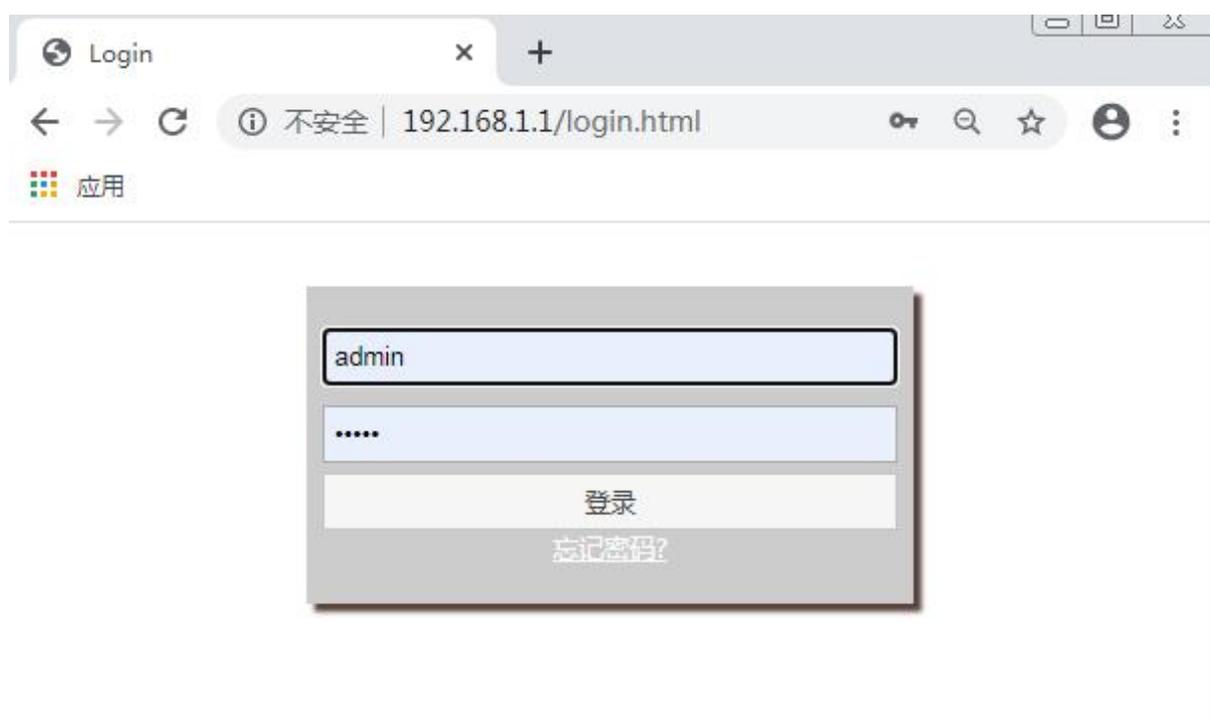
- 2) Supports LTE network indicator, flashes when there is no card or registration, and always lights up during normal registration.
- 3) Support WAN and LAN network port indicator and WiFi indicator.
- 4) WAN port can be configured as WAN or LAN function on the page.
- 5) Supports factory reset button.
- 6) Please clear the browsing history of the browser before using the WEBUI management function.

Chapter 2. WEBUI Management System

The device's default settings can work, or you can modify the default settings through the WEBUI management page. WEBUI management page supports Internet Explorer 11 and higher, Firefox, Chrome, Safari and other mainstream browsers.

2.1 Login

Open the browser, enter the address 192.168.1.1 and press Enter, the browser will display the login interface of the web management system, enter the user name admin, password admin, and click login to enter the management system.



Note:

- 1) If you enter the wrong username/password three times in a row, the login function will be locked. During the lock, you will not be able to log in to the web management system. You can only try to enter the password again after the lock time has passed.
- 2) The default username/password is very simple. For security reasons, users should change to a more secure username/password after logging in to the system. For how to modify the user name/password, please refer to the “Admin” chapter.

- 3) If you have forgotten your password, you can click on the forgotten password to proceed to the next step according to the prompts.



2.2 Home

This page displays the current network mode, connection status, IP address, LAN related information, WIFI related information, device IMEI and SIM card related information and device information (such as system time, boot time, device version number, etc.). Display current network status and related information (such as connected network type, signal strength value, etc.).




China Mobile LTE  

Home	Net Mode	4G
Internet	Connection State	Connected
	IP Address	10.189.245.131
Firewall	Netmask	
	Gateway	
App	Primary DNS	
	Secondary DNS	
Admin	LAN IP Address	192.168.1.1
	LAN Netmask	255.255.255.0
English <input type="button" value="v"/>	Wi-Fi MAC	00:0C:43:E1:88:55
<input type="button" value="Logout"/>	SSID	4G_AP_8855
	IMEI	123456789012347
	SIM State	READY
	IMSI	460023218543035
	Telephone Number	
	Voice Registration State	Unregistered
	Data Registration State	Registered Home
	Network Type	LTE
	RSRP	-96.00
	RSRQ	-5.00
	Up Time	01:28:32
	Device Time	1/1/1970, 9:28:32 AM
	Total Memory	58.14 MB
	Free Memory	40.02 MB
	Modem Version	CLM920_AC3-V1 [Apr 22 2020 14:32:33]
	Firmware Version	CLP500 V2.0

Note:

If there is no problem of registering the network or being unable to access the Internet, you can check whether the connection status has been successfully connected. The device time on this page shows that the network time cannot be synchronized. If you want to synchronize the network time, you can modify the settings by referring to "Time " on the "Admin " page.

2.3 Internet

2.3.1 WAN

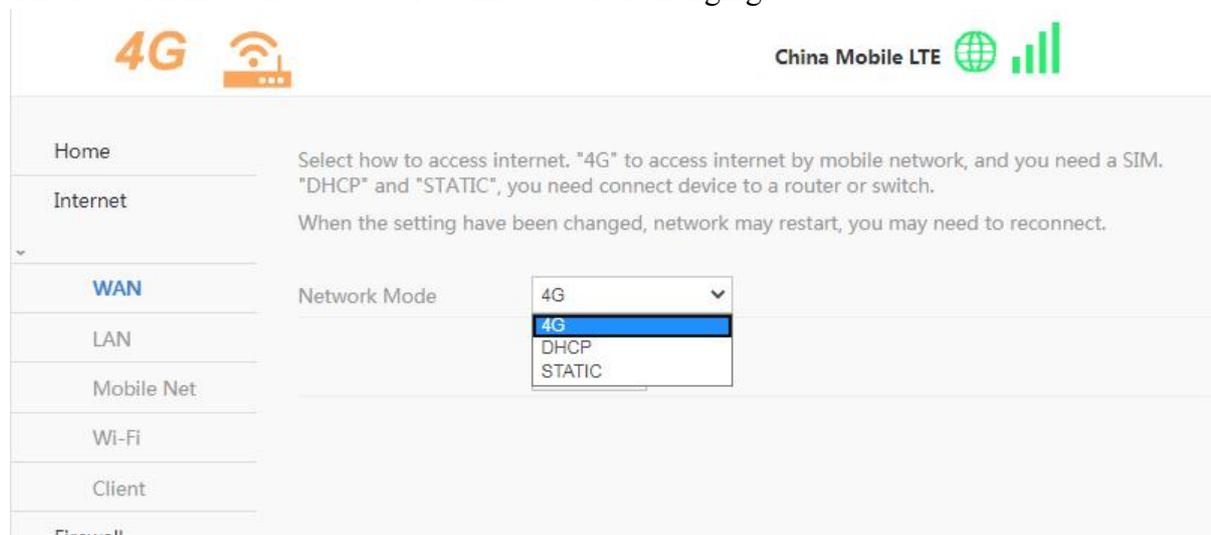
Select the network mode is to choose the way to go online.

4G mode: You need to insert a SIM card to go online.

DHCP mode: You can not insert a SIM card, but you need to insert the interface labeled WAN into other routers or switches to automatically obtain an IP address for Internet access.

STATIC: Compared to the "DHCP" method, you also need to manually configure Internet access information such as IP addresses.

The network mode needs to be reconnected after changing.



2.3.2 LAN

Configure the device IP address and device name, and configure the DHCP service parameters. After modifying the settings, you need to reconnect to the network.

If you do not know what DNS to use, you can configure only the primary DNS as the device IP address, leave the standby DNS blank, and enable the DNS proxy function.

Static IP address assignment function can assign fixed IP to the specified MAC address. Up to 3 designated MAC addresses can be assigned fixed IP.




China Mobile LTE  

Home	Setting router IP address and name. Configuring DHCP parameters	
Internet	If you don't know DNS, config it to router IP address and enable DNS proxy.	
▼		
WAN	IP Address	<input type="text" value="192.168.1.1"/>
LAN	Netmask	<input type="text" value="255.255.255.0"/>
Mobile Net	Host Name	<input type="text" value="4GAP"/>
Wi-Fi	DHCP State	<input type="text" value="Enable"/>
Client	DHCP Start	<input type="text" value="192.168.1.100"/>
Firewall	DHCP End	<input type="text" value="192.168.1.200"/>
>	Primary DNS	<input type="text" value="192.168.1.1"/>
App	Secondary DNS	<input type="text"/>
>	DHCP Gateway	<input type="text" value="192.168.1.1"/>
Admin	DHCP Lease	<input type="text" value="86400"/> Seconds
>	Static Assign	MAC <input type="text"/> IP <input type="text"/>
<input type="text" value="English"/>	Static Assign	MAC <input type="text"/> IP <input type="text"/>
<input type="button" value="Logout"/>	Static Assign	MAC <input type="text"/> IP <input type="text"/>
	UPNP	<input type="text" value="Disable"/>
	DNS Proxy	<input type="text" value="Enable"/>
	<input type="button" value="OK"/>	

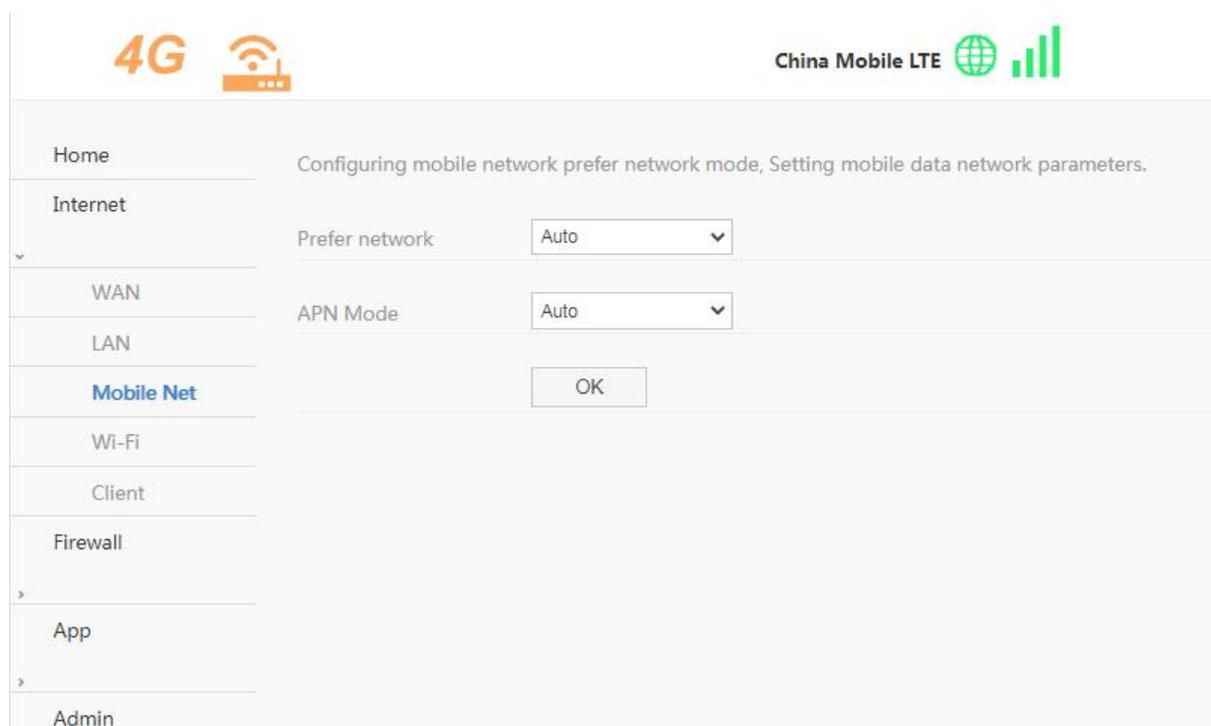
2.3.3 Mobile Net

This setting modifies 4G related parameters, such as modifying the network mode (LTE only, GSM only, etc.). After setting to automatic mode, the device will automatically search for the best network according to the SIM card, for example, the LTE network is searched first, the WCDMA or EVDO network is searched second, and the GSM or CDMA 1x network is searched last. It is recommended to keep this setting.

APN setting function, the device presets most operator APN related settings, APN is set to automatically select the mode to automatically match. If the SIM card is special, it may not be automatically matched. In this case, you can manually set the APN. If the APN is set

according to the requirements of the SIM card operator and you still cannot access the network, you can try to modify the authentication type. The three authentication types are different, and you can try them all.

Note: If equipped with CLM920_AC3 module, the network standard only supports LTE and WCDMA.



2.3.4 Wi-Fi

This page can enable and disable WIFI. This setting can modify the Wi-Fi AP SSID, transmission channel, bandwidth, transmit power, encryption method and password. After ticking the in front of the broadcast SSID, other devices will not be able to search for this Wi-Fi AP.

After WPS is enabled, you can use the WPS function for WIFI connection.

4G 
China Mobile LTE  

Home

Internet

WAN

LAN

Mobile Net

Wi-Fi

Client

Firewall

App

Admin

State Enable ▾

SSID 4G_AP_8855 ✔ Broadcast

Channel 2412MHz (Channel 1) ▾

Band Width 20MHz/40MHz ▾

Power High ▾

Security WPA2-PSK ▾

Password ***** Show Password

WPS Disable ▾

OK

2.3.5 Client

The device functions as a router. Wi-Fi AP and Ethernet are a local area network. This page displays the related settings of the local area network and the LAN client list.

4G 
China Mobile LTE  

Home

Internet

WAN

LAN

Mobile Net

Wi-Fi

Client

Firewall

App

Admin

DHCP List

Host Name	MAC	IP	Lease Left
WIN-SFICBHSBR64	44:37:E6:70:D1:95	192.168.1.100	86126

Station List

MAC	Psm	BW	Connected Time

ARP List

IP	Flags	MAC	device
192.168.1.100	2	44:37:e6:70:d1:95	br0
192.168.0.1	2	00:2a:2a:2a:2a:2a	eth0

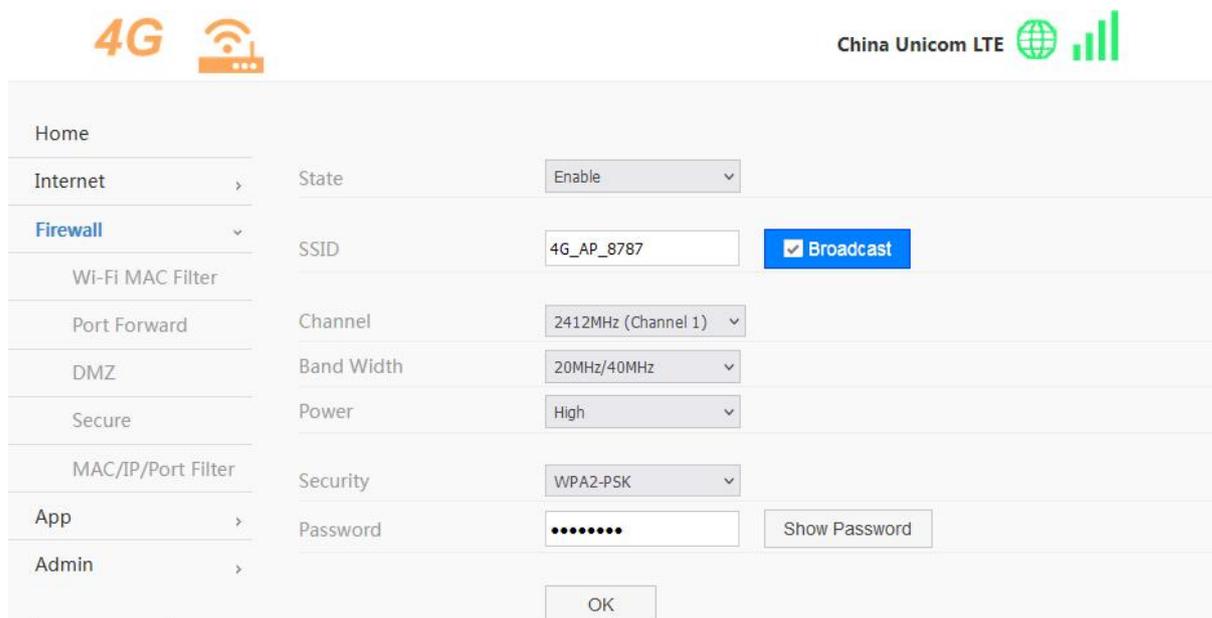
2.4 Firewall

2.4.1 WIFI MAC Filter

Accept list: Only MAC addresses added to the whitelist can access the network.

Deny list: Only MAC addresses added to the blacklist cannot access the network.

Before setting to accept list mode, add yourself to the accept list, otherwise you will be disconnected and can no longer connect to the device. After adding or deleting the mac address, remember to click the save button to take effect.



The screenshot displays the configuration interface for the Wi-Fi MAC Filter. The top status bar shows '4G' and 'China Unicom LTE' with signal strength indicators. The left sidebar contains a navigation menu. The main content area shows the following settings:

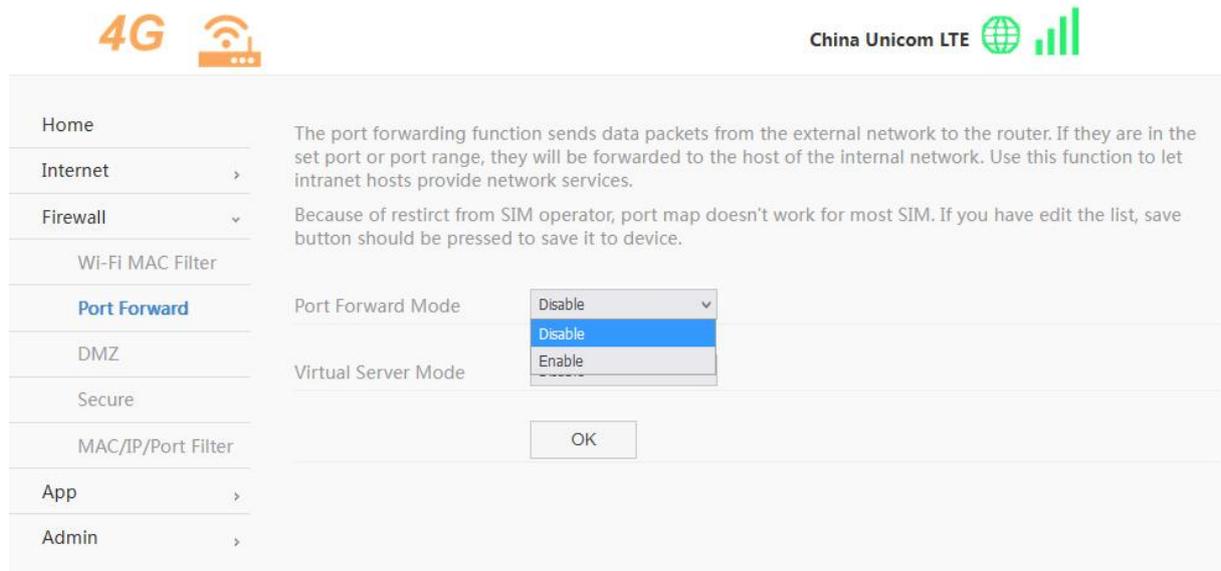
State	Enable
SSID	4G_AP_8787 <input checked="" type="checkbox"/> Broadcast
Channel	2412MHz (Channel 1)
Band Width	20MHz/40MHz
Power	High
Security	WPA2-PSK
Password	•••••••• <input type="button" value="Show Password"/>

An 'OK' button is located at the bottom center of the configuration area.

2.4.2 Port Forward

Port forward function, if the data packet sent from the external network to the router is forwarded to the host on the internal network if it is within the set port or port range. Use this function to allow intranet hosts to provide network services.

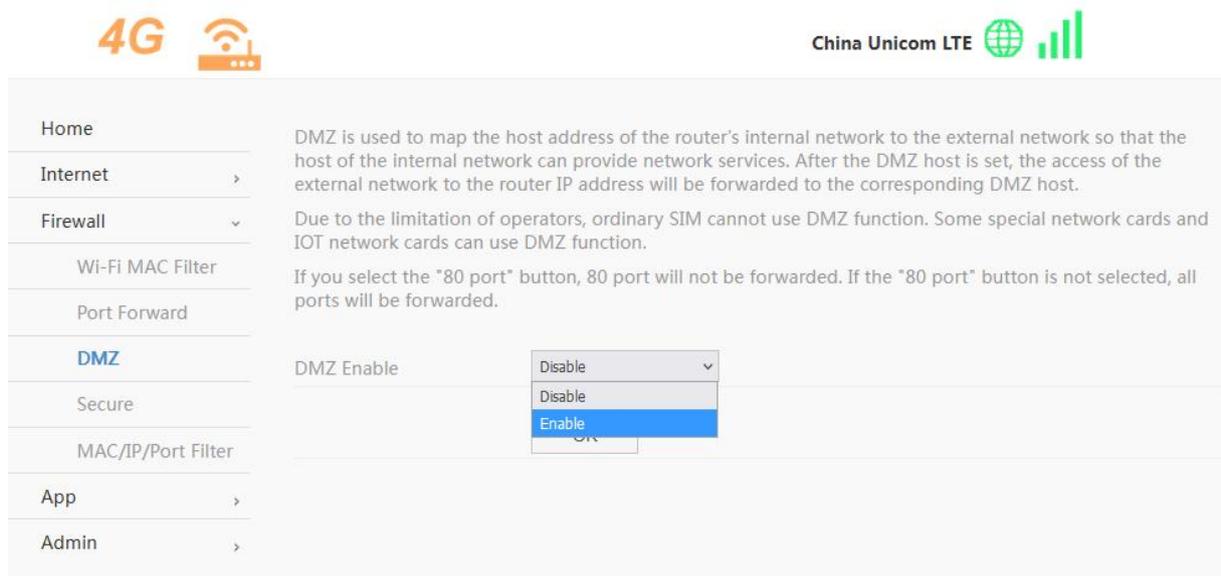
Ordinary SIM cannot use the port forwarding function due to operator restrictions. Some special network cards and IoT cards can use this function. After adding or deleting, you need to click the save button to take effect.



2.4.3 DMZ

DMZ is used to map the host address of the router's internal network to the external network, so that the internal network's host can provide network services. After setting up the DMZ host, the external network's access to the router's IP address will be forwarded to the corresponding DMZ host.

Ordinary SIM cannot use the DMZ function due to operator restrictions. Some special network cards and IoT cards can use the DMZ function. Selecting the "80 port" button means that port 80 is not forwarded. Uncheck the "80 port" button, then forward all ports.

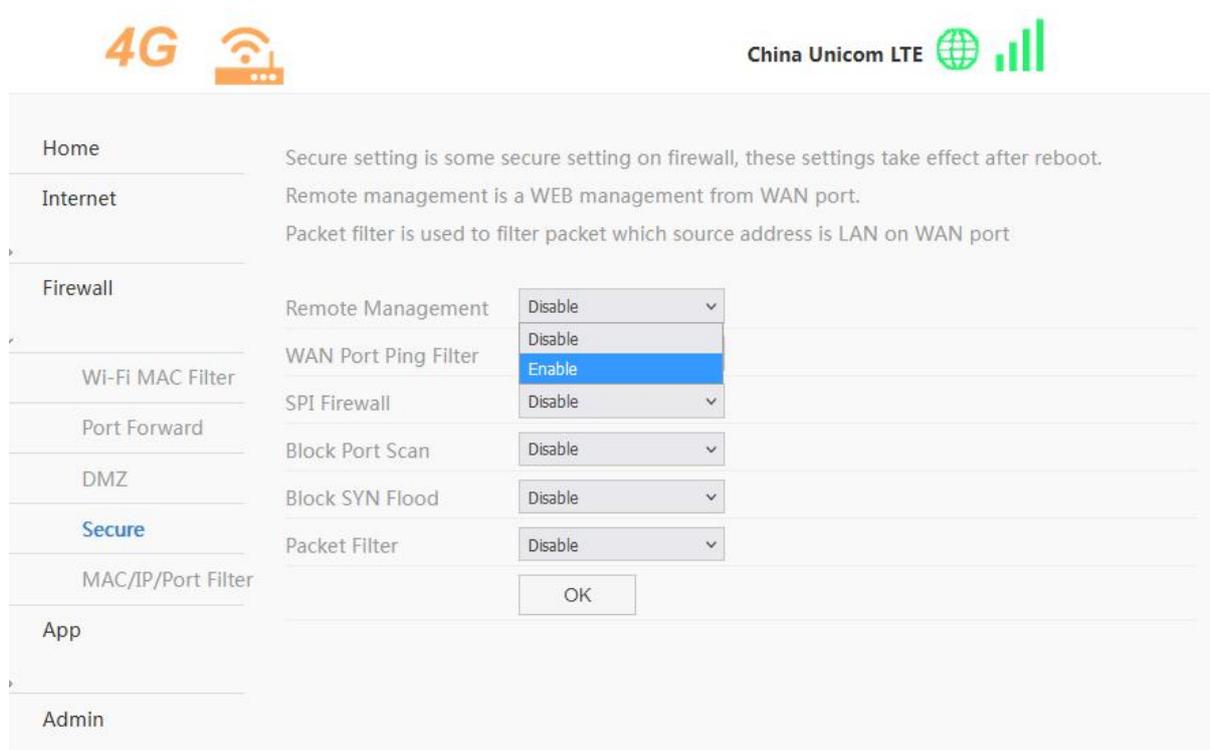


2.4.4 Security Settings

Secure setting is some secure setting on firewall, these settings take effect after reboot.

Remote management is a WEB management from WAN port.

Packet filter is used to filter packet which source address is LAN on WAN port.



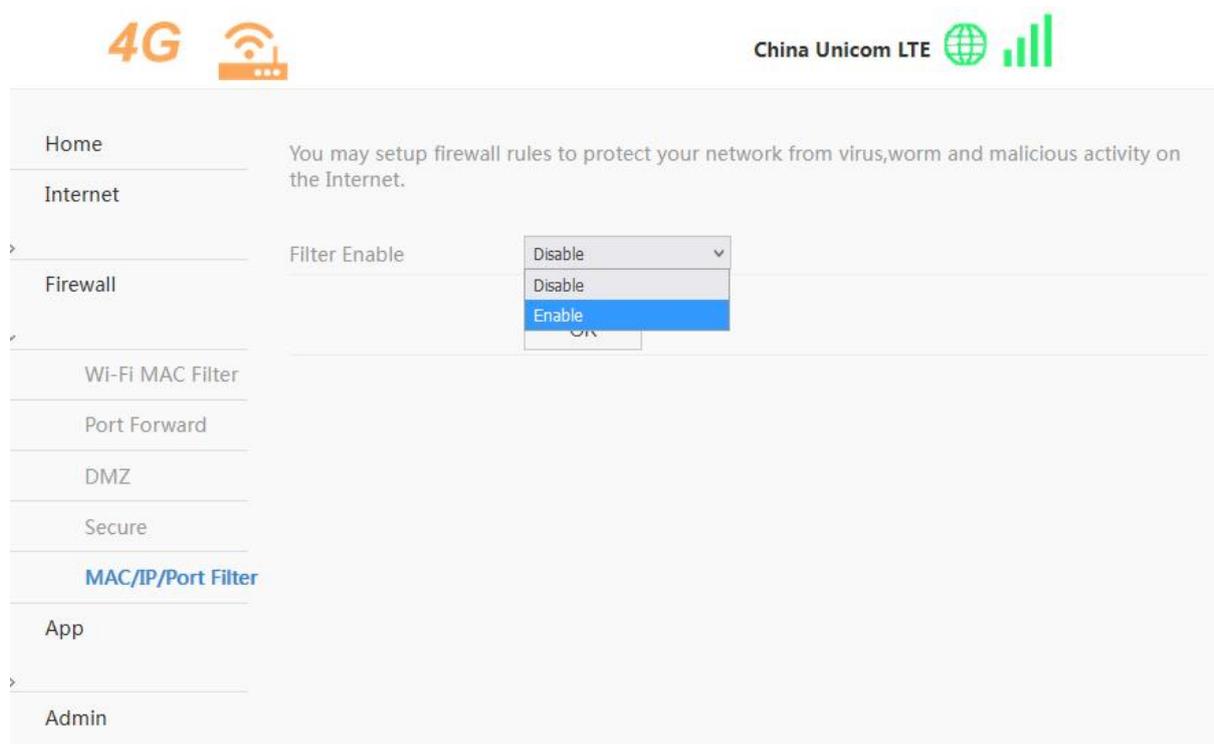
The screenshot shows the router's configuration interface. At the top, there are icons for 4G and a Wi-Fi signal, and the text 'China Unicom LTE' with a globe and signal strength indicator. The left sidebar contains a menu with the following items: Home, Internet, Firewall, Wi-Fi MAC Filter, Port Forward, DMZ, Secure (highlighted in blue), MAC/IP/Port Filter, App, and Admin. The main content area is titled 'Secure' and contains the following text: 'Secure setting is some secure setting on firewall, these settings take effect after reboot.', 'Remote management is a WEB management from WAN port.', and 'Packet filter is used to filter packet which source address is LAN on WAN port'. Below this text is a table of settings:

Remote Management	Disable
WAN Port Ping Filter	Enable
SPI Firewall	Disable
Block Port Scan	Disable
Block SYN Flood	Disable
Packet Filter	Disable

At the bottom of the settings table, there is an 'OK' button.

2.4.5 MAC/IP/Port Filter

You may setup firewall rules to protect your network from virus, worm and malicious activity on the Internet.



2.5 App

2.5.1 PING Net

The PING function is a function to increase the stability of the mobile data connection. Sending PING packets will consume mobile data traffic.

The PING function detects that PING data packets are sent at a set time interval. If no data packets are received within the timeout period, the data packets are sent a set number of times in succession. If both times out, the device is restarted.

After setting, you need to restart the device.

4G China Mobile LTE 

Home	If mobile network are selected to access internet, this page setting check data connection stability.	
Internet	It will send ICMP echo packet to check data connection, if timeout, device will reboot. Setting take effect after next reboot.	
Firewall	PING State	<input type="text" value="Enable"/>
App	Server	<input type="text" value="114.114.114.114"/>
	PING Interval	<input type="text" value="120"/> Seconds
PING Net	PING Timeout	<input type="text" value="30"/> Seconds
Serial App	PING Count	<input type="text" value="3"/>
Auto Reboot		
Admin	<input type="button" value="OK"/>	

2.5.2 Serial App

Serial port transparent transmission is to transmit the frame-by-frame data received by the serial port to the server, and forward the data on the server to the serial port device.

This page can change the serial port transparent transmission setting, and can also modify this setting by receiving commands through the serial port. However, if the serial port transparent transmission function is disabled, you cannot continue to receive AT commands to modify the settings. If you do not need to connect to the server, you can set the server address to empty.




China Mobile LTE  

Home

Internet

› Firewall

› App

PING Net

Serial App

Auto Reboot

Admin

›

English ▼

Logout

DTU transmit data from serial to server, and forward data from server to serial device.

You can change DTU setting by this web page, or change it by serial AT command. But if you disable DTU function in this page, it will not accept any AT command.

Depends on your device hardware, some device does't support GPS.

DTU State

Baud Rate

Data bits

Parity

Stop bits

Serial Frame Time **Milliseconds**

Serial Frame Length

Server

Server Port

Server Protocol

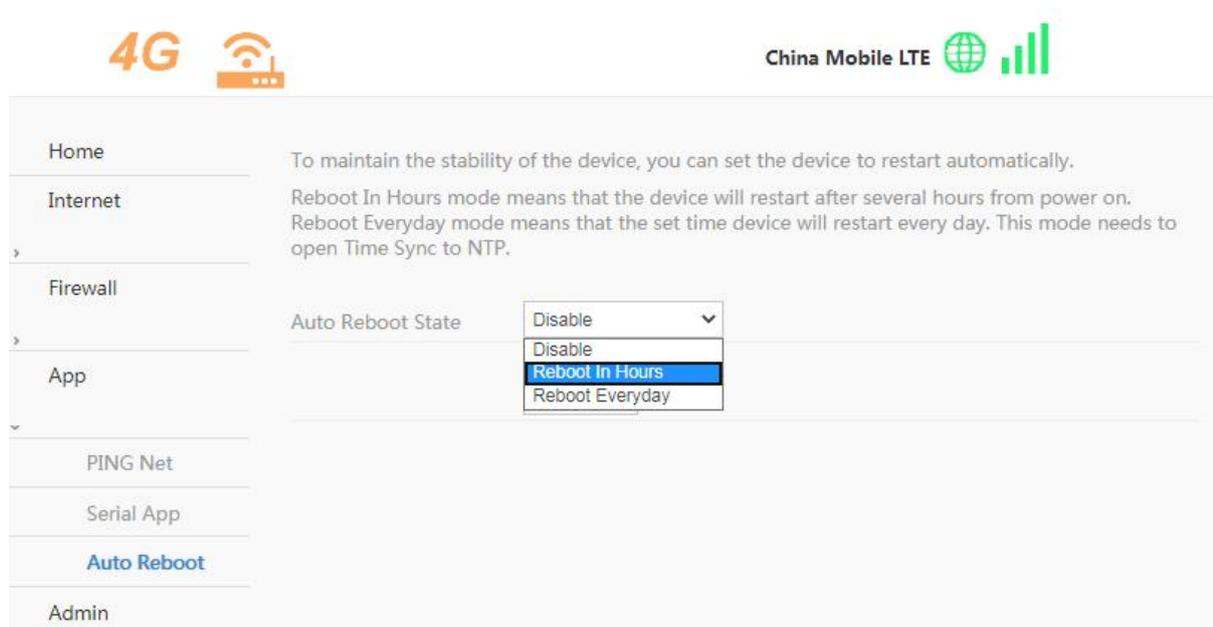
Registration Packet State

HeartBeat State

GPS State

2.5.3 Auto Reboot

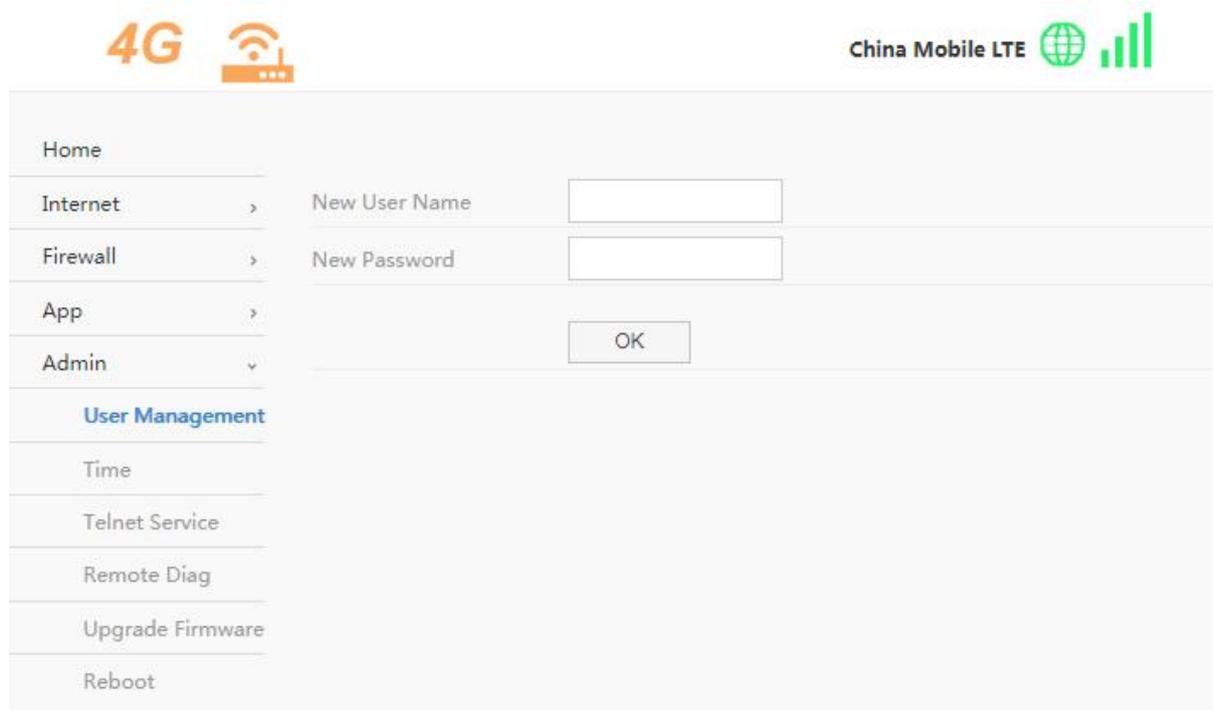
To maintain device stability, you can set the device to automatically restart. The mode every few hours means that the device will restart after a few hours from the start. Daily fixed time mode, which means that the device will restart at a set time every day, this mode requires clock synchronization to be turned on.



2.6 Admin

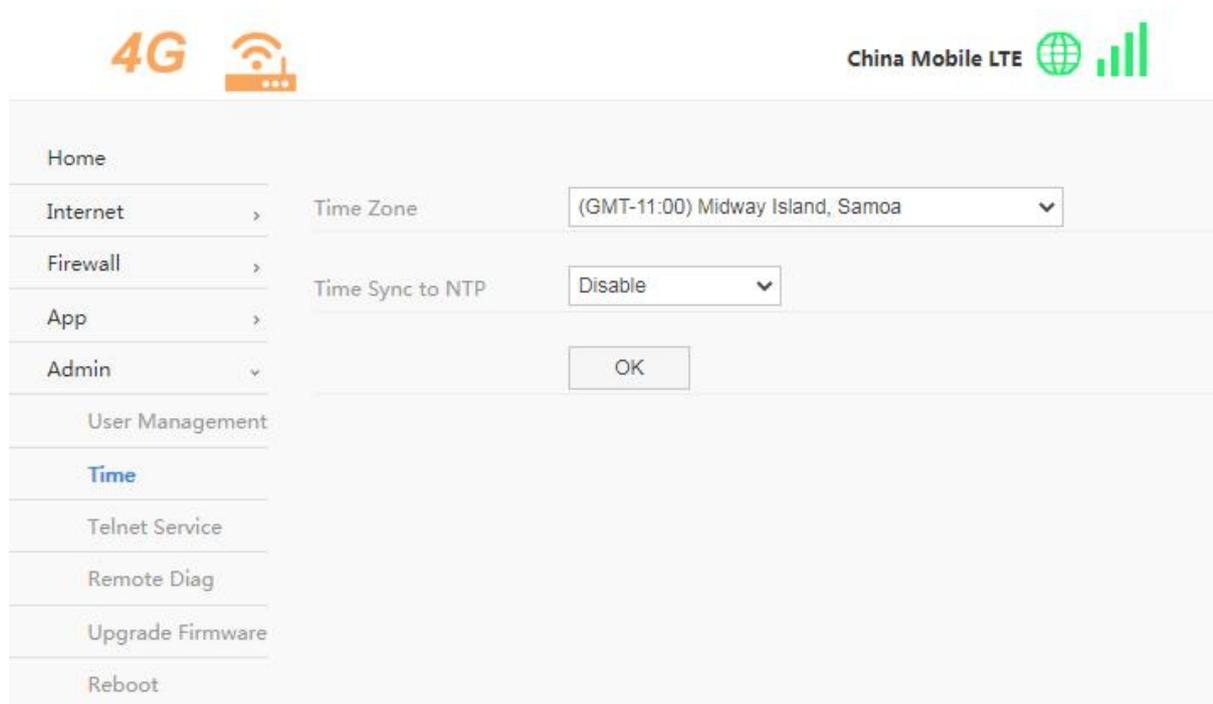
2.6.1 User Management

Modify login account and password.



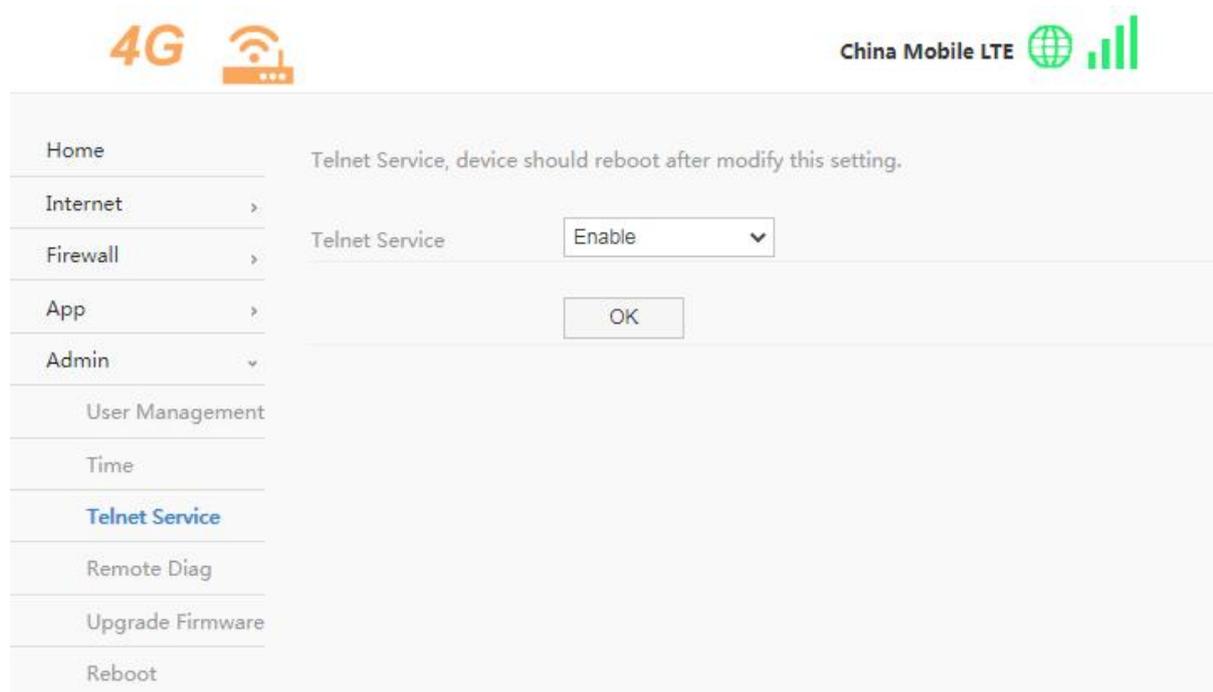
2.6.2 Time

You can set the time zone and whether to enable the function of synchronizing to the network time. After setting, you need to restart the device. Disabled by default.



2.6.3 Telnet Service

After enabling, the device can be connected through Telnet tool.



2.6.4 Remote Diag

Equipped with NC3/AC3/JC3 module, QXDM can capture logs after filling in the correct IP address.

Equipped with NC3 Module:

4G  China Unicom LTE 

Home Remote diag service. This service depends on special module. It is used to diag module bug. Keep it close in normal mode.

Internet > Diag service parameter should contain server IP address, and diag port optionally. Such as:192.168.1.60 or 192.168.1.60 /dev/ttyUSB2 for NC3 module. Such as -t -c 192.168.1.60 -p 32122 -d /dev/ttyUSB0 for AC3 module.

Firewall >

App > Note: When device reboot, the service should start again to take effect.

Admin >

User Management Diag Parameter Enter the Server IP address in QPST Configuration

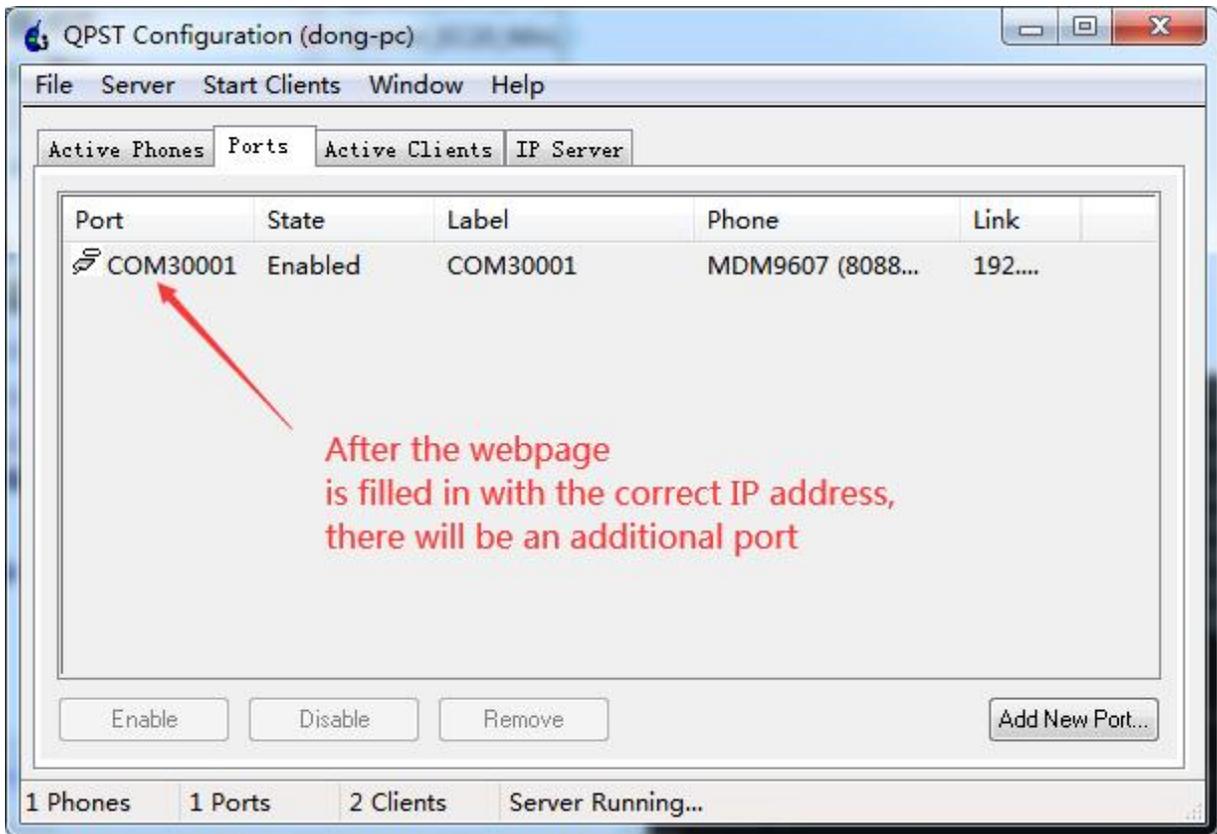
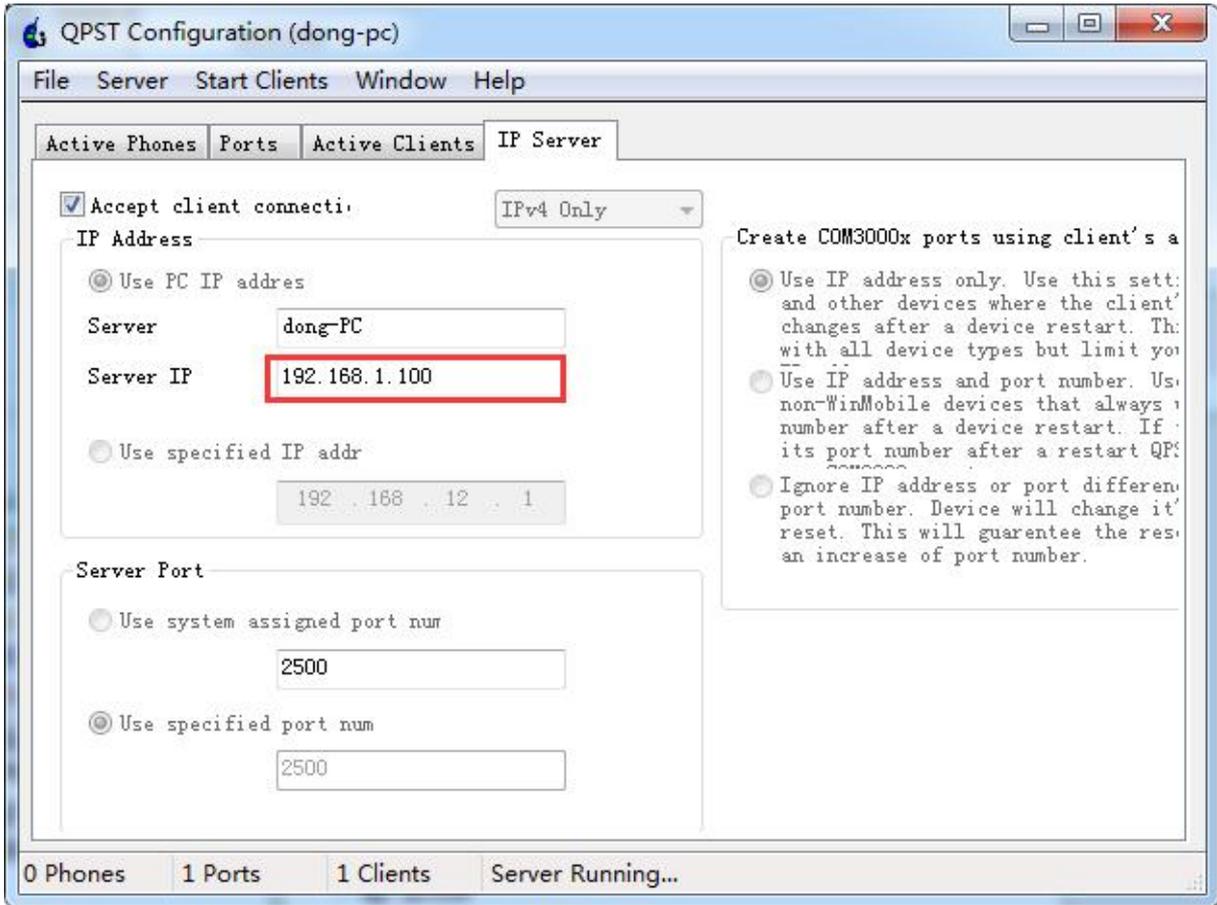
Time

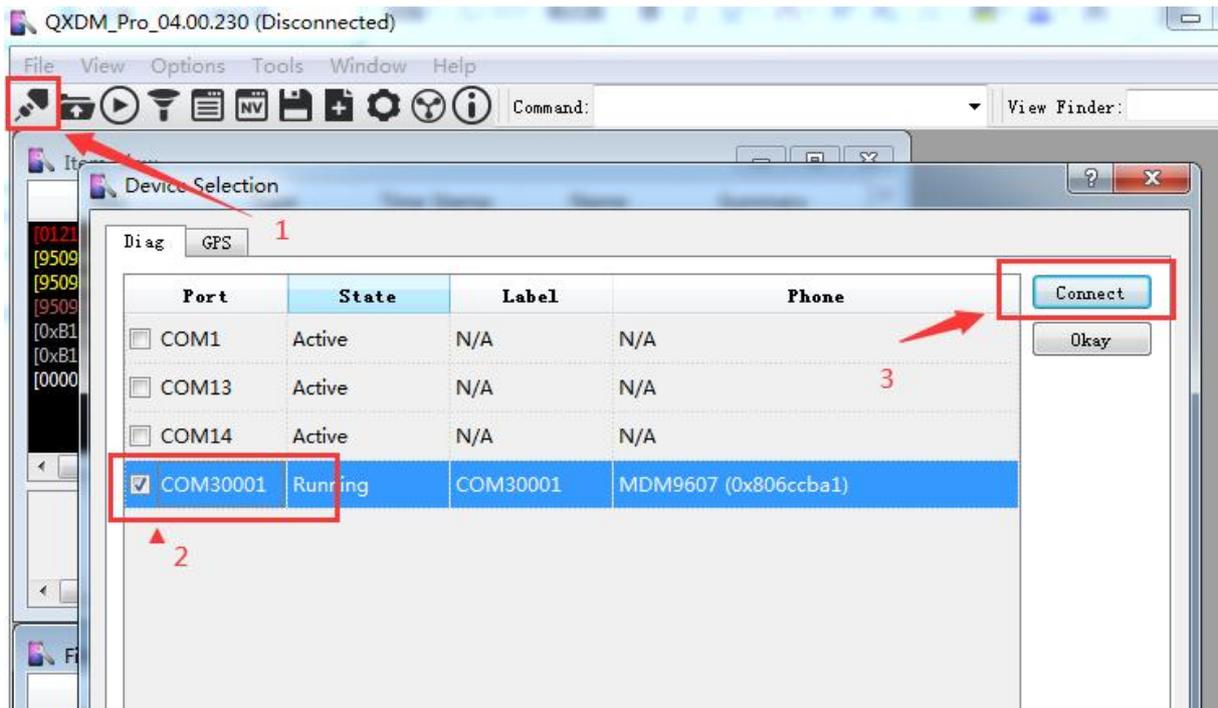
Telnet Service

Remote Diag

Upgrade Firmware

Reboot

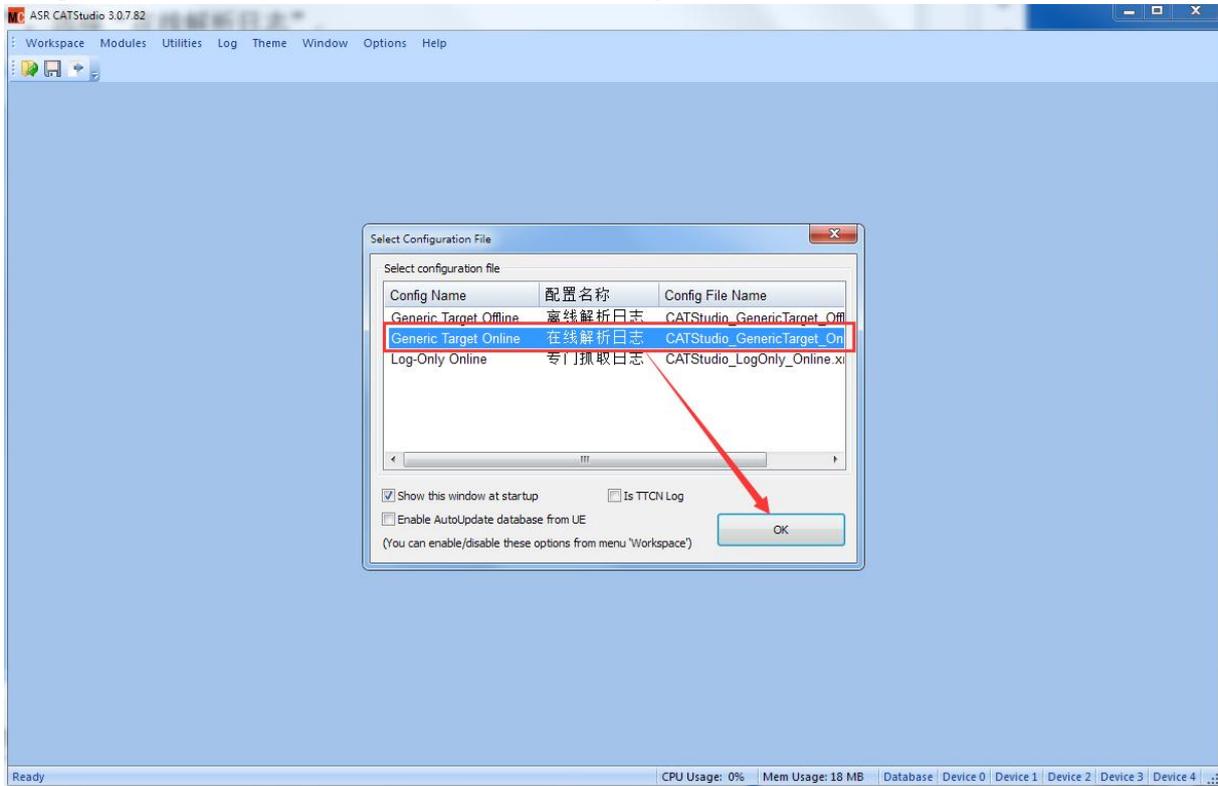




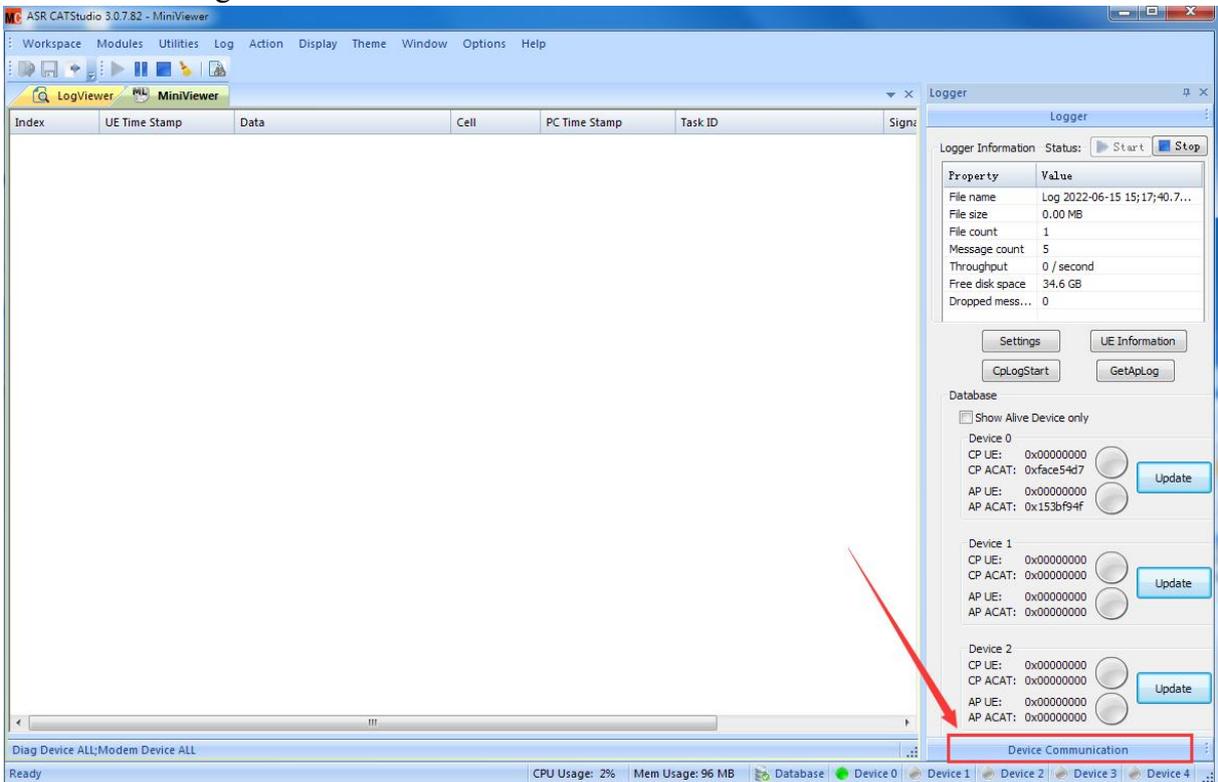
How to use AC3/JC3

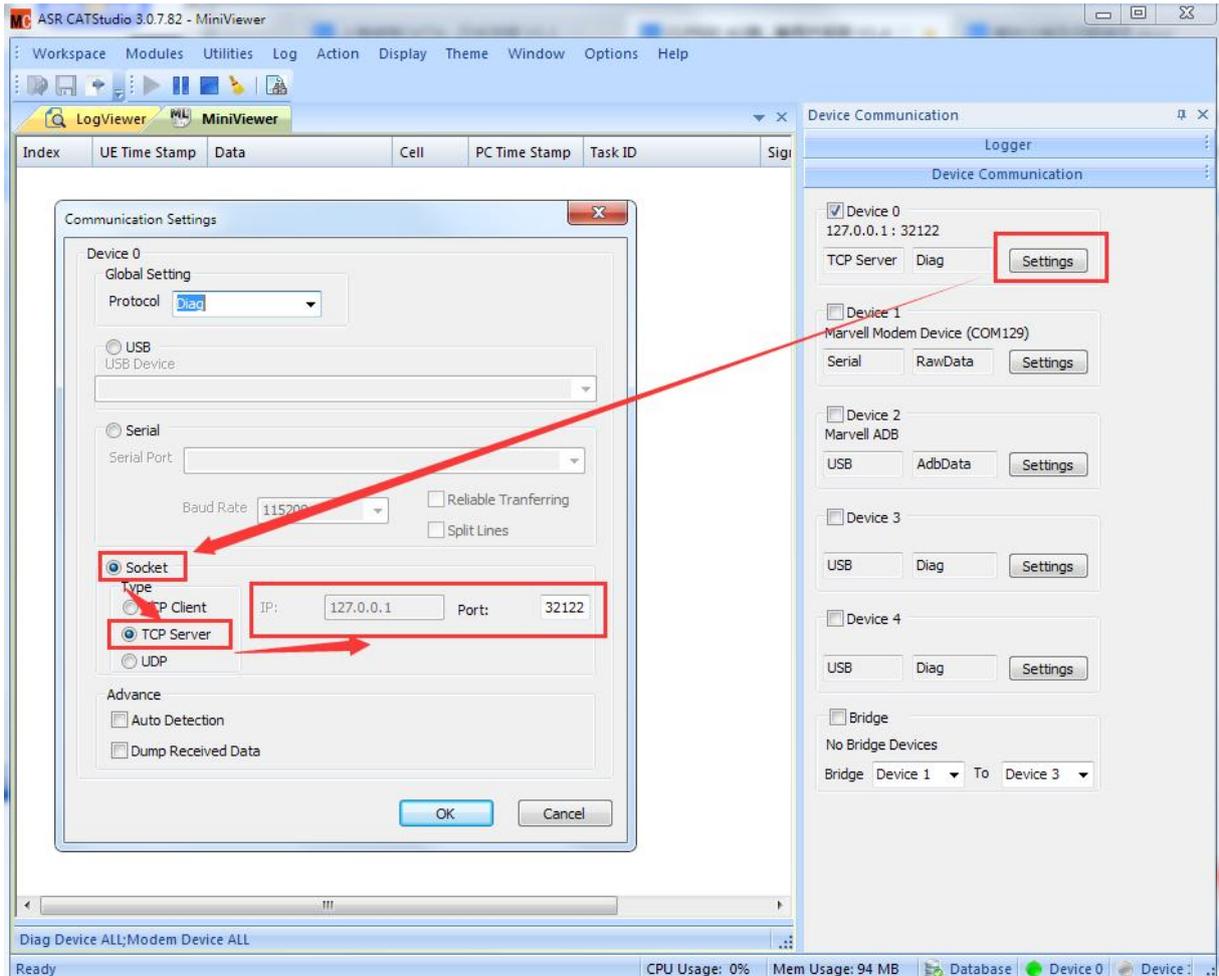
Preparations for Windows

1. Open "CATStudio" and select "Online Parse Log".

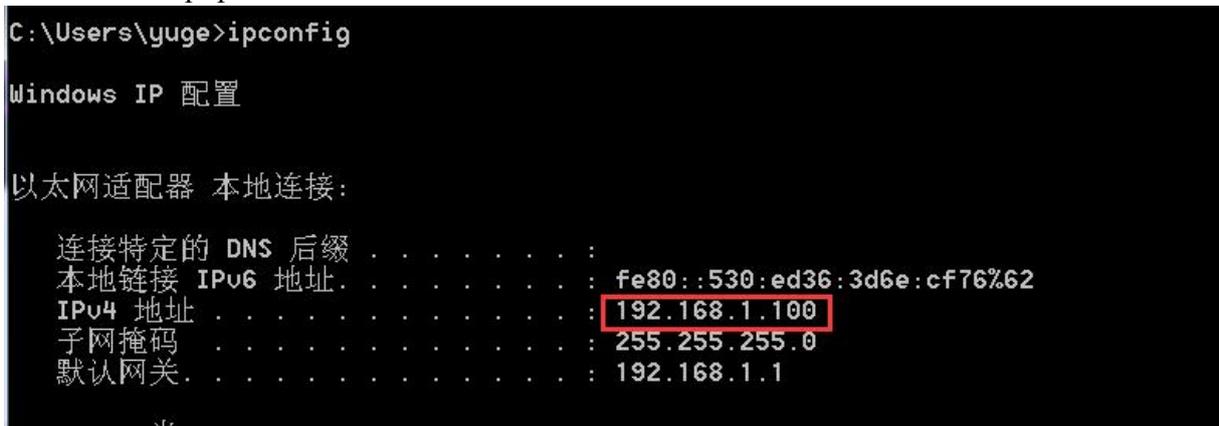


2. Use the configuration tool as the TCP server

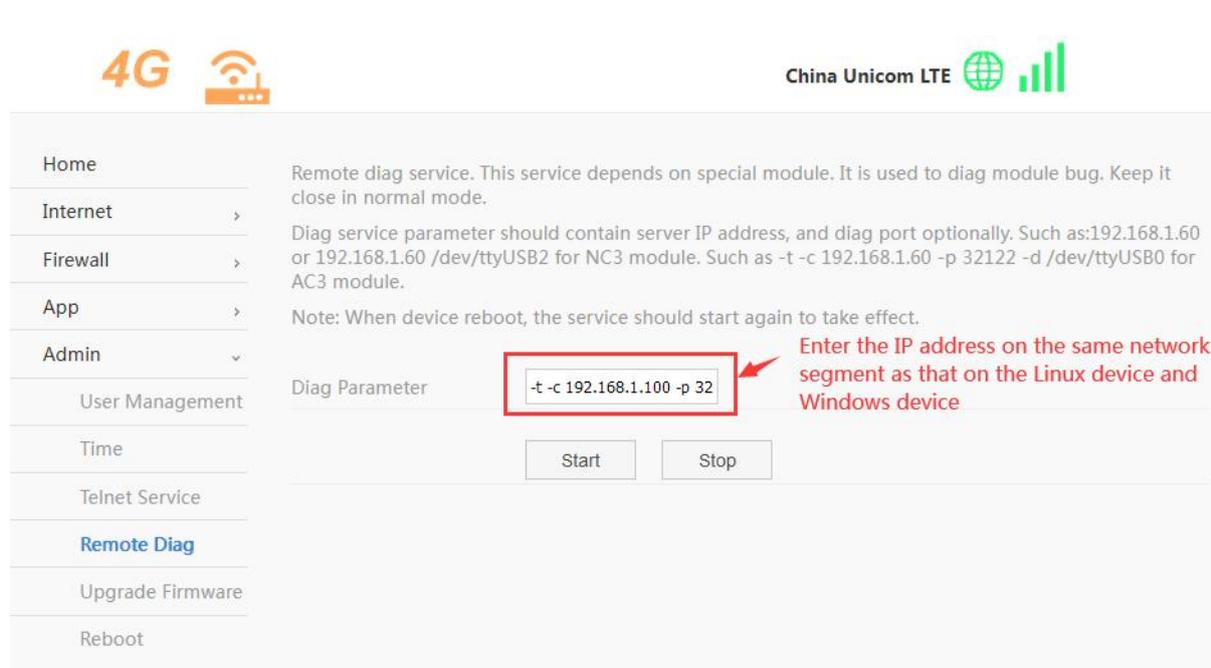




3. Confirm equipment IP address at windows end



4. Setting of IP parameters at device end



The screenshot shows the webUI interface for the Remote Diag service. At the top left, there are icons for 4G and a Wi-Fi signal. At the top right, it says "China Unicom LTE" with a globe and signal strength icons. On the left side, there is a navigation menu with items: Home, Internet, Firewall, App, Admin, User Management, Time, Telnet Service, Remote Diag (highlighted in blue), Upgrade Firmware, and Reboot. The main content area shows the "Remote Diag" configuration page. It includes a description: "Remote diag service. This service depends on special module. It is used to diag module bug. Keep it close in normal mode." Below this, it says: "Diag service parameter should contain server IP address, and diag port optionally. Such as:192.168.1.60 or 192.168.1.60 /dev/ttyUSB2 for NC3 module. Such as -t -c 192.168.1.60 -p 32122 -d /dev/ttyUSB0 for AC3 module." A note states: "Note: When device reboot, the service should start again to take effect." The "Diag Parameter" field contains the text "-t -c 192.168.1.100 -p 32", which is highlighted with a red box. A red arrow points to this box with the text: "Enter the IP address on the same network segment as that on the Linux device and Windows device". Below the parameter field are "Start" and "Stop" buttons.

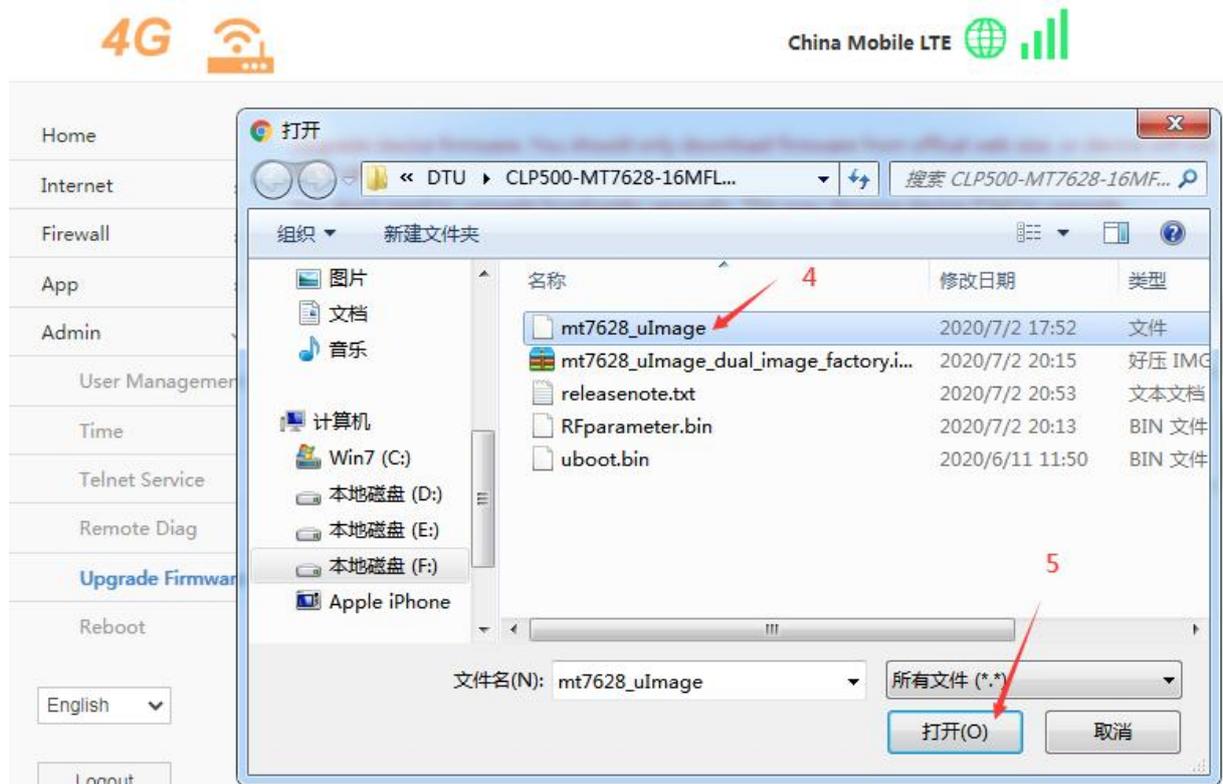
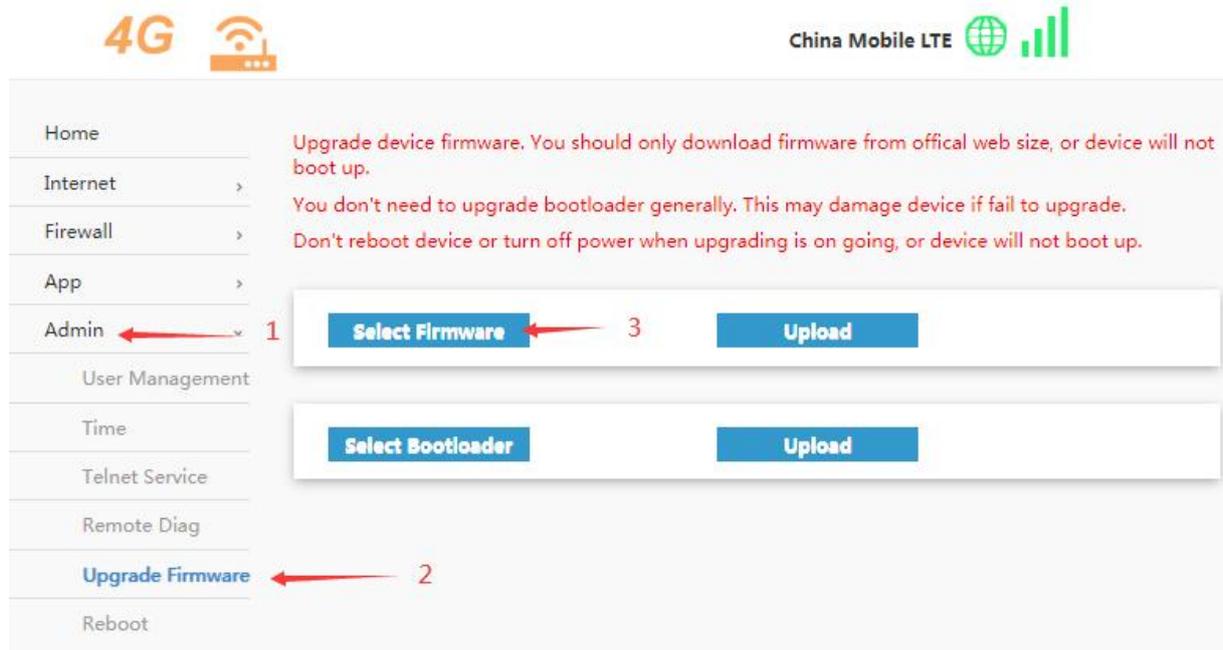
2.6.5 Upgrade Management

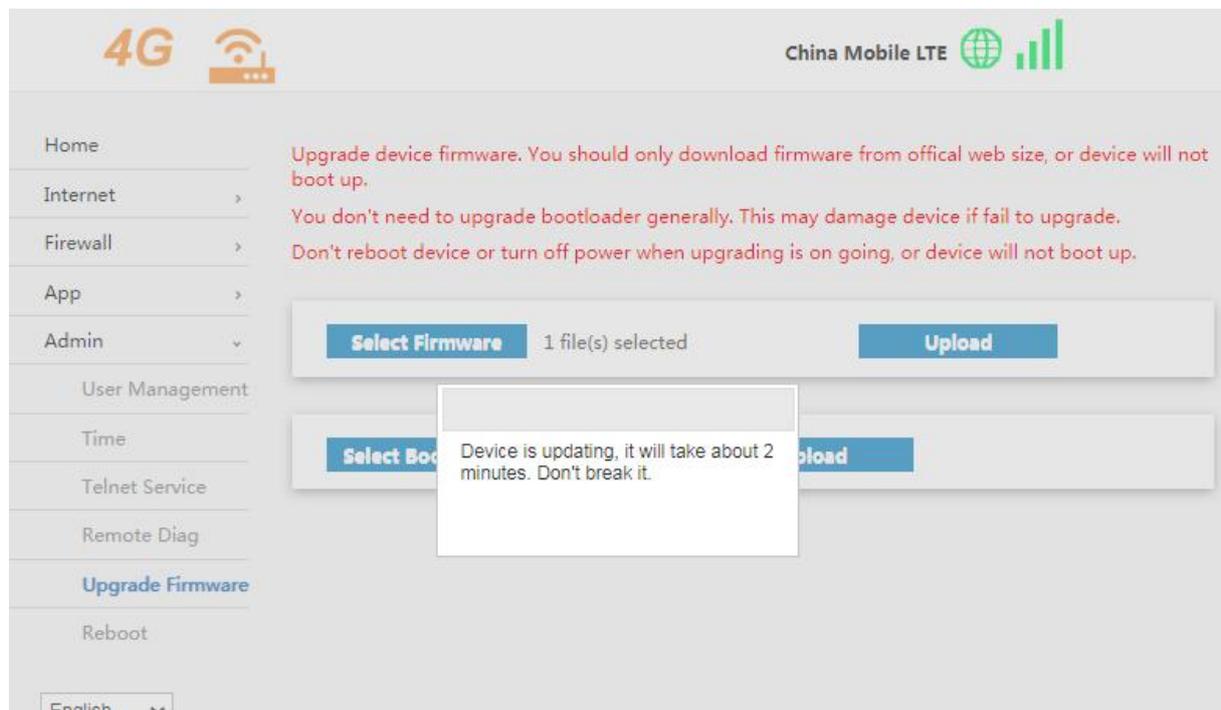
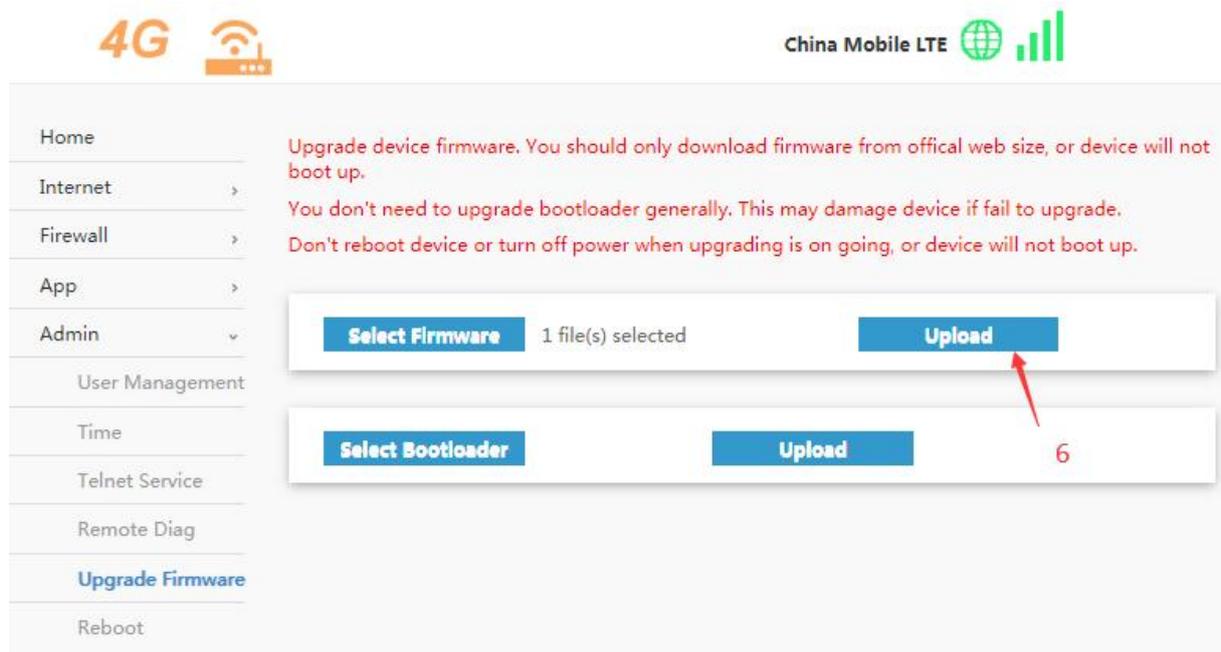
To upgrade the firmware, please obtain the firmware version through technical support. Failure to test the firmware may cause the upgrade to fail or fail to boot.

Please upgrade the bootloader carefully. This operation may damage the device.

During the upgrade, please do not turn off the power or interrupt the operation. The device may be damaged. Please log in to this page via network cable to upgrade.

Upgrade steps: After logging in to the webui interface, select Admin ---- Upgrade Firmware ---- Select Firmware and click Upload to upgrade. After the device restarts, the upgrade is successful.

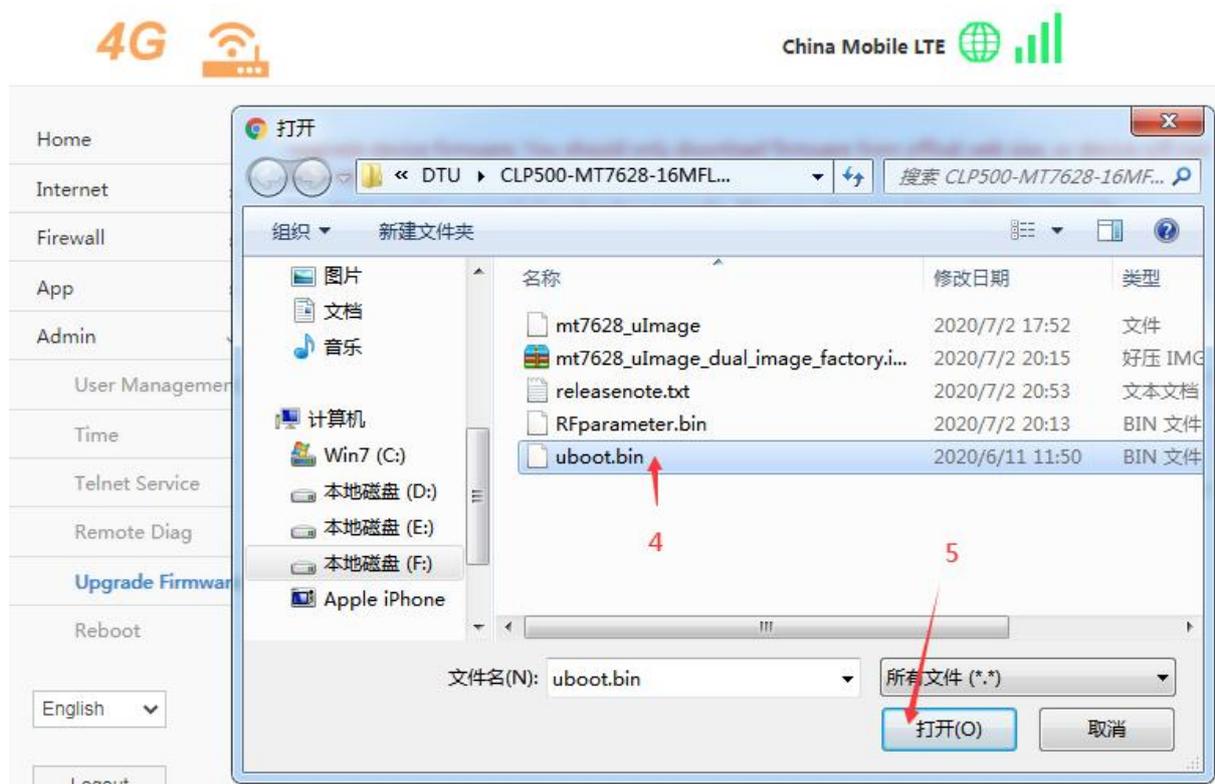
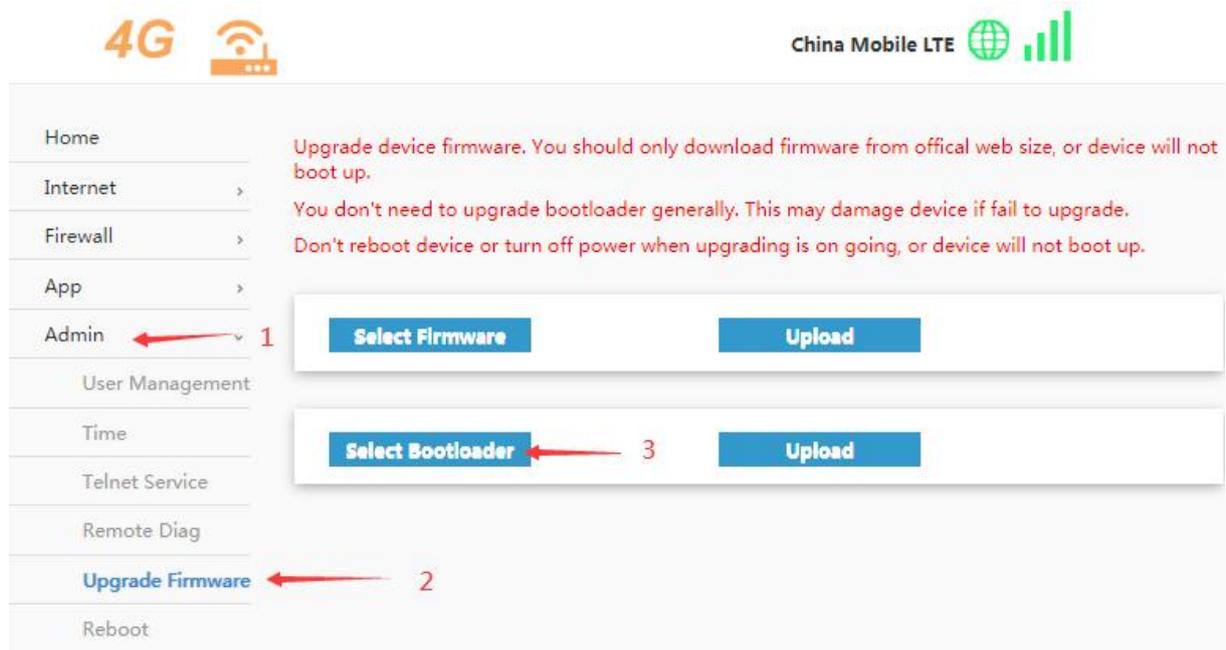


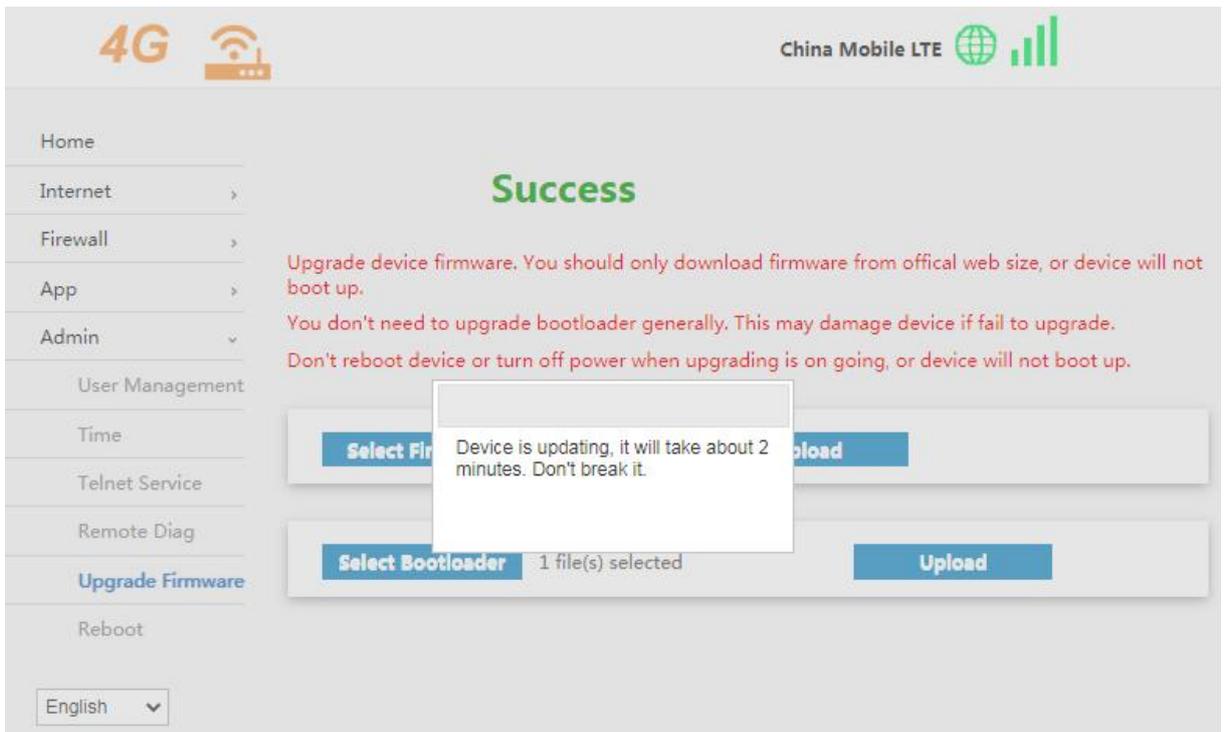
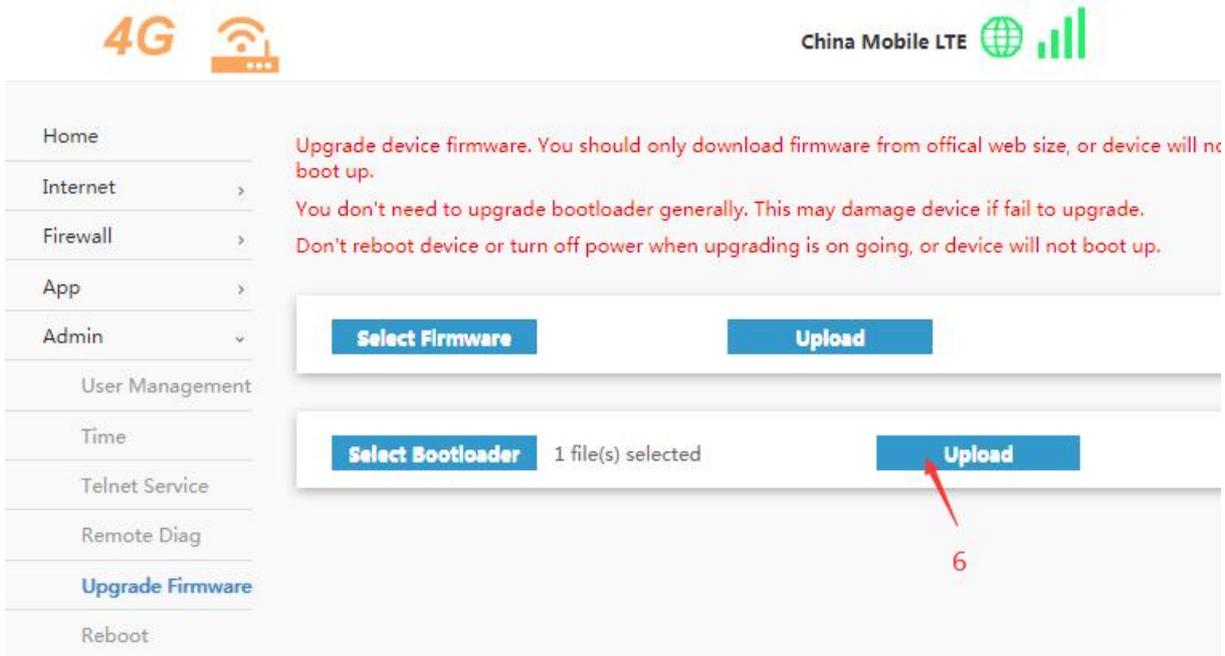


The network will be disconnected during the upgrade process, and the network will automatically recover after the upgrade is successful.

Upgrade bootloader:

After logging in to the webui interface, select Admin----- Upgrade Firmware-----select Bootloader ----- select the file to open, click upload to upgrade, wait for the device to restart.





Note: After successful upgrade, you need to press the factory reset button.

2.6.6 Reboot

Restart the device. There are some items in the page settings that need to restart the device to take effect. If it cannot be used after setting, it is recommended to restart the device here.



Home Reboot Device. If some setting doesn't take effect. Reboot device to test it.

Internet >

Firewall >

App >

Admin v

User Management

Time

Telnet Service

Remote Diag

Upgrade Firmware

Reboot

English v