User manual

INDUSTRIAL ROUTERS SPACETRONIK

CATALOGUE

Spacetronik SIR952 series mobile wide-band router is a kind of internet of things wireless communication router, using 2/3/4G network to provide convenient and high speed network transmission function.

This series of products use high performance industrial 32 bit communication processor, real-time operation system as software supporting platform, provide safe, high speed, stable 3G/4G to surf the Internet, which also provides 1LAN,1WAN,485/232 serial port.

It can be used in finance, postal, smart power grids, smart transportation, environment monitor, fire protection monitor, security, water conservancy, public safety, advertising release, industrial control, earth quake monitor, meteorological watch, instrument monitor,etc.

The following contents will specifically introduce how to use and handle the wireless router.

1.How to login to the router

1.1 To power on the router

To use and configure the wireless router, firstly you need to power on the router by using the standard adapter DC 12V /1.5A(wide voltage 7.5v-32v supported) provided by our company.

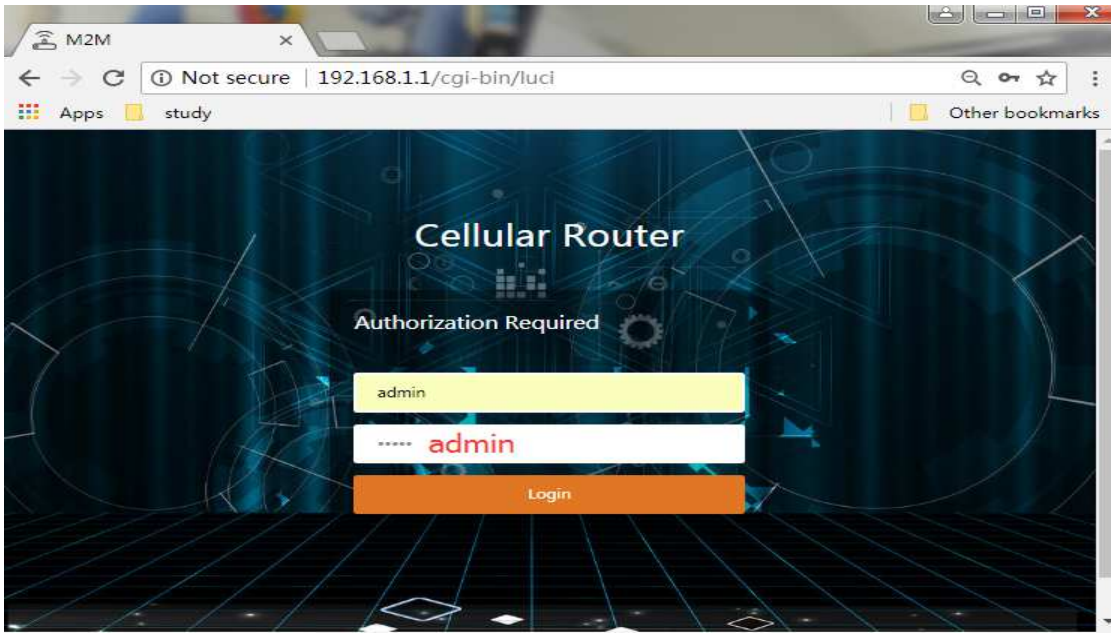
1.2 To connect the router to the computer

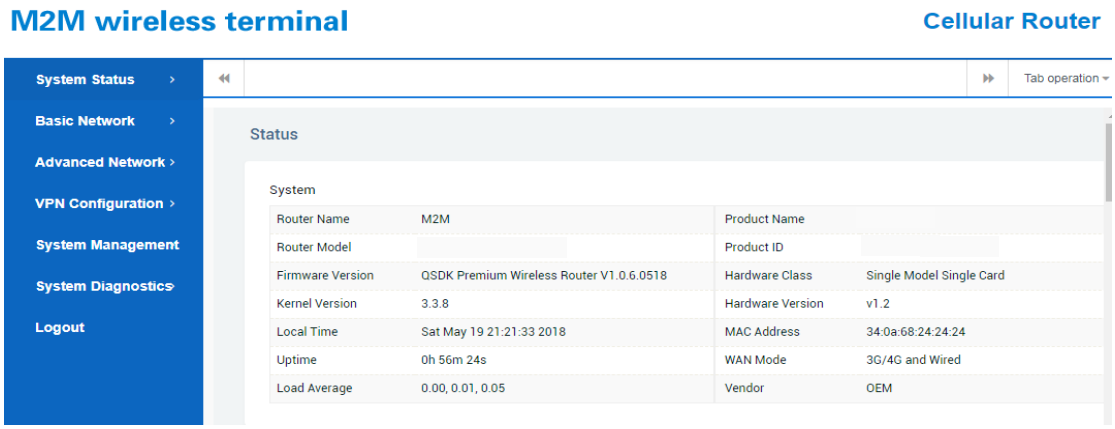
Use a RJ45 network cable to connect the LAN port of the router to your computer. Then what you have to be aware of is you need to either set the PC's network card for automatic acquisition or set the computer address and router address to the same network segment so that you can login to the router correctly later.

1.3 To login to the router

By entering the default gateway address 192.168.1.1 in any browser ,such as Google Chrome,360 browser,firefox browser,etc, and then type in the default username /password as admin/admin ,lastly click 'Login' button to login. The

configuration picture are as follows.





2.Function menu bar introduction

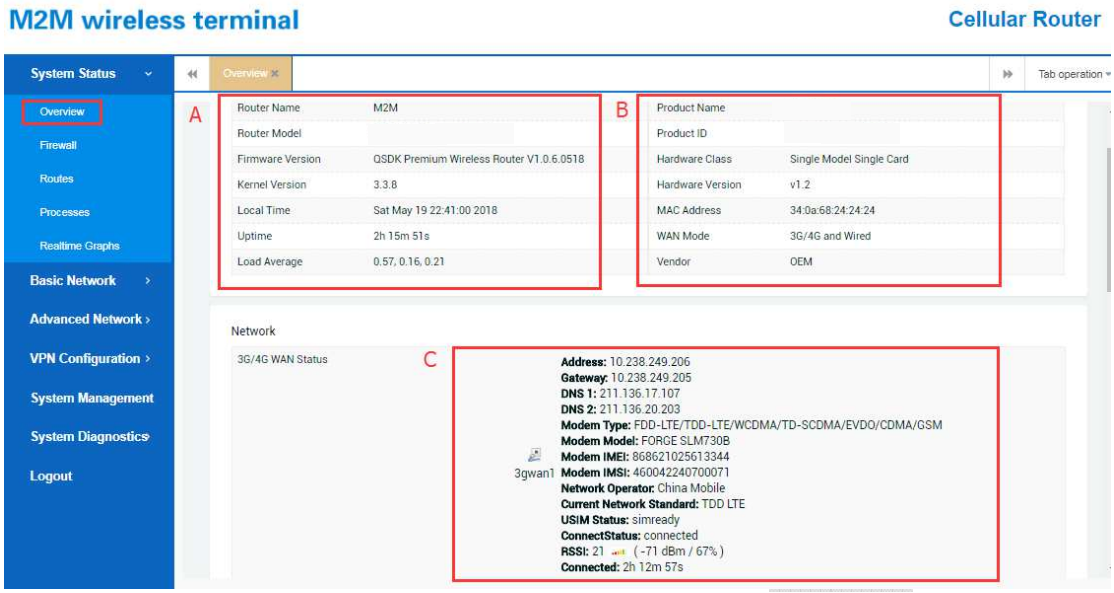
After logining to the router, please allow me to introduce the commonly used functions of our router.

2.1 System status

2.1.1 Overview

For this part we mainly introduce from four aspects,which are section A,B,C and

D.



From section A, we can know these stuffs including the router name,model,firmware version , the local system time,uptime(power duration),and how load average is.

From section B, we can get the product name and id number, hardware class ,hardware version , mac address ,the default wan mode(including all ,wired and wireless) and vendor name.

From section C,we can clearly know if we have an access to the internet and if the router can work well by checking the inserting sim card's network status.

The sim card normal dialing status is described in detail as follows:

Address:the address acquired from the carrier

Gateway: gateway address assigned from carrier

DNS1/2:the address for sim card to resolve domain names and have an access to the internet

Modem type:Indicates the type of network the router can support,it can be all network formats or not , such as

FDD-LTE(China Telecom&Unicom 4G)/TDD-LTE(4G)/WCDMA(China Unicom3G)/TD-SCDMA(ChinaMobile3G)/EVDO(ChinaTelecom 3G)/CDMA(China Telecom 2G)/GSM(China Mobile &Unicom)

Modem Model: vendor name of Communication module

Modem IMEI: IMEI numbers of Communication module

Modem IMSI:IMSI numbers of the inserting sim card

Network Operator:the specific carrier name,such as China Mobile,China Unicom,Vodafone,etc

Current Network Standard:The current network mode of the device

USIM Status:SIM card detection status,including simready,fail,unknown

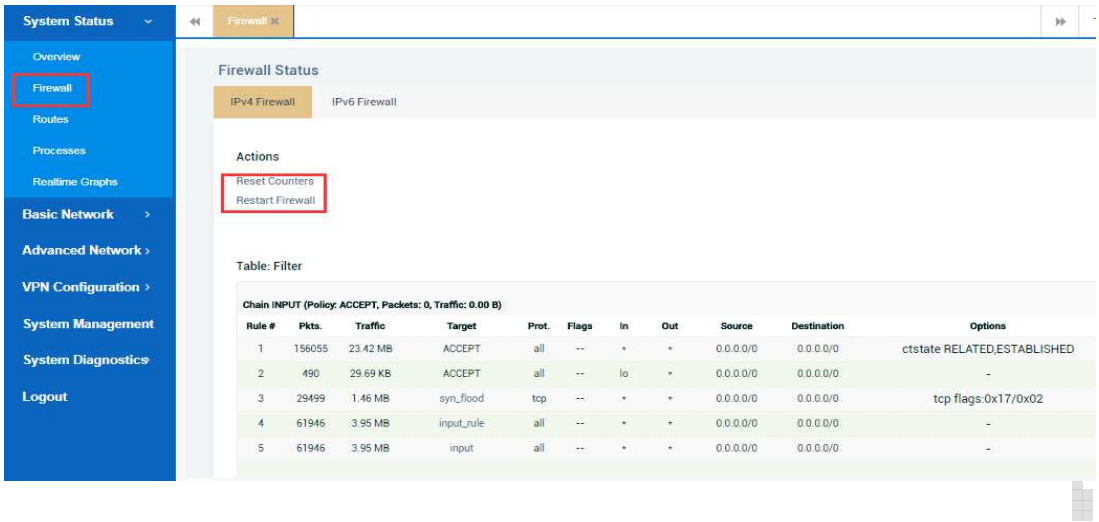
ConnectStatus:Indicates the network connection status,including initializing,connecting,connected

Connected:Network connection duration

From section D,we can also know the current memory usage of the device,how many Lan hosts there are in the Dhcp leases and the current wifi status (turn on or off).

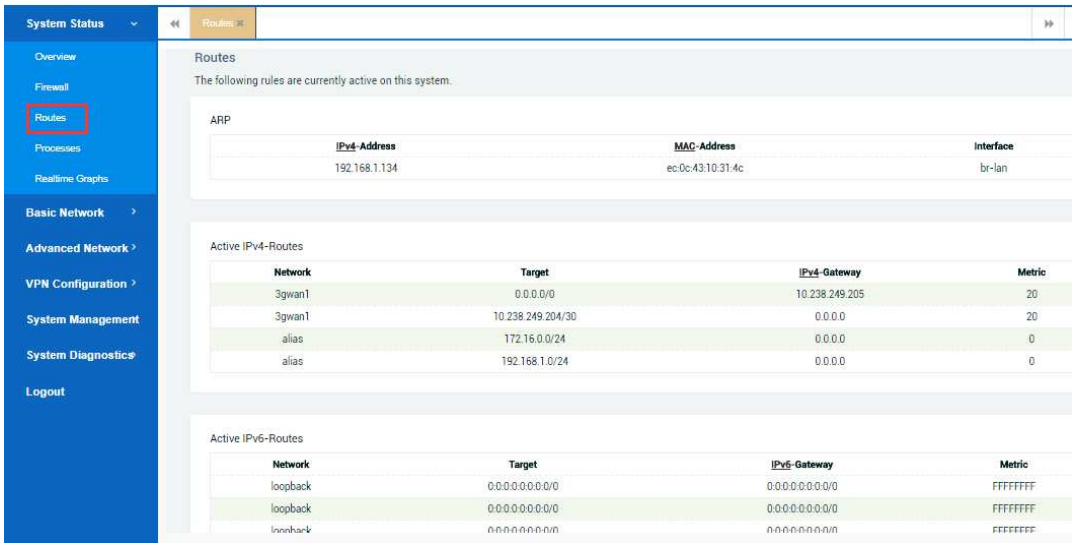
2.1.2 Firewall

- For this part, you can view the current device specific IPV4 (Only pay attention for now)/IPV6 firewall status including all incoming and outgoing control rules for all rule tables and chains by setting which you can allow or disallow access to specific target networks .Besides,you can also do some actions to reset counters and restart firewall.



2.1.3 Routes

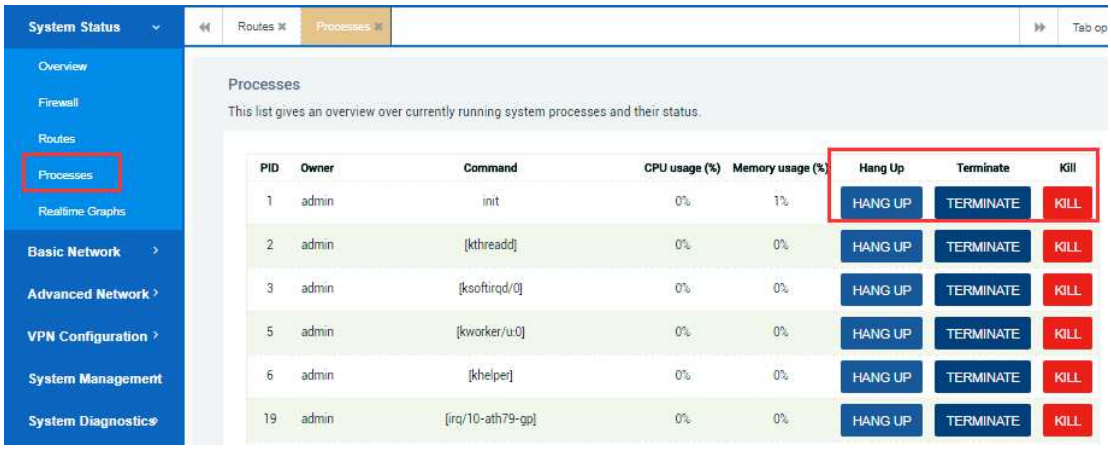
For this part,we can check the currently active IPV4/IPV6 network routes,dynamic and static routing tables included ,on this router system. The ARP tables will be also displayed.



2.1.4 Processes

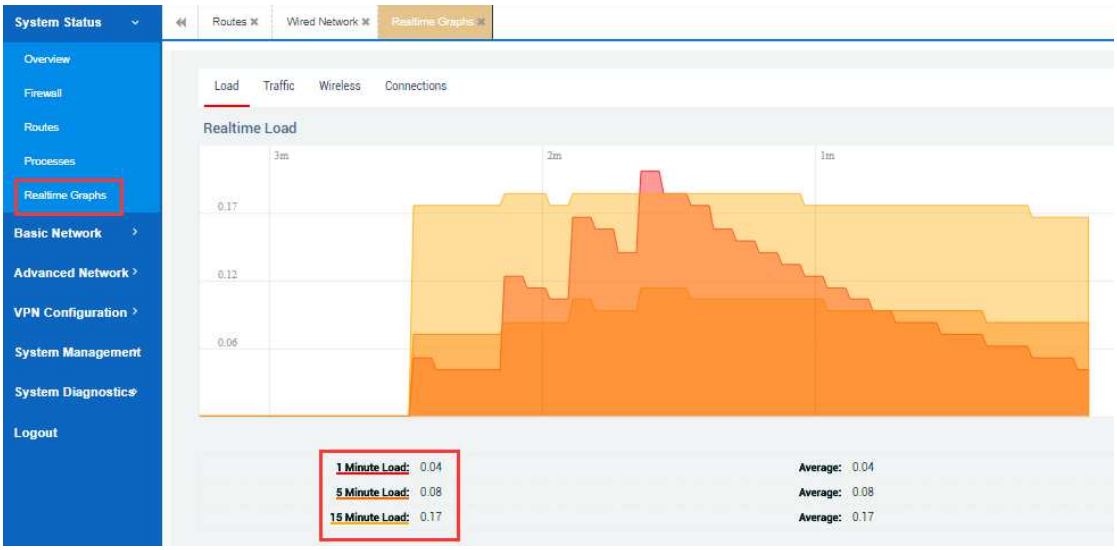
For this part, it gives an overview over currently running system processes and about their status. You'll have the abilities to hangup,terminate or kill all of the system processes as you want .

But sometimes be also careful of your handling some processes,such as the command 'init', by terminating or killing it, the router system may abnormal or crash.



2.1.5 Realtime Graphs

For this part ,you all clearly and directly see the current system load flow,traffic,wireless and connections and know the overall situation of the 1st, 5th, 15th, minute by observing the dynamic chart.

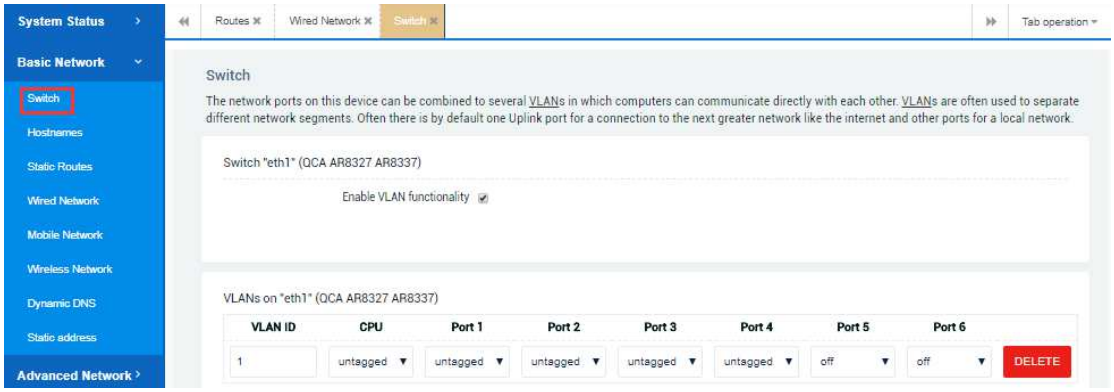


2.2 Basic network

2.2.1 Switch

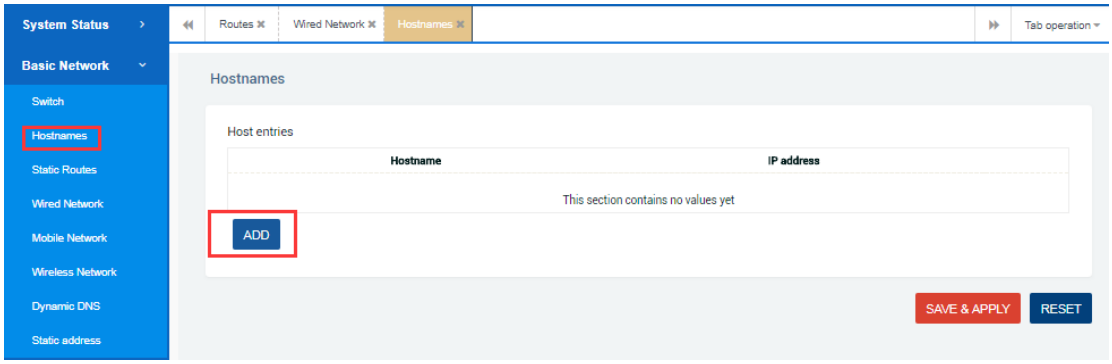
The network ports on this device can be combined to several VLANs in which computers can communicate directly with each other. VLANs are often used to

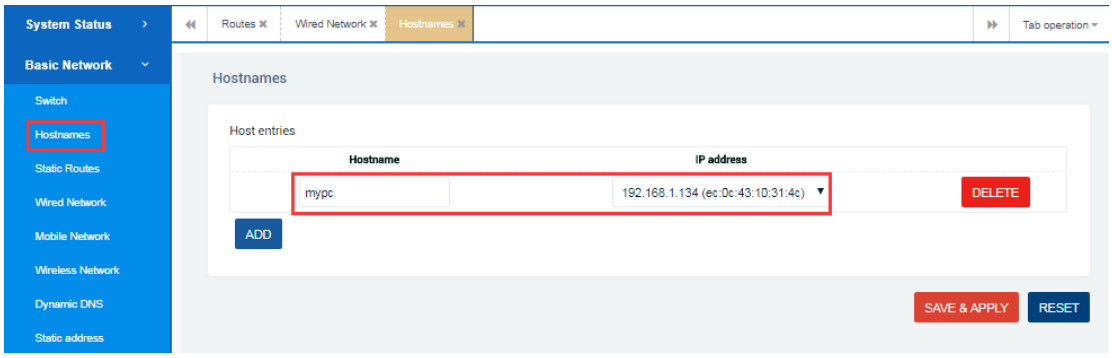
separate different network segments.Specific configuration omitted.



2.2.2 Hostnames

For this part,you can rename the host with the specified ip address.Here is an example.

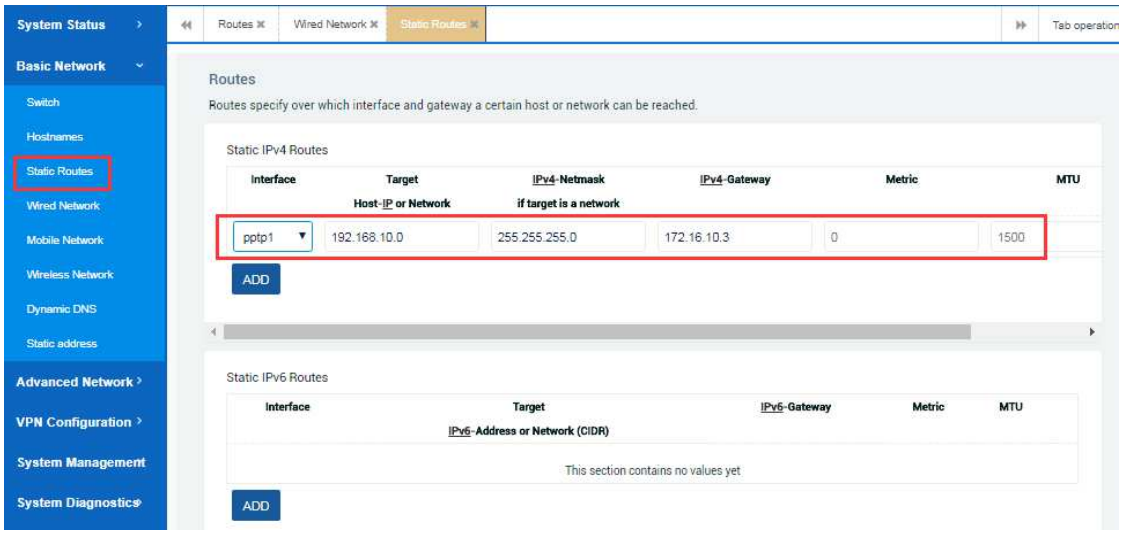




2.2.3 Static Routes

For this part,you can freely add network IPV4/IPV6 static routing table by following the below format according to actual situation. Commonly, a complete routing table looks like this: it should includes the interface,the target network,the

netmask , IPV4 gateway,metric and MTU.



2.2.4 Wired Network

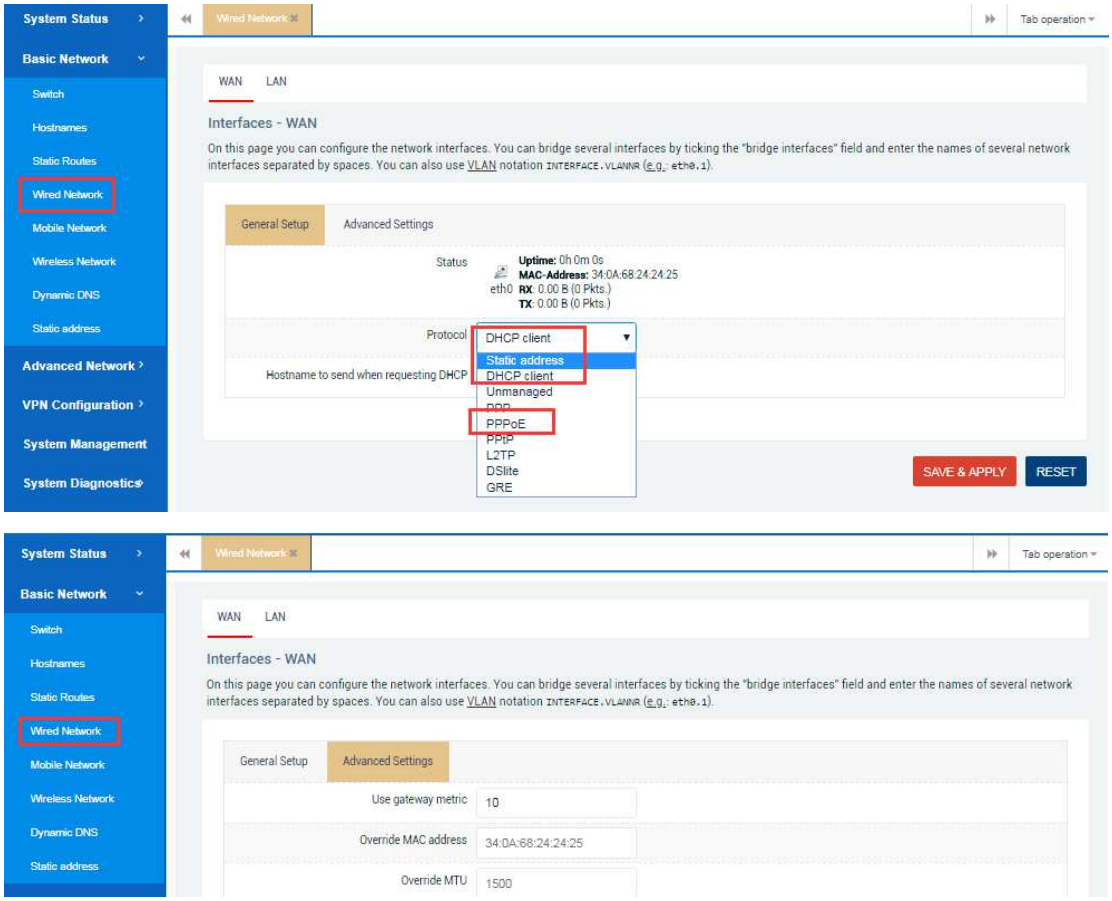
For this section, you can do some useful parameter settings about wired network.

You can firstly set different and commonly used wan port access modes such as DHCP client (default setting),Static address,PPPoE and so on.

2.2.4.1 Dhcp client configuration

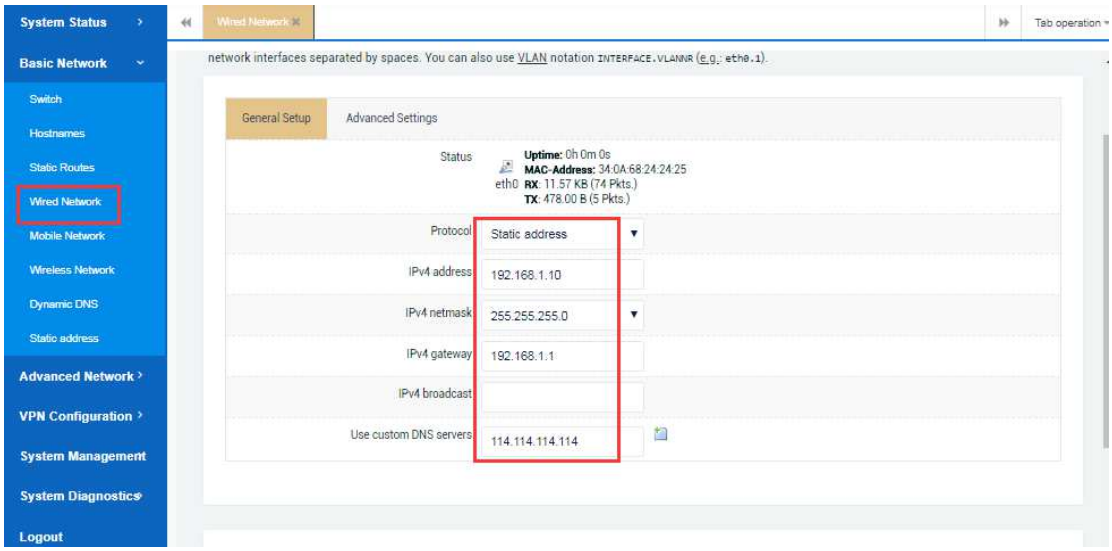
'Dhcp client' settings for wan mode seems like below. You only need to connect the LAN port cable of the upper-level router to the WAN port of our router. Then our router can automatically obtain the IP address of the same network segment of the upper-level router and can access the network.

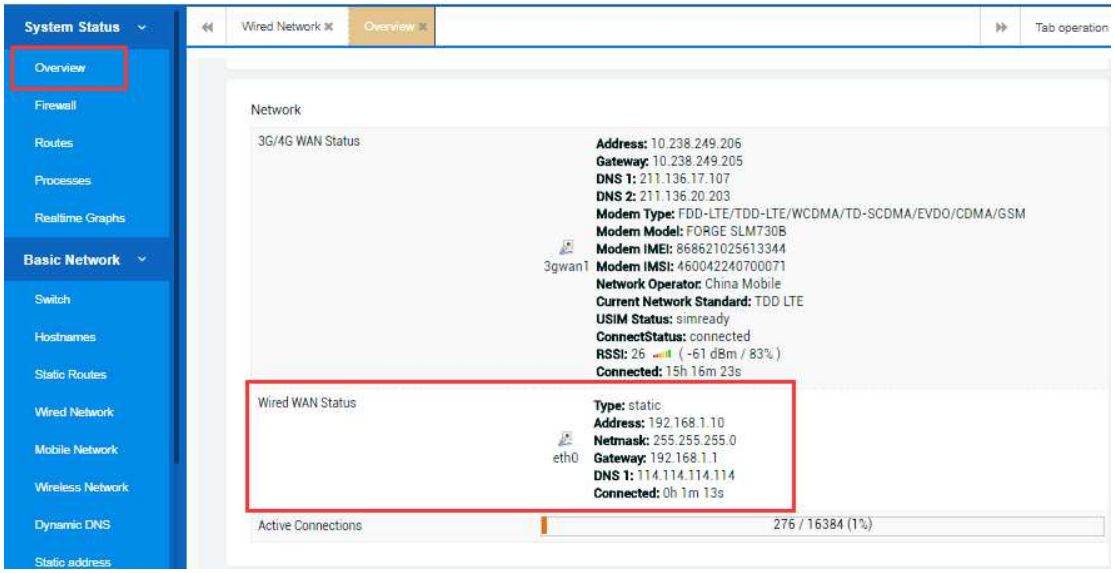
However, what you need to pay attention to is that the gateways of these two routers must not be the same, otherwise they may cause network conflicts and cause our router fail to access the Internet.



2.2.4.2 Static address configuration

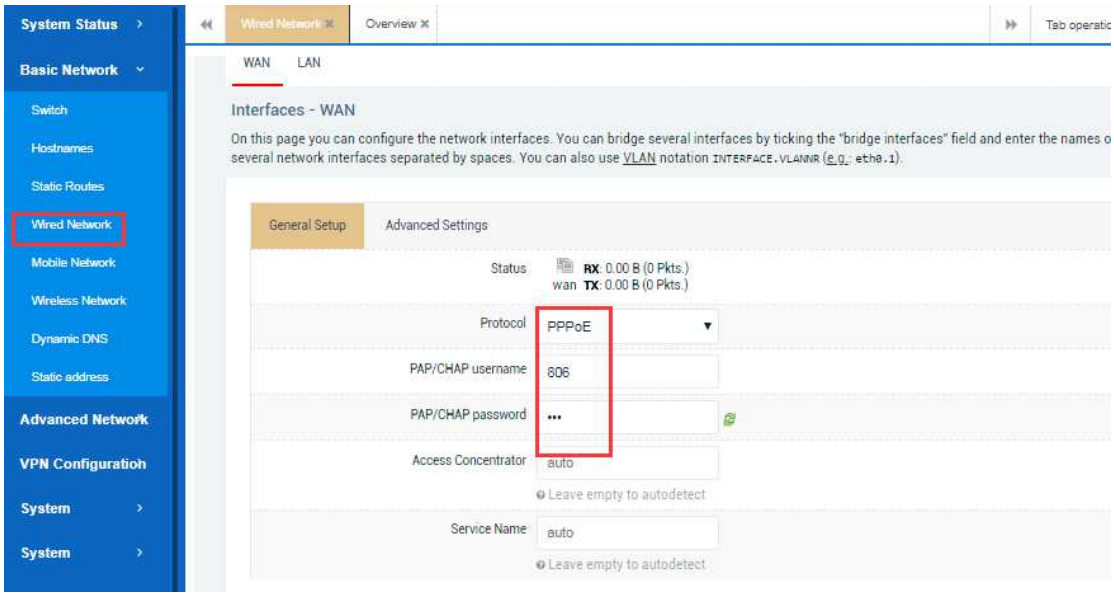
'Static address' settings for wan mode seems like below. You can set the IP addresses of the same network segment of our routers to the upper-level router, then set the gateway same to the upper-level router, finally set the DNS address selectively. Then our router can access the network. You can also check static address status for wan mode by clicking 'System status'---'overview'. All about this are as follows.

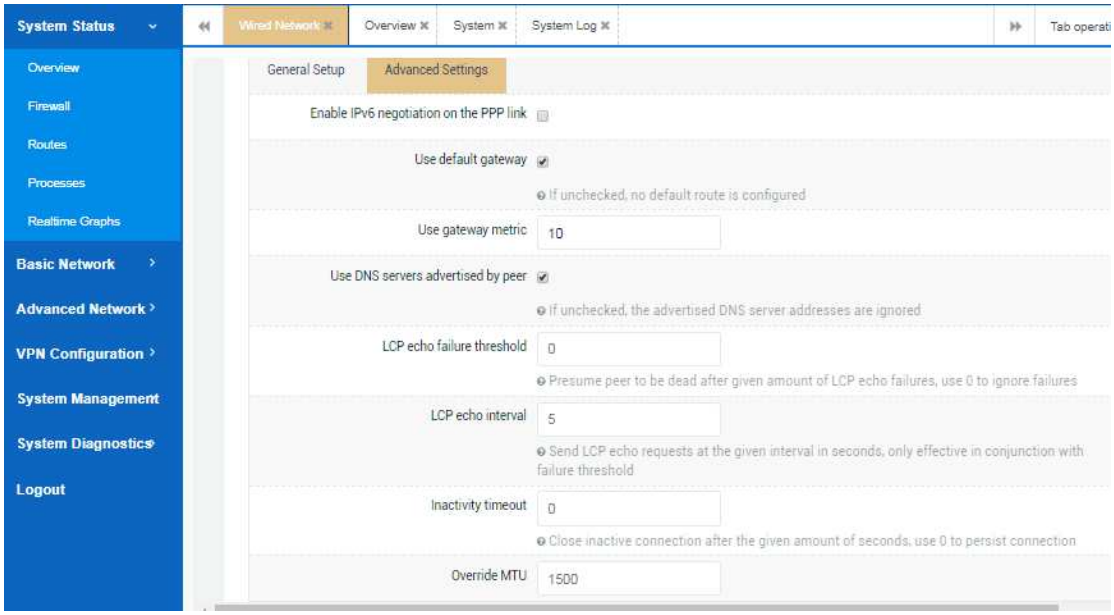




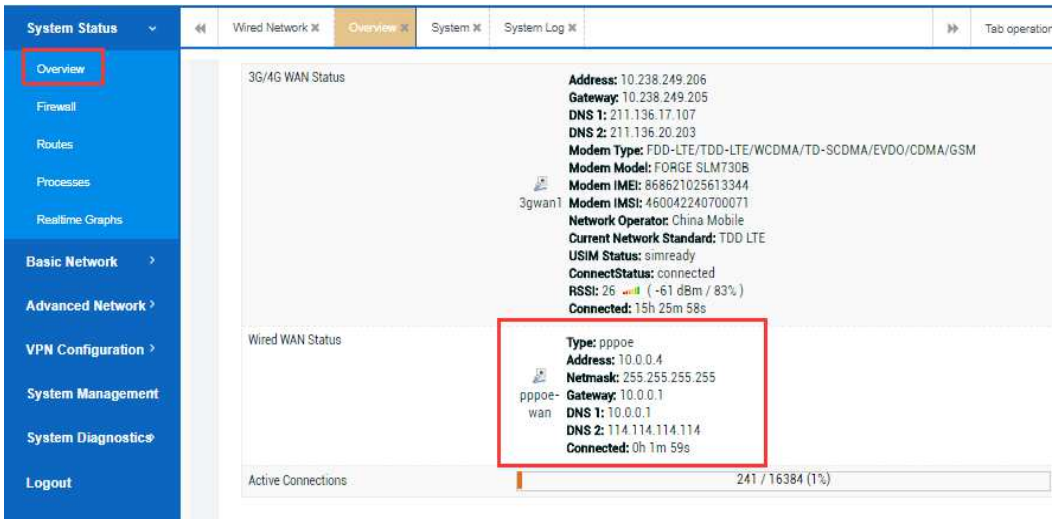
2.2.4.3 PPPoE configuration

'PPPoE' settings for wan mode seems like below.You need to fill in the correct broadband account username and password and save the configuration.All about this are as follows.



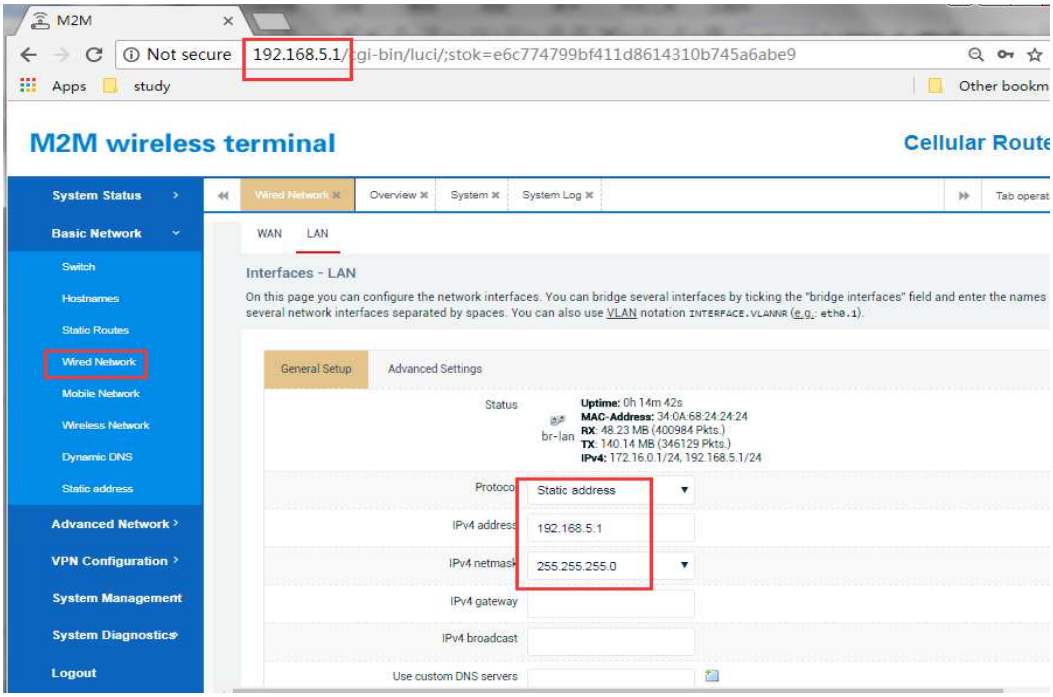


Then you can check the PPPOE configuration for wan mode by clicking 'System status'---'overview' as below.



2.2.4.4 Default gateway modification

Sometimes you need to modify the router's default gateway address 192.168.1.1 to prevent others from easily logging into your router or when bridging other routers to avoid conflicts with other networks. You can modify the default gateway like below.



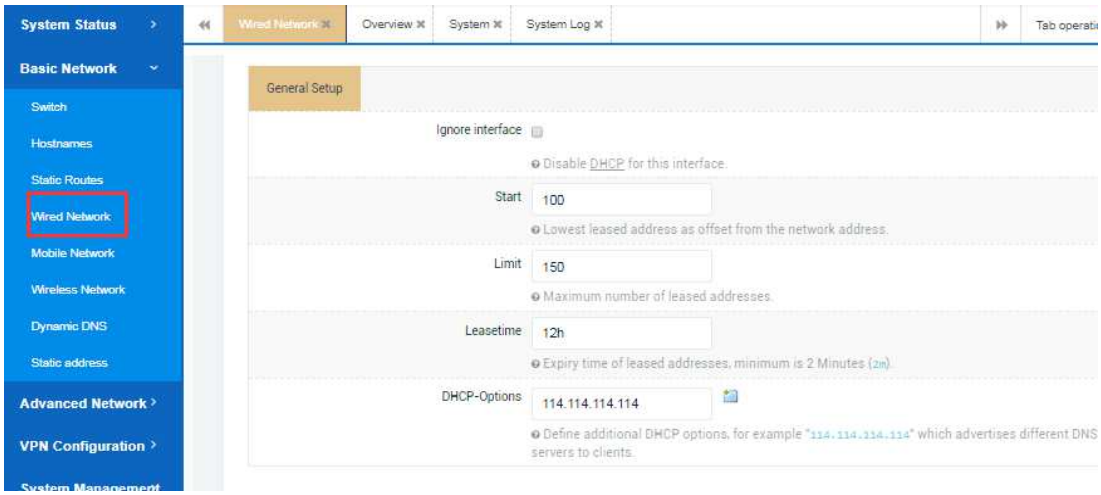
2.2.4.5 Dhcp sever configuration

For this part ,you can choose to set the router to turn on or off the dhcp server, at the same time to set the LAN host start ip address and range.

When you turn on the dhcp server function,the LAN hosts only need to keep its

network adapters automatically acquired and then there is an access to the internet.

When you turn off the dhcp server function,the LAN hosts which has been set its network adapters automatically acquired will fail to get local ip address and can't surf the internet. If you encounter this situation, you need to manually set the ip address for the LAN host to the same network segment as the router and set the dns server manually.

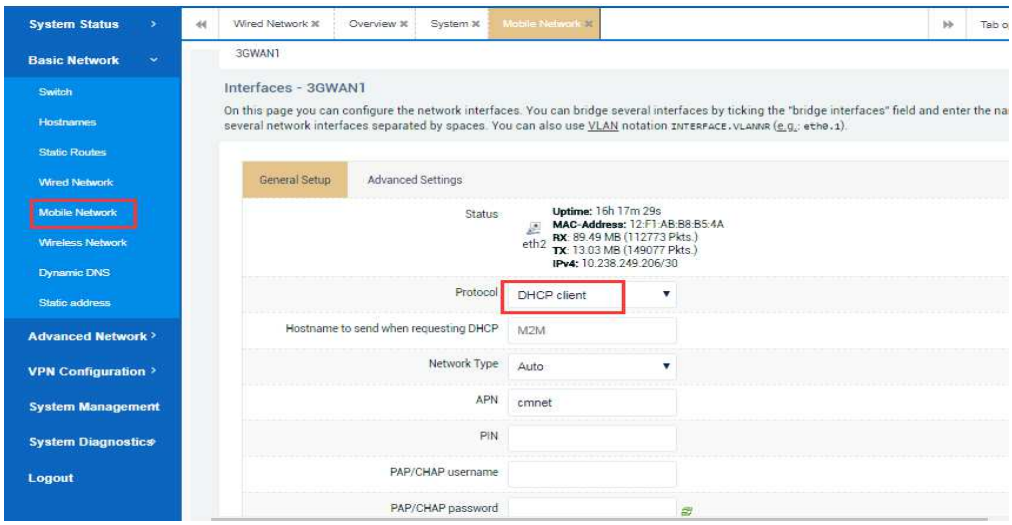


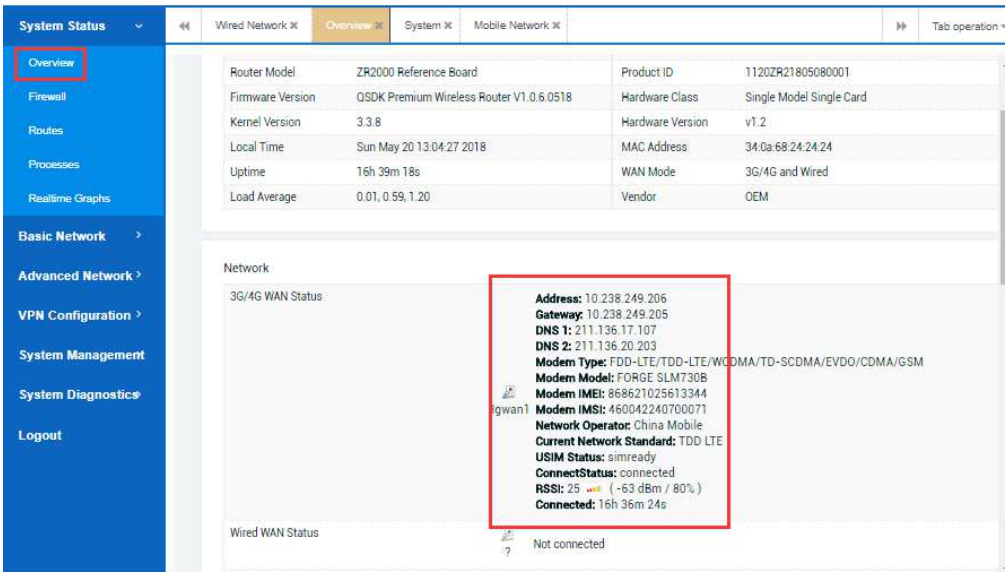
2.2.5 Mobile Network

2.2.5.1 Dhcp client mode for 3/4G

The router system is set to dhcp client mode for 3/4G by default,which means the router device itself will automatically dial to connect to the carrier network when inserted a SIM card and it always takes about 1-2mins. After that you can surf the internet by using wired or wireless methods to connect to the router.

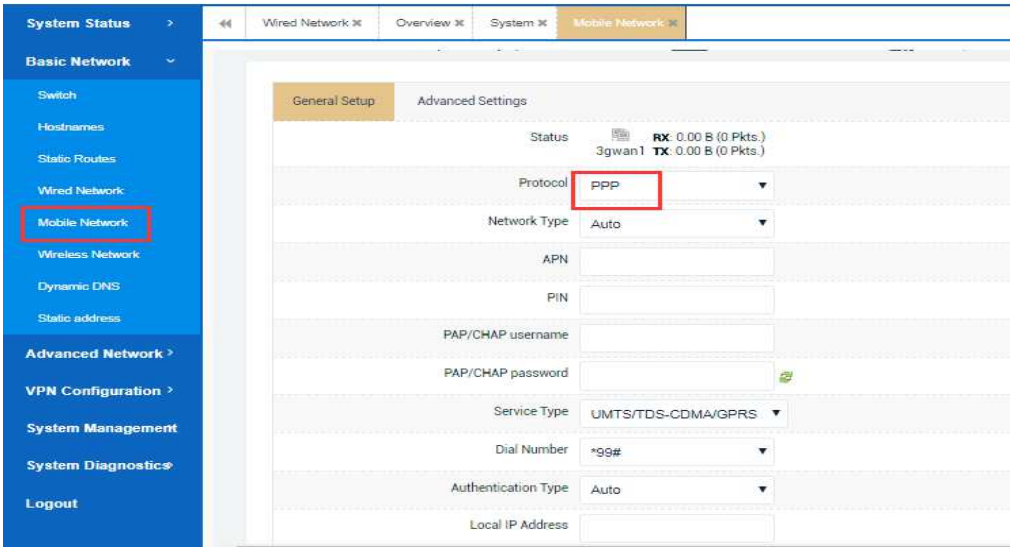
The dhcp client mode for 3/4G is suitable for most operators SIM card scenarios, such as ordinary mobile phone traffic SIM card, Internet of things terminal special network SIM card, VPDN private SIM card. An example is as follows.

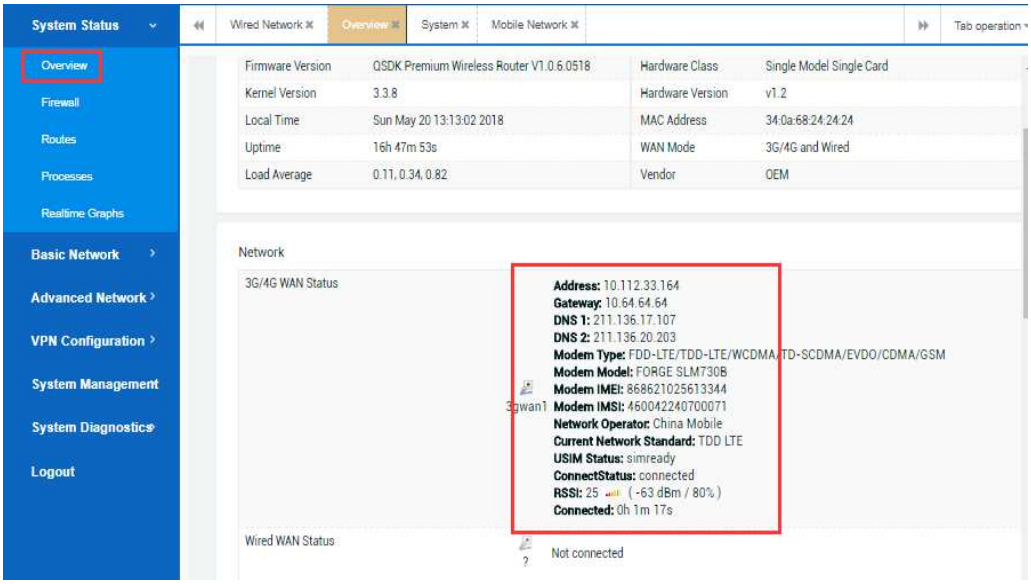




2.2.5.2 PPP mode for 3/4G

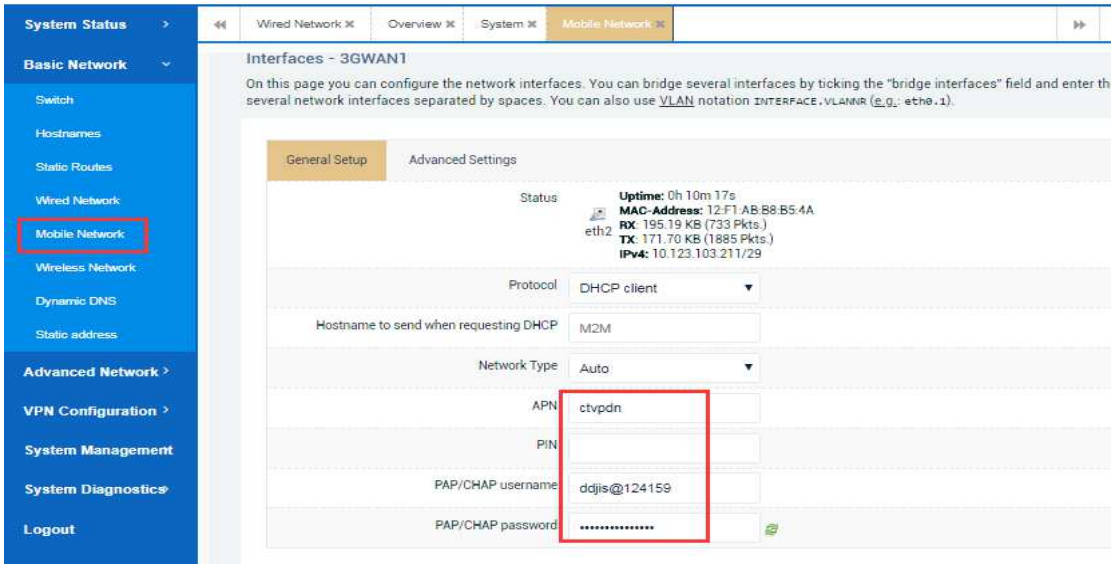
The ppp mode for 3/4G is sometimes suitable for these operators SIM cards scenarios when you insert a SIM card (Internet of things terminal special network SIM card or VPDN private SIM card)to the router,it can not be connected to carrier network by using dhcp client mode.Here is an example.





2.2.5.3 VPDN / APN SIM cards configuration

Sometimes the sim cards inserted to the router cannot be used for successful dial-up unless you fill in the correct APN username and password, especially when you use an IoT terminal SIM cards or VPDN private SIM cards. Sometimes if you even have no ideas about whether your SIM cards have that APN information, just ask your carrier/ISP(Internet Service Provider) for much help. For above, you should better configure your router like this below.

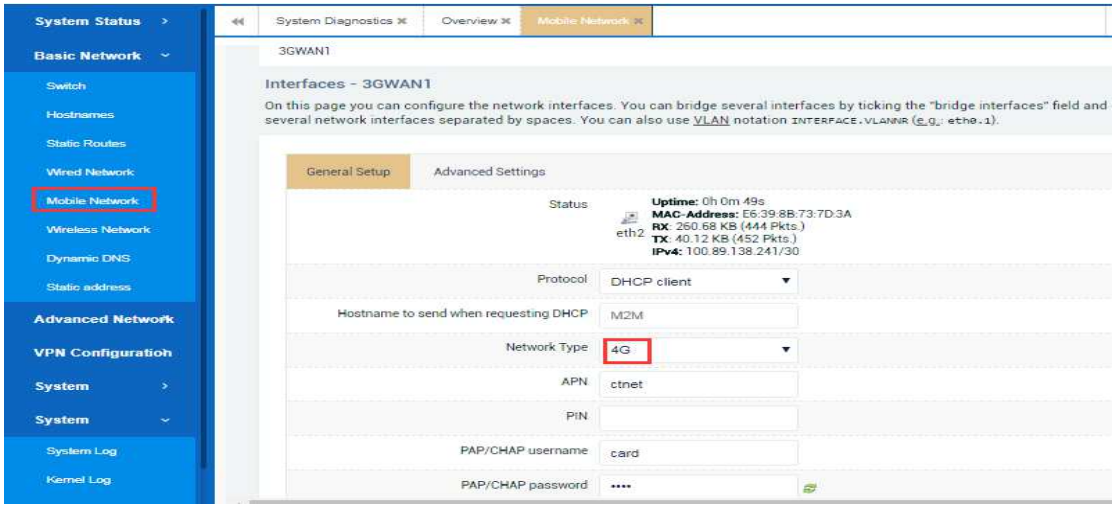


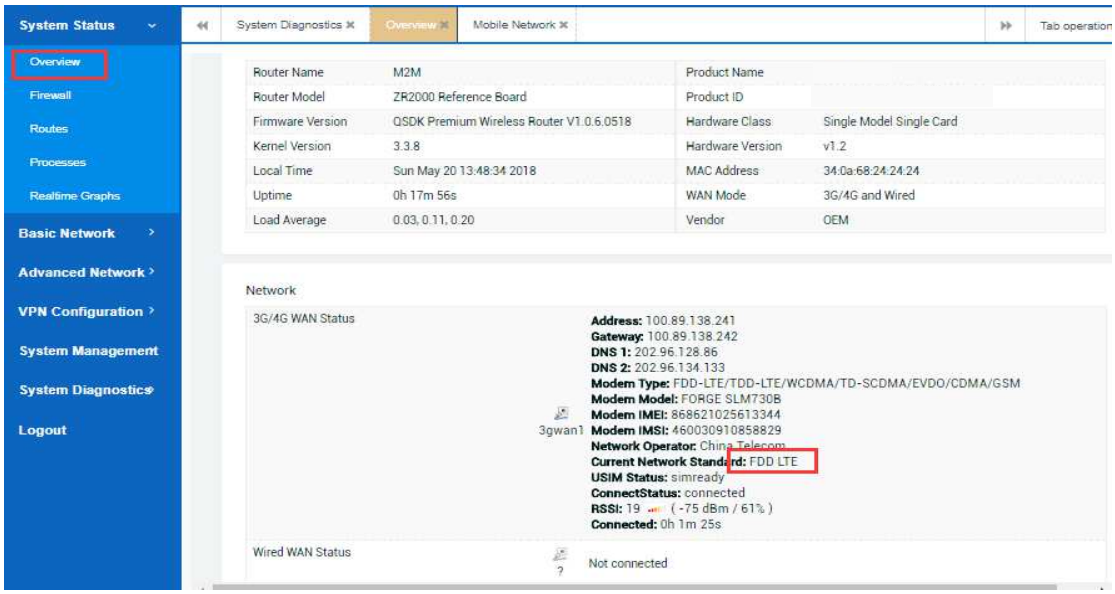
2.2.5.4 How to enforce 4/3/2G

By default, our router sets up an automatic network mode, which means that it can automatically adapt itself to 2, 3, and 4G networks based on the signal quality of the surrounding base stations.

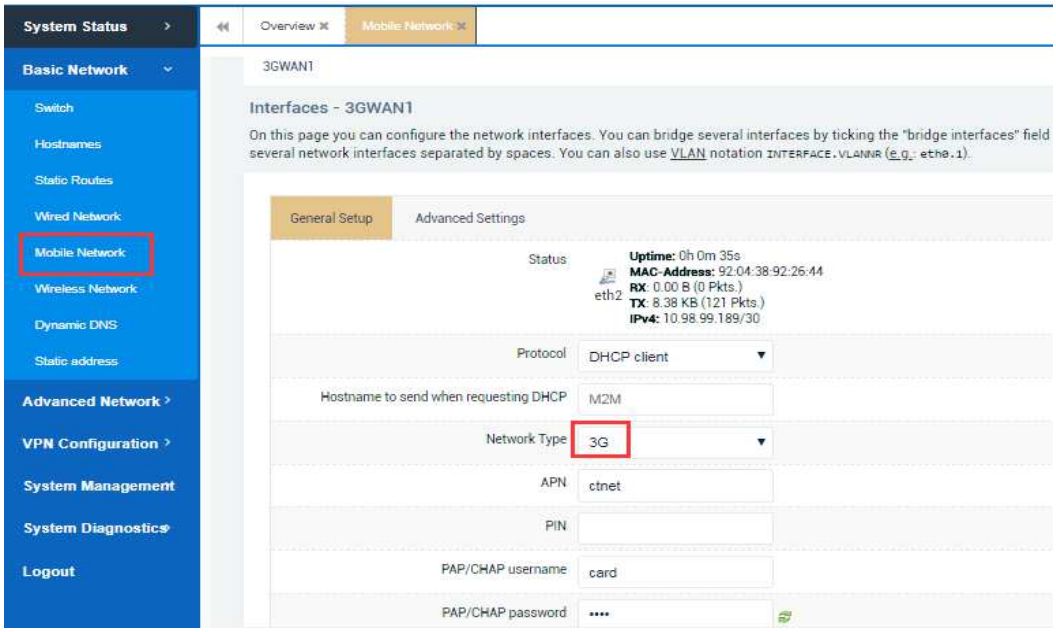
If you want to check whether your router can effectively support 4/3/2G network mode or not ,there is also a way for you to do that,namely to enforce 4/3/2G network.Here i will take China Telecom SIM card whose 4/3/2G network modes are equal to FDD-LTE/EVDO(HDR)/CDMA modes in turn as an example.

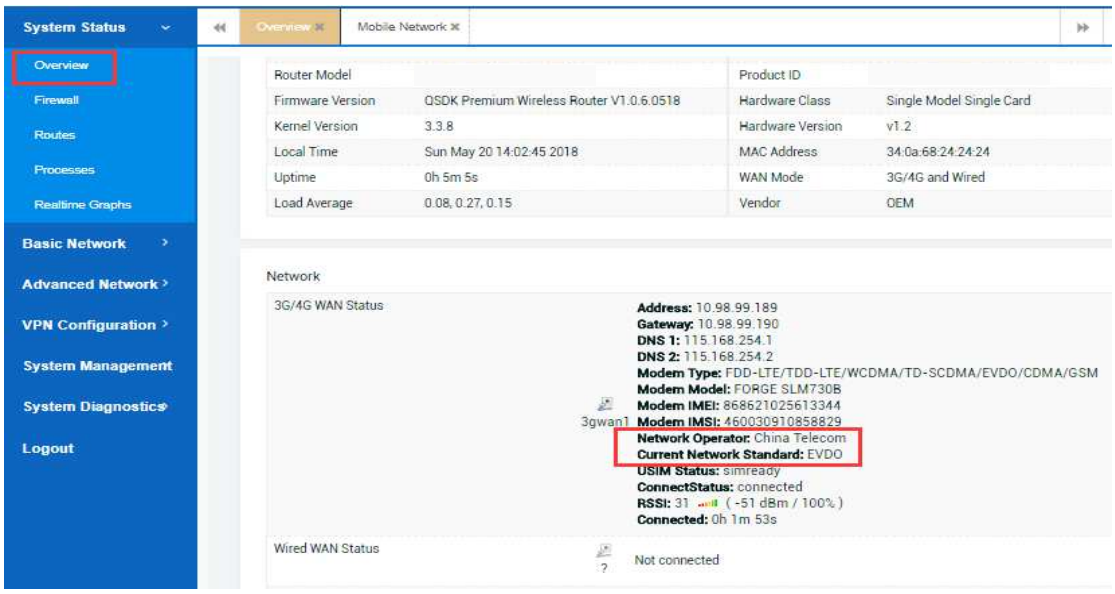
When you try to enforce the router to 4G/FDD-LTE network mode(sometimes if it doesn’t work well,just reboot your router),you can configure and check it like this:



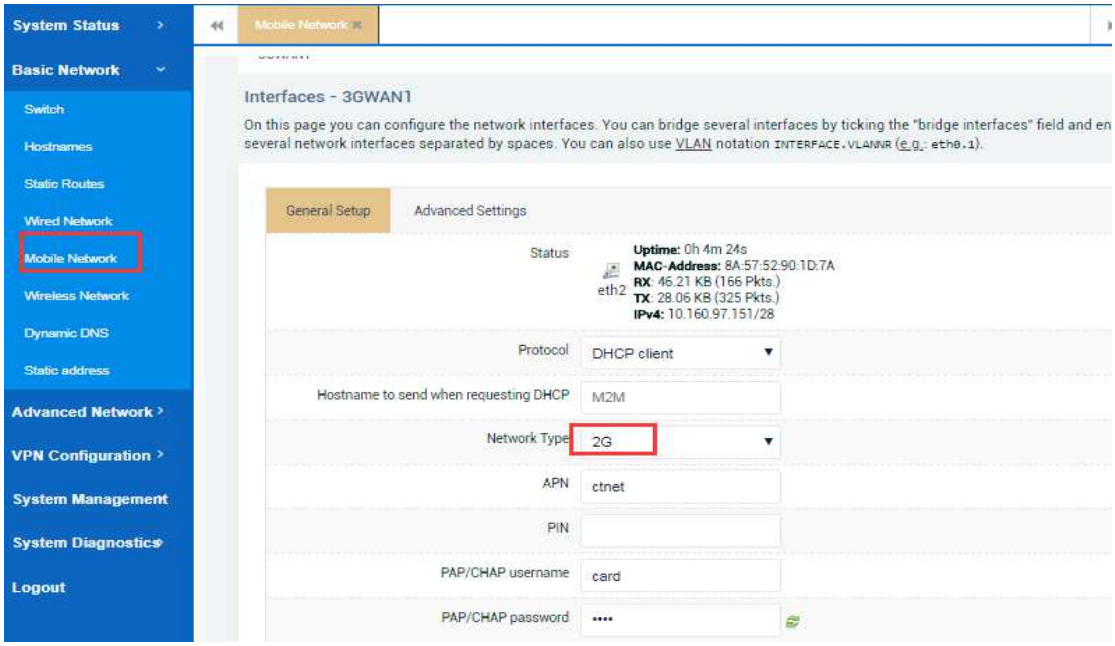


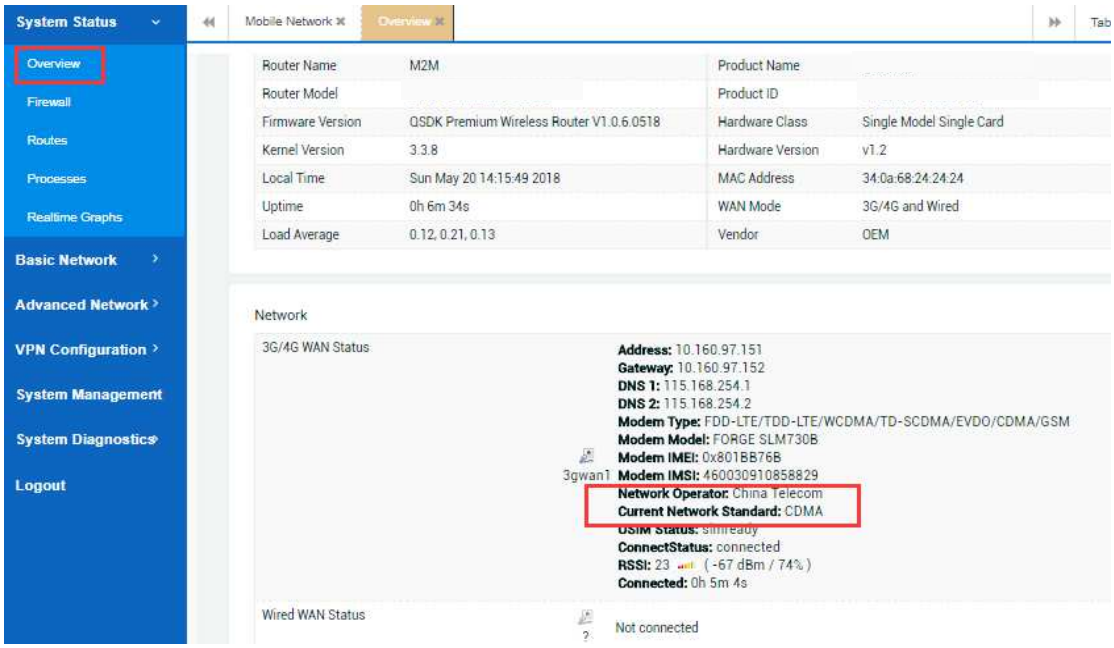
When you try to enforce the router to 3G/EVDO(HDR) network mode(sometimes if it doesn't work well,just reboot your router),you can configure and check it like this:





When you try to enforce the router to 2G/CDMA network mode(sometimes if it doesn't work well,just reboot your router),you can configure and check it like this:

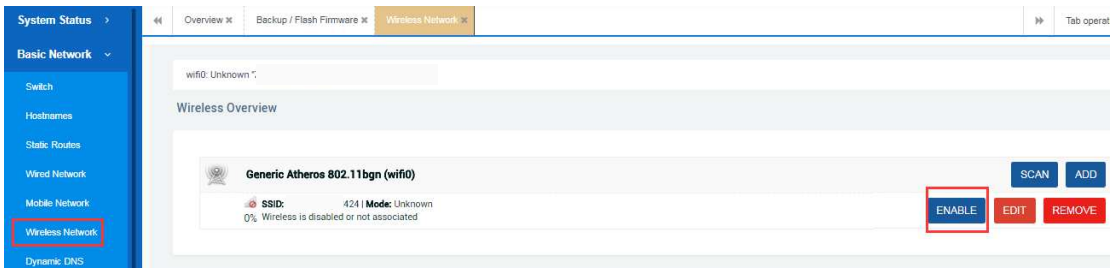




2.2.6 Wireless Network

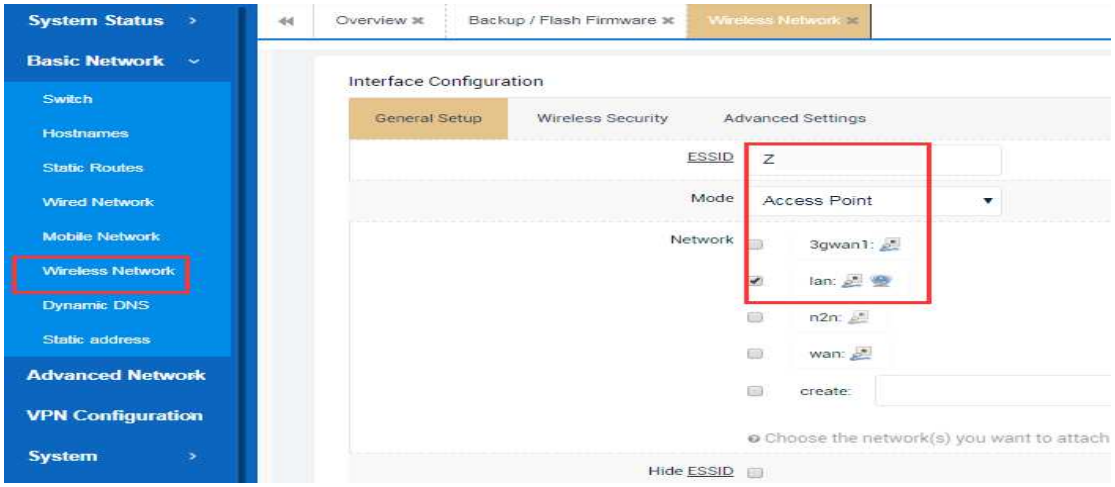
2.2.6.1 AP hotspot /Master mode

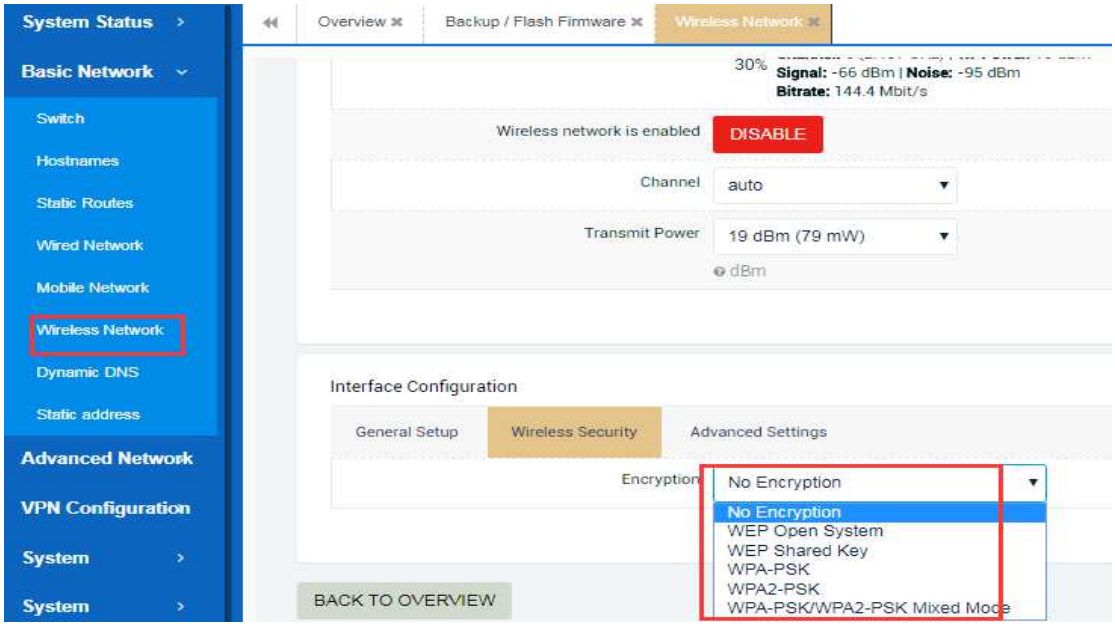
For this part, you can do some WiFi ap hotspot mode settings. You need to turn on WiFi first, and then your phone, Ipad and the computer connected to the router can access the Internet.



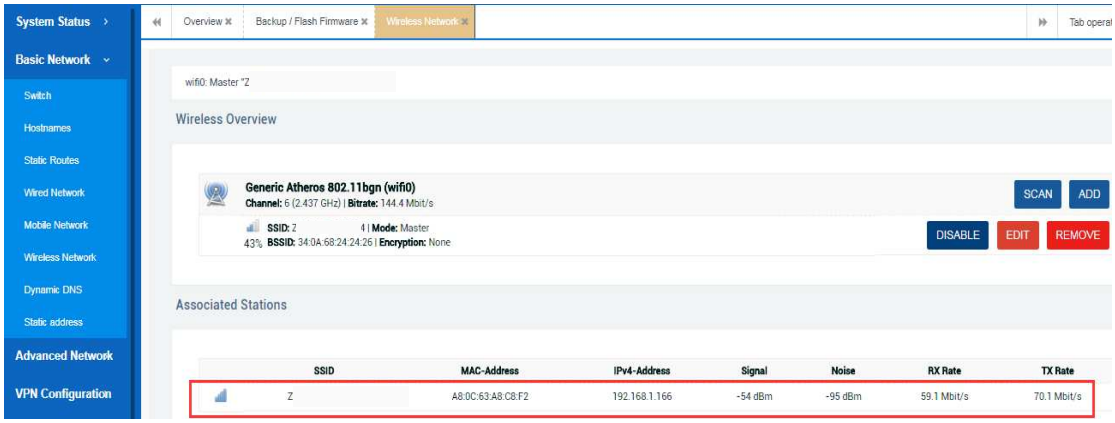
You can also do some more specific configuration, such as modifying the hotspot SSID name, wireless password, encryption type, etc. All about this will show as below.


System Status
Basic Network
Switch
Hostnames
Static Routes
Wired Network
Mobile Network
Wireless Network
Dynamic DNS
Static address
Advanced Network
VPN Configuration
System
Overview
Backup / Flash Firmware
Wireless Network
wifi0: Master "Z
Wireless Network: Master "Z
h0)
The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or an
hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface C
Device Configuration
General Setup
Advanced Settings
Status
32%
Mode: Master | SSID: Z
BSSID: 34:0A:68:24:24:26 | Encryption: None
Channel: 6 (2.437 GHz) | Tx-Power: 19 dBm
Signal: -64 dBm | Noise: -95 dBm
Bitrate: 144.4 Mbit/s
Wireless network is enabled
DISABLE
Channel
auto
Transmit Power
19 dBm (79 mW)


System Status
Basic Network
Switch
Hostnames
Static Routes
Wired Network
Mobile Network
Wireless Network
Dynamic DNS
Static address
Advanced Network
VPN Configuration
System
Overview
Backup / Flash Firmware
Wireless Network
Interface Configuration
General Setup
Wireless Security
Advanced Settings
ESSID
Z
Mode
Access Point
Network
3gwan1:
lan:
n2n:
wan:
create:
Choose the network(s) you want to attach
Hide ESSID


System Status
Basic Network
Switch
Hostnames
Static Routes
Wired Network
Mobile Network
Wireless Network
Dynamic DNS
Static address
Advanced Network
VPN Configuration
System
System
Overview
Backup / Flash Firmware
Wireless Network
30%
Signal: -66 dBm | Noise: -95 dBm
Bitrate: 144.4 Mbit/s
Wireless network is enabled
DISABLE
Channel
auto
Transmit Power
19 dBm (79 mW)
dBm
Interface Configuration
General Setup
Wireless Security
Advanced Settings
Encryption
No Encryption
No Encryption
WEP Open System
WEP Shared Key
WPA-PSK
WPA2-PSK
WPA-PSK/WPA2-PSK Mixed Mode
BACK TO OVERVIEW

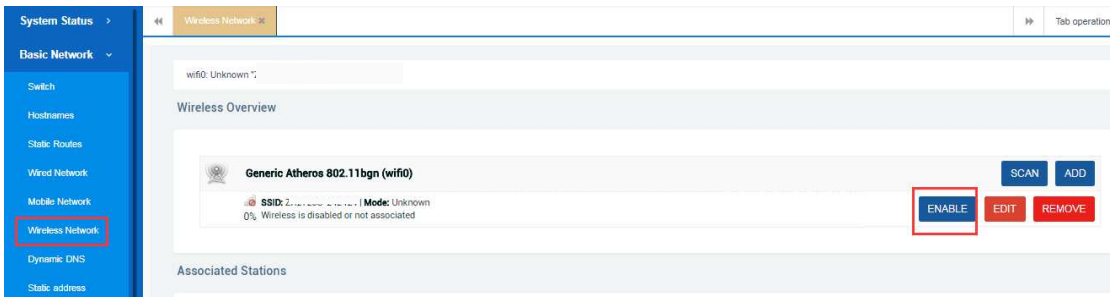
When your terminal device is connected to the router through a WiFi hotspot, the web page should look like this.



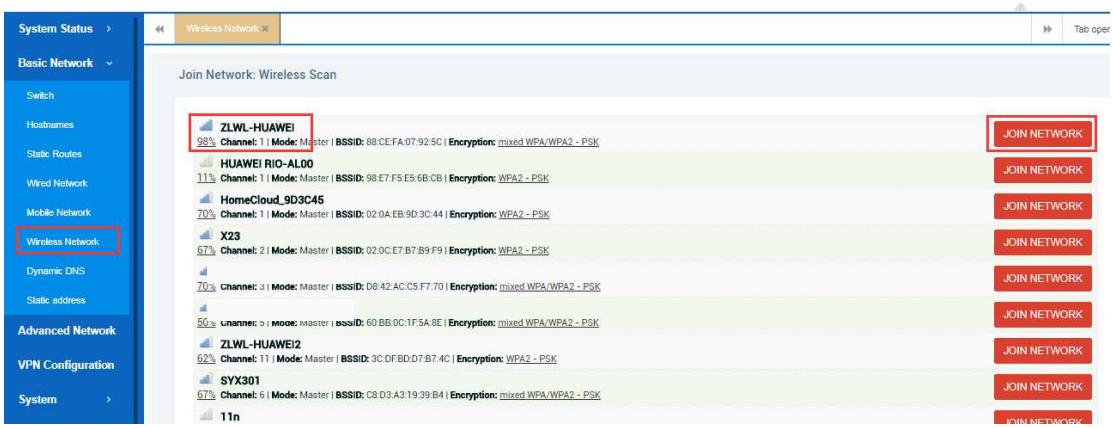
2.2.6.2 Wifi-client mode

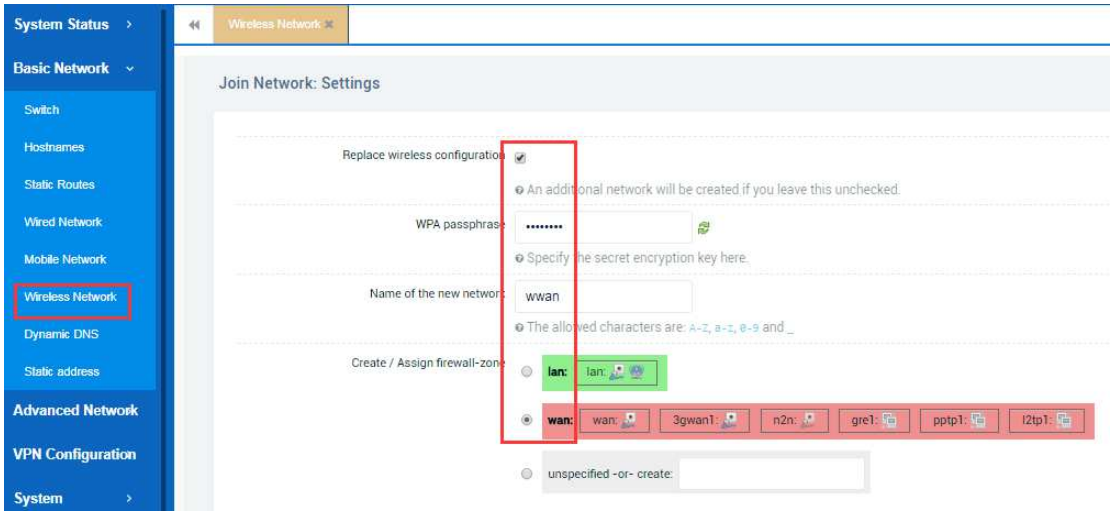
For this part,you can set your router to wireless client mode, which means when you have no other available network, you can make your router accessible to the network by connecting it to other wireless network hotspots around you. And then your phone, Ipad and the computer connected to the router can also access the Internet.

Firstly, you need to turn on the wifi hotspot by clicking the ENABLE button, which is off by default.

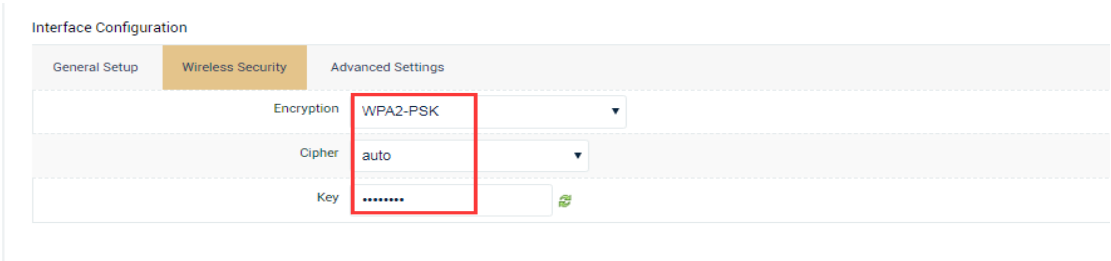


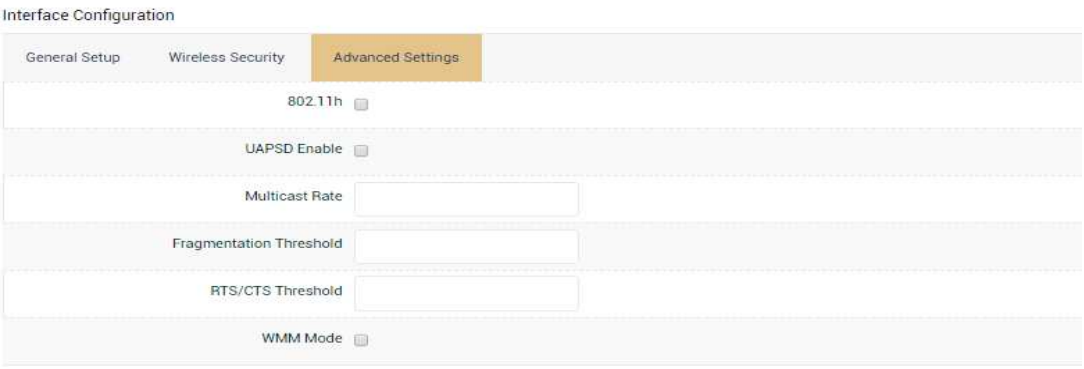
Secondly, you can search for other available wireless hotspots around you, and then enter its wireless password to join the network. And you can configure it according to the following operation figures.



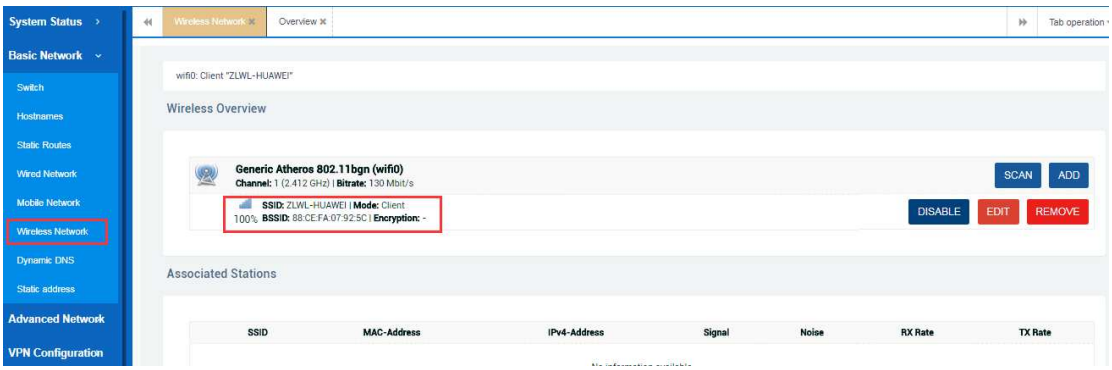


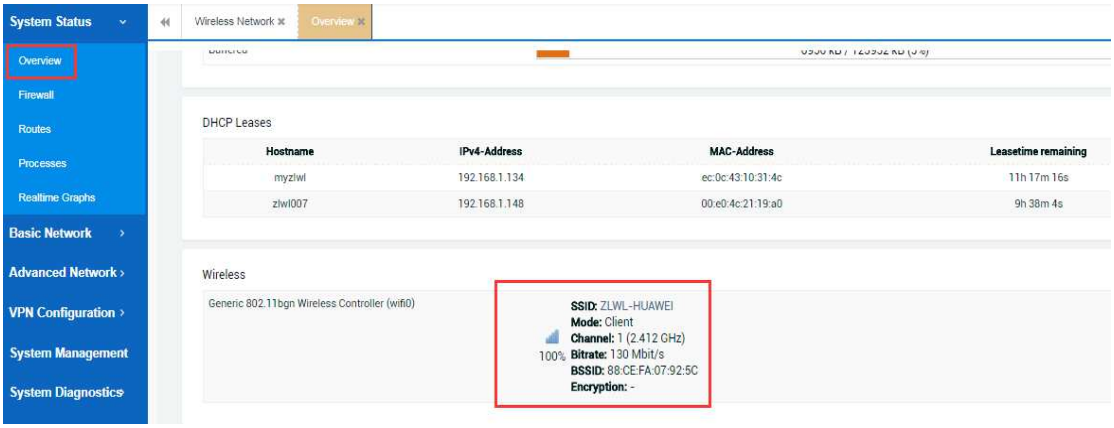
Finally, you need to check again to confirm these wireless configuration parameters, and then save it.





When the wireless client mode is in effect, the wireless information status should be like below. After that, your computer or other network devices can access the network by connecting to the router through a wired connection.

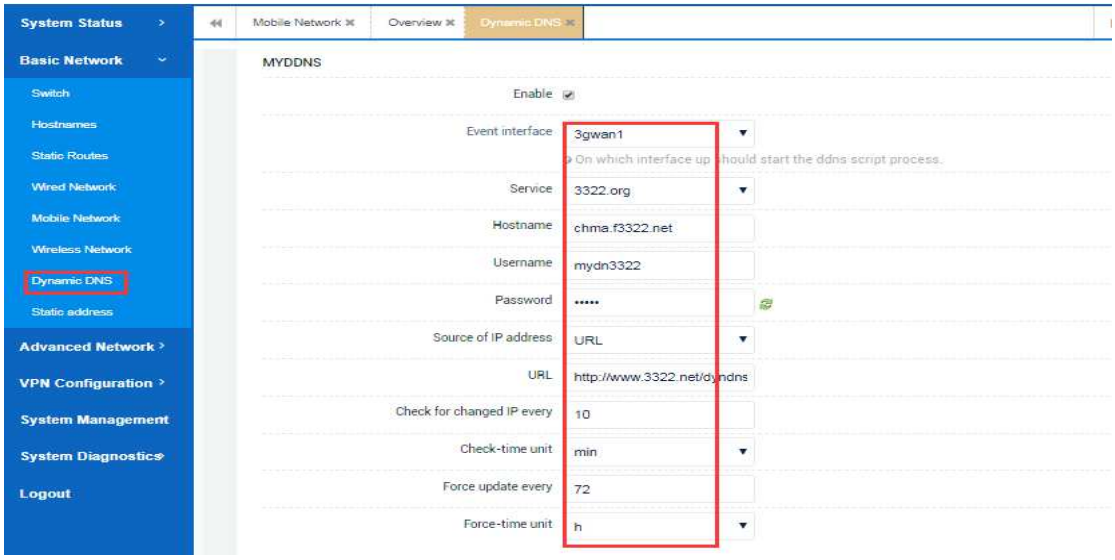




2.2.7 Dynamic Dns

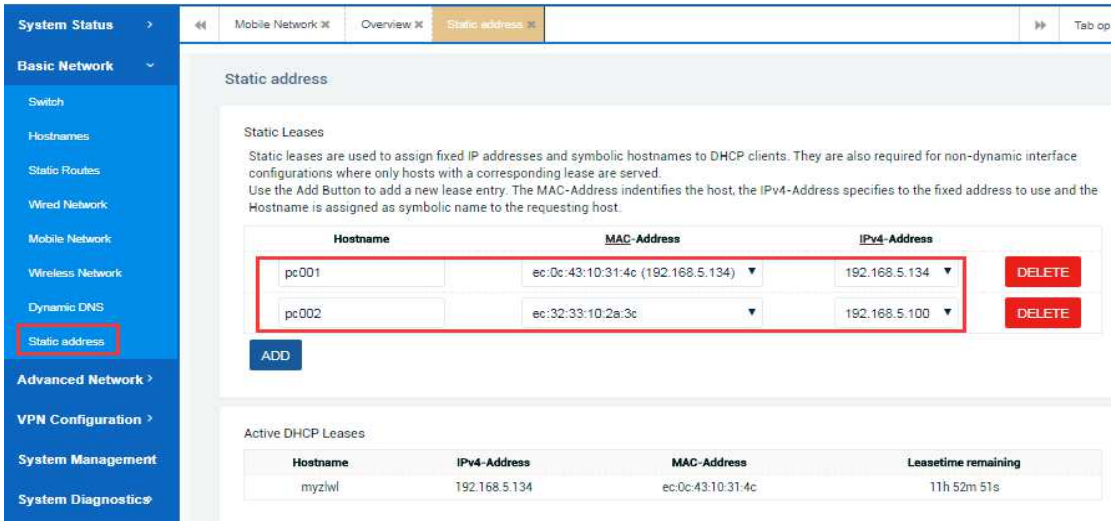
Dynamic DNS allows that your router can be reached with a fixed hostname while having a dynamically changing Public IP address.

That is to say, the precondition for using this function is that the IP address of WAN port of the router device must be a dynamically changing public IP address. If so,you can make a DDNS configuration as follows.



2.2.8 Static Address

For this part, static leases are used to assign fixed IP addresses and symbolic hostnames to DHCP clients.You can just configure the router like below.

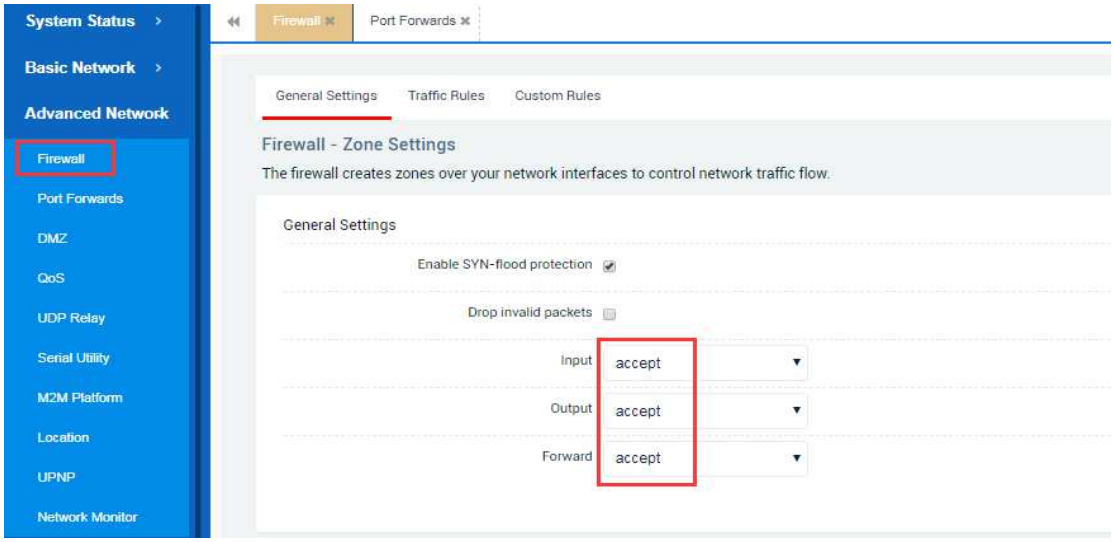


2.3 Advanced network

2.3.1 Firewall

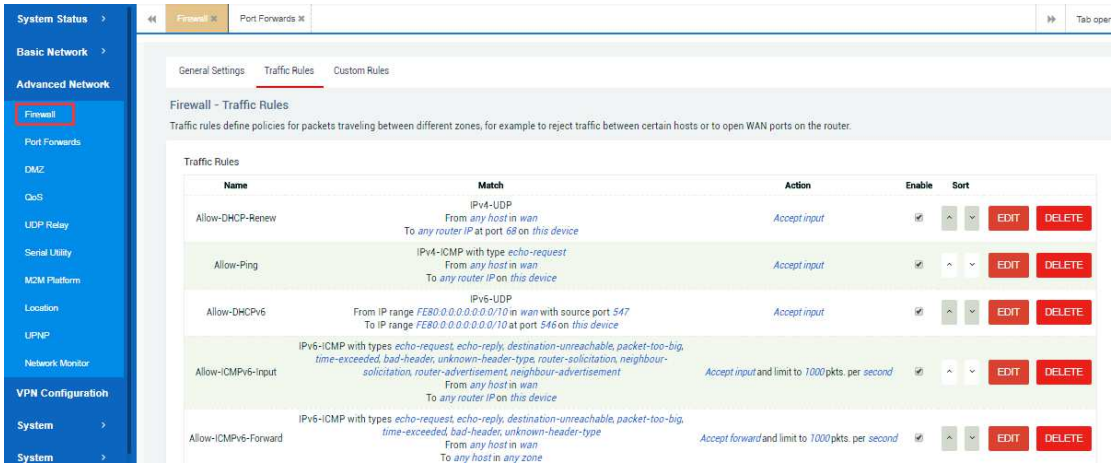
2.3.1.1 General Settings

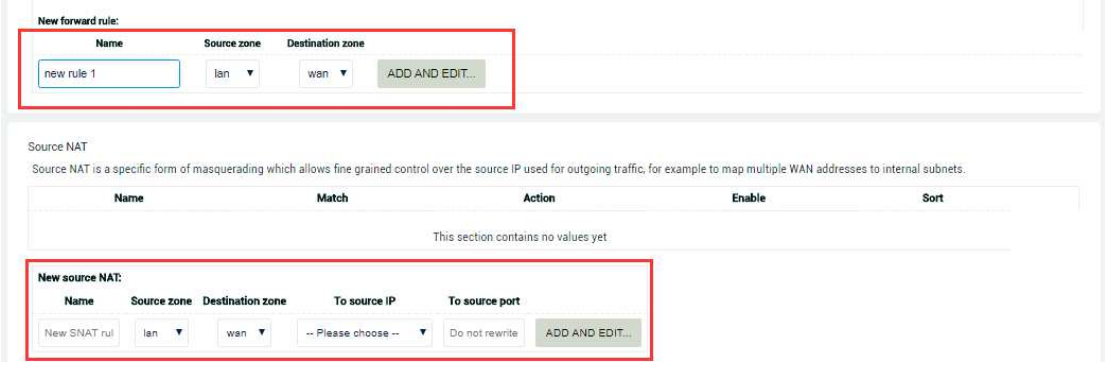
In this section, you can view and check the default firewall policies of the router system. Obviously we can see that the system's default entry and exit and forward rules are all allowed, so you only need to keep the default configuration unless you want to do some other different configuration policies. Here is the default configurations for general settings and zone settings as below.



2.3.1.2 Traffic Rules

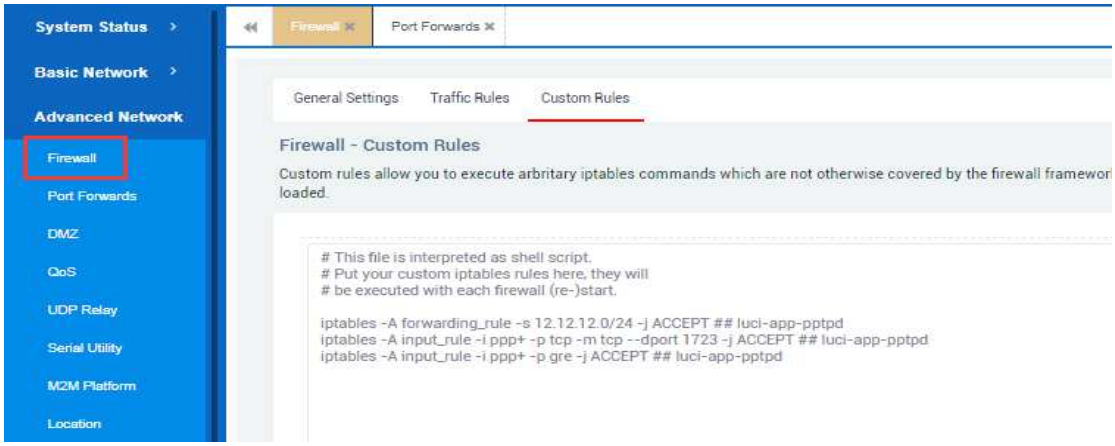
In this section,you are free to do some traffic restrictions rule in incoming and outgoing directions of the router by clicking Add New Forward Rule. For example, you can do some restrictions based on the network port, ip address or mac address, etc. At the same time, you can also do some more advanced SNAT configuration to achieve your control purpose. It seems like below.





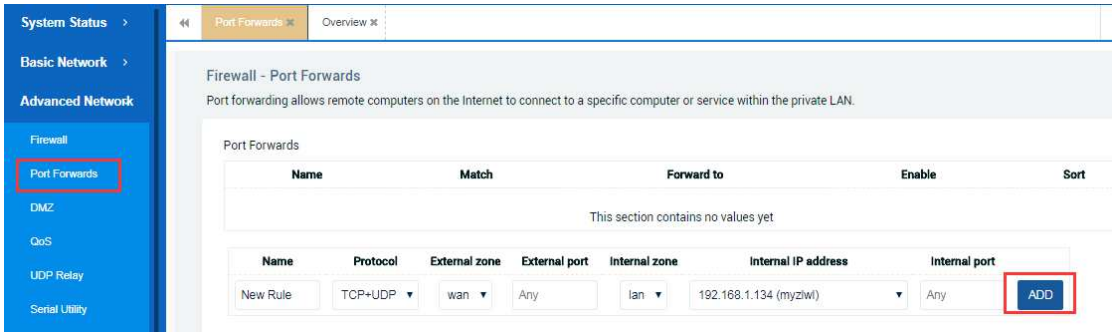
2.3.1.3 Custom Rules

For this section,you can do some other firewall rule configurations by writing a script if you are not a newbie. But if you don't have any ideas with this, please just keep it unchanged to avoid unnecessary troubles.

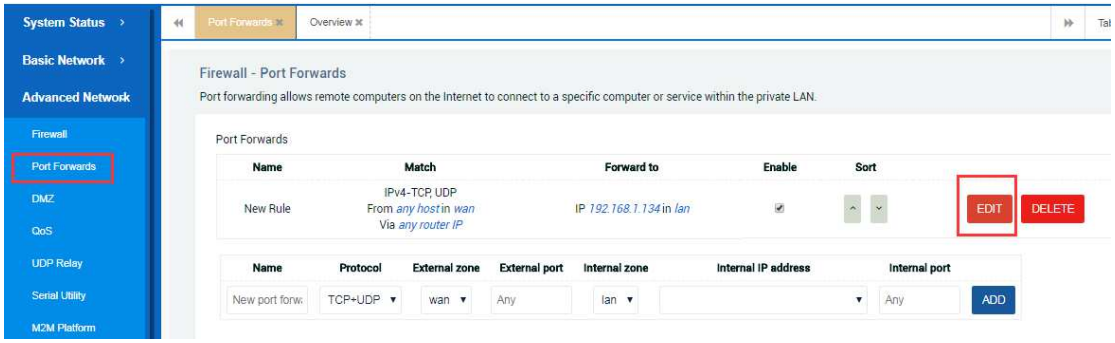


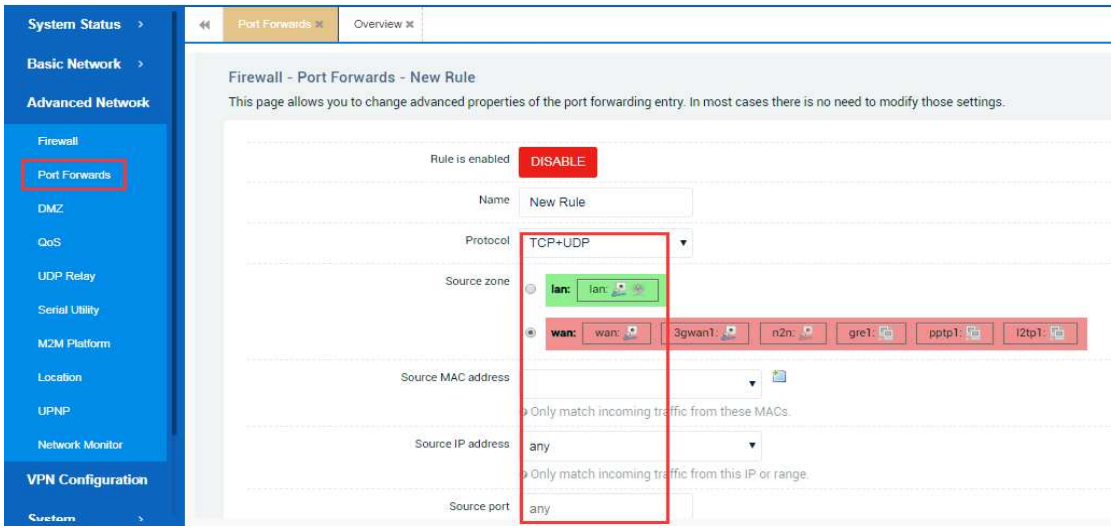
2.3.2 Port Farwards

For this section ,you can freely add some port forwarding rules as you want. Port forwarding allows remote computers on the Internet to connect to a specific computer or service within the private LAN.



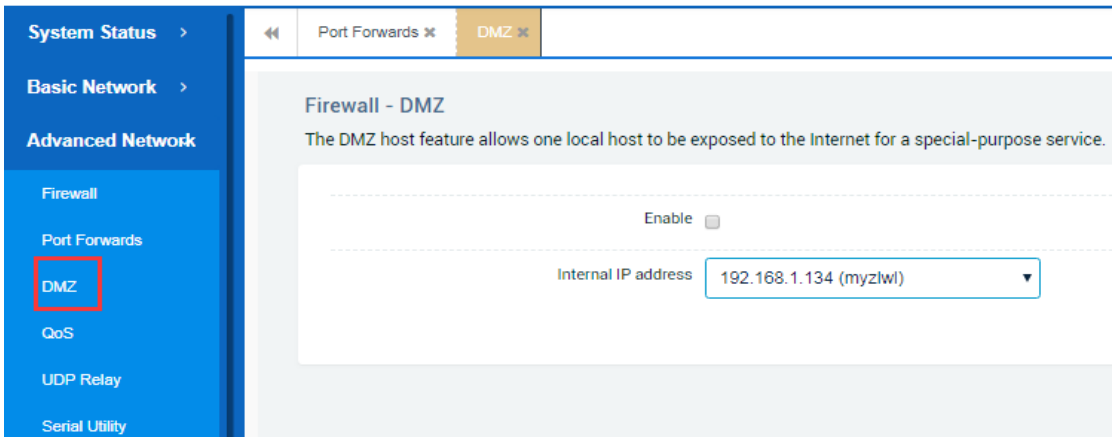
Of course, you can do some more detailed configuration when you add the forwarding rule and select the EDIT button.Here is an example for users.





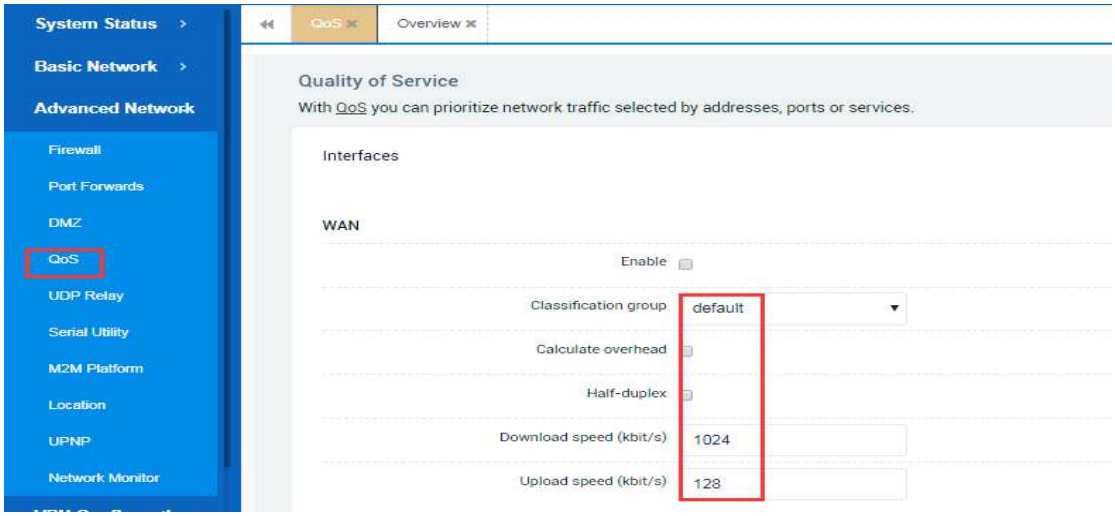
2.3.3 DMZ

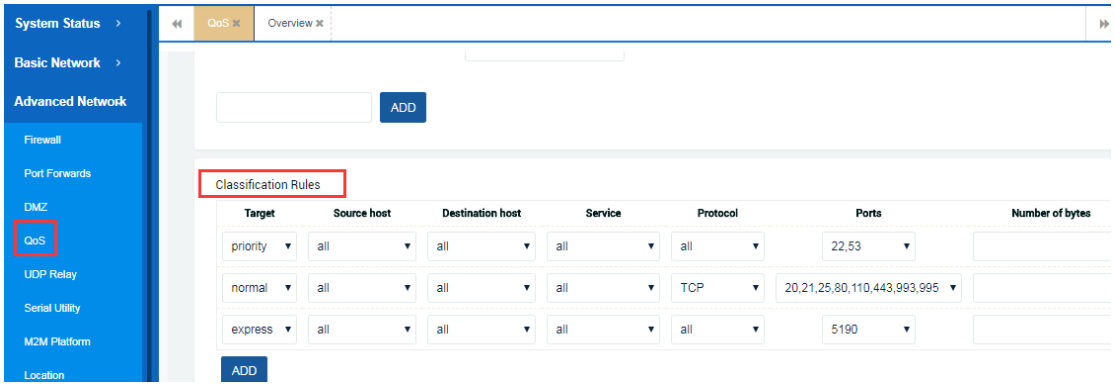
For this section, you can do some DMZ configuration.The DMZ host feature allows one local host to be exposed to the Internet for a special-purpose service.



2.3.4 QoS

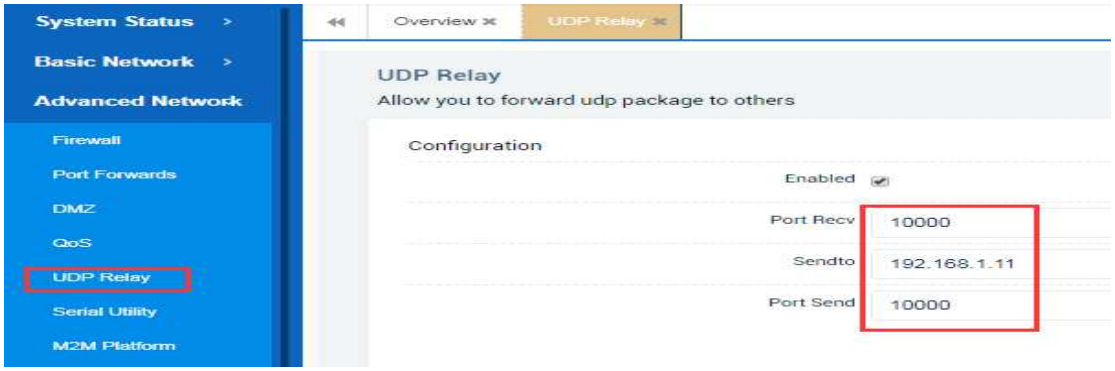
With QoS you can prioritize network traffic selected by addresses, ports or services. For this section, you still can do some host interface download/upload speed limit rules and other more stringent classification rules.





2.3.5 UDP Relay

This function will allow you to forward udp package to other target network. You can do that like this.



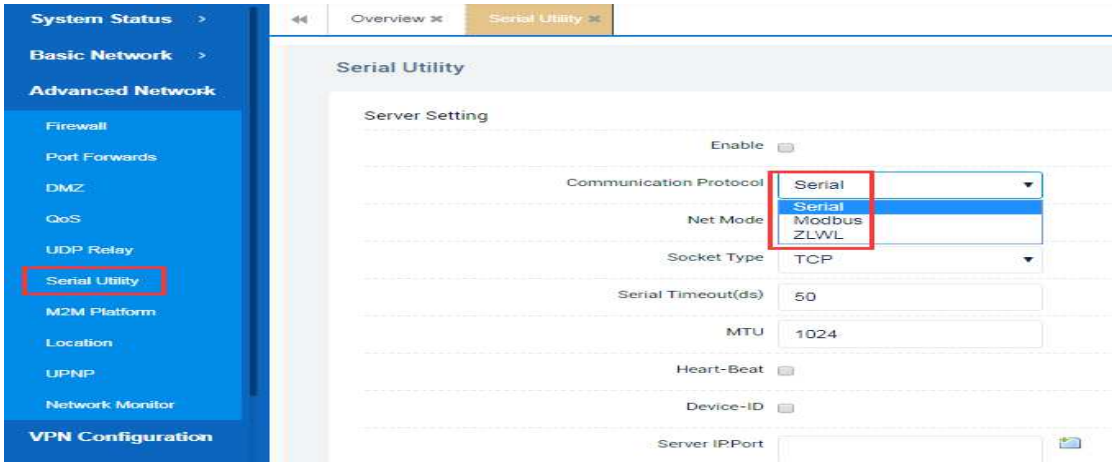
2.3.6 Serial Utility

For this part, you can do some serial-based application configuration, so that you can conveniently transmit some collected data from the 232/485 serial devices connected to the router by a 232/485 serial cable to the remote central data server

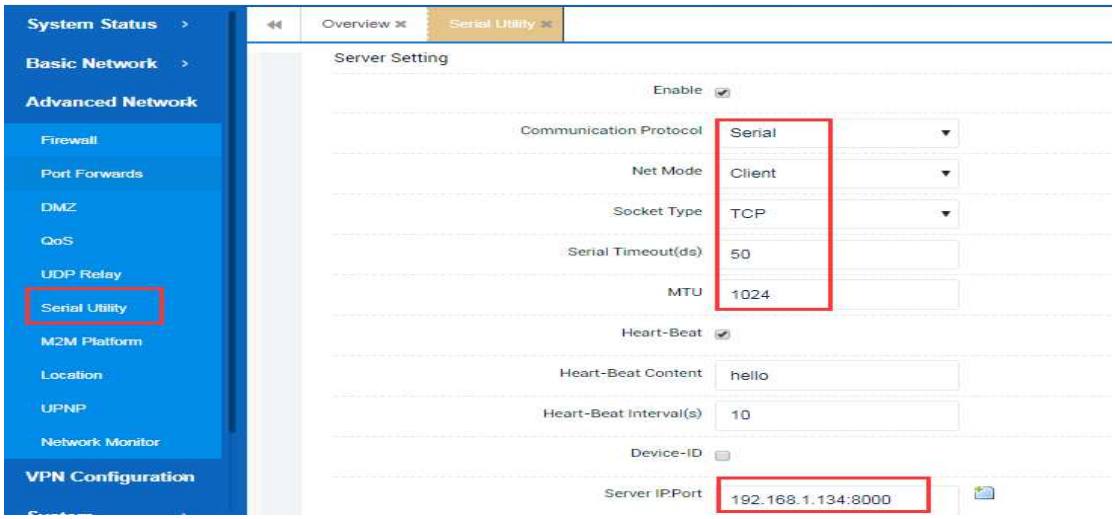
in real time. This is a transparent transmission function which is similar to DTU.

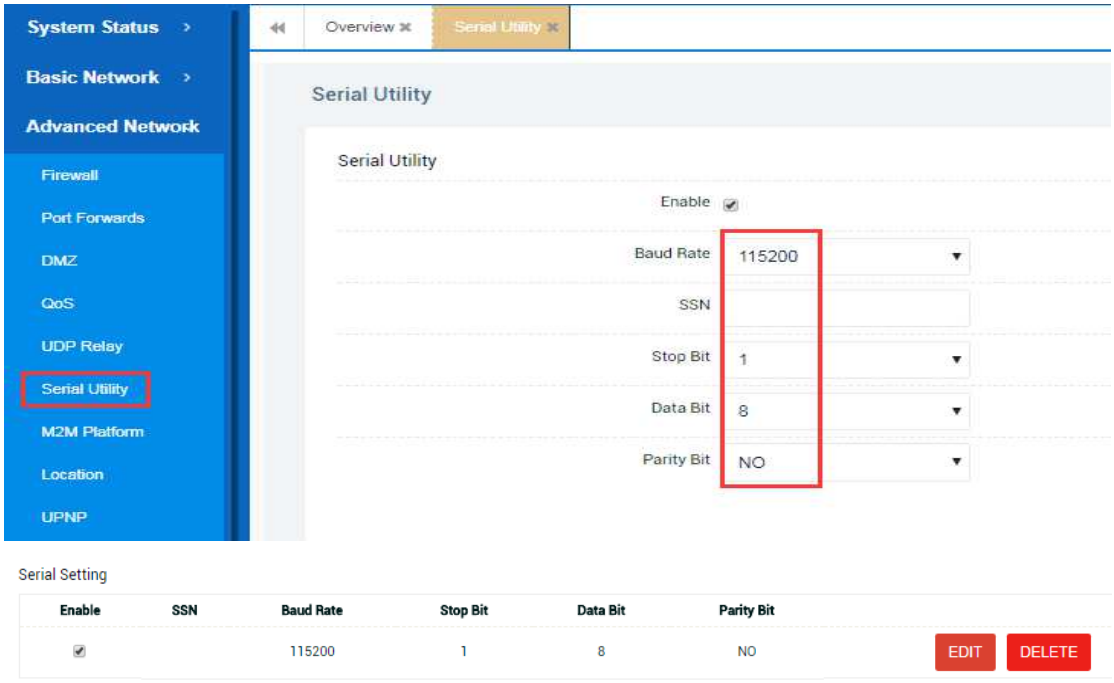
For serial utility, there are three data transmission modes for you to choose. The serial mode is a most commonly used by using transparent transmission. The second transmission mode--Modbus, is a transmission control protocol based on modbus devices. If you happen to have such an equipment, you can try to use this method.

Lastly, the ZLWL protocol is our company's custom protocol transmission, it contains some specific data formats. If you want to use this method to ensure that your data transmission is more private and secure, you also need to use this protocol data format to modify and improve your data server so that it can correctly identify and resolve the data.



Now i'll give you a configuration example for serial protocol for 232/485 serial devices. First of all, you need to select the TCP/UDP transmission type and configure the IP address of center data server or configure some heartbeat packets which can effectively detect whether the serial client and data server are connected properly in real time. Here are the configurations as follows.





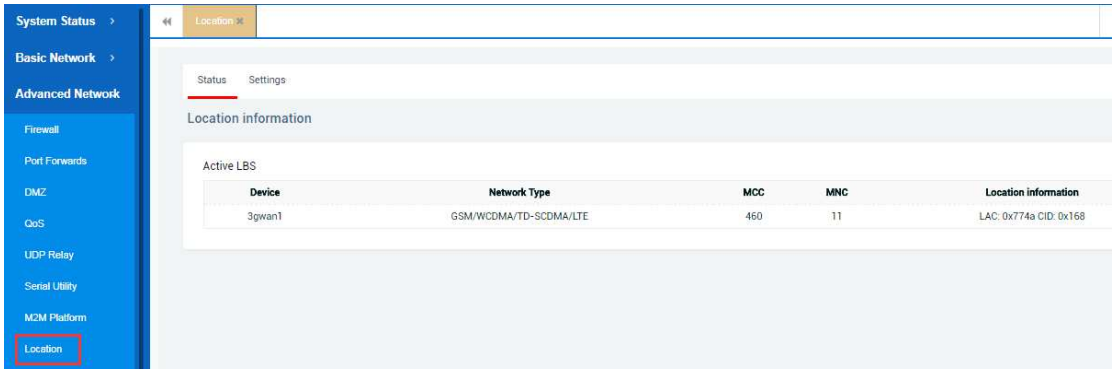
2.3.7 M2M Platform - optionally

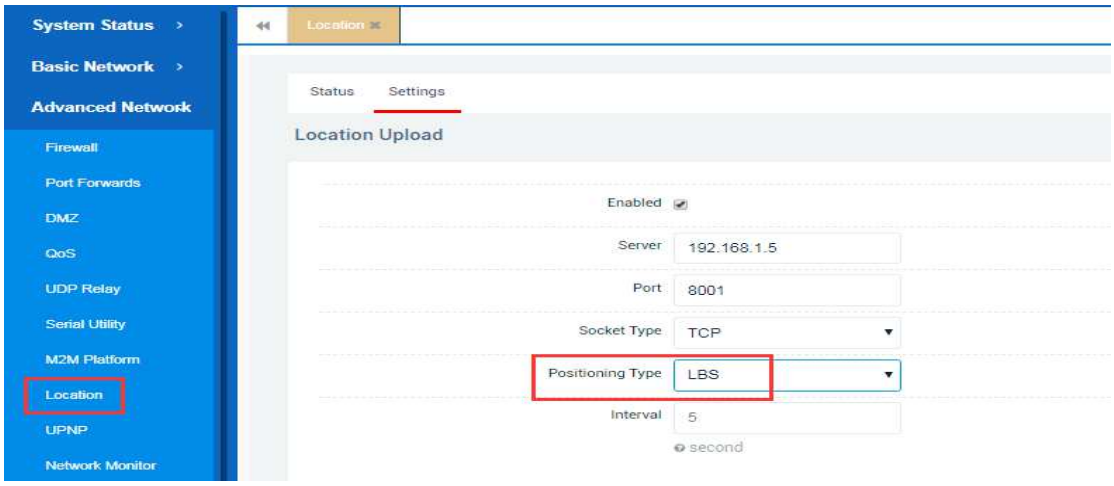
For this section, you can turn on the platform management function to put the router device on the M2M platform server. In this way, you can remotely view some network operating status of the your router and do some basic configurations remotely in real time in any place where there is a network through a mobile phone, ipad or computer.

2.3.8 Location

Here we provide LBS-based location service function. You can not only view the current location information of the router device, but also can transfer it to the remote LBS server in real time by correctly configuring the server address and port number.

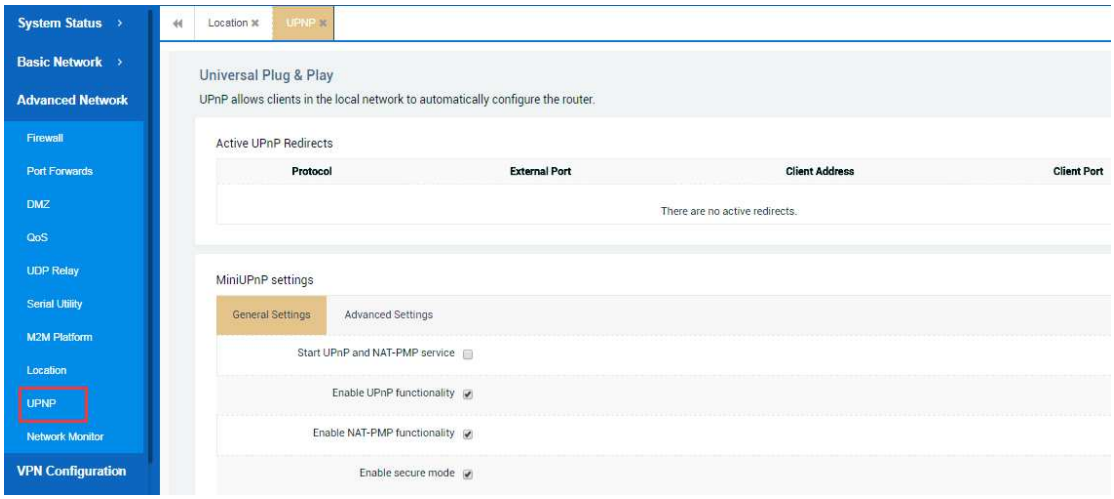
It should be noted that at present, we have only adapted our LBS positioning services for some specific communication modules,such as series module of SLM 730. As for GPS function, it is not yet completed. We will add and improve this function later. For LBS feature , it can be configured like below.





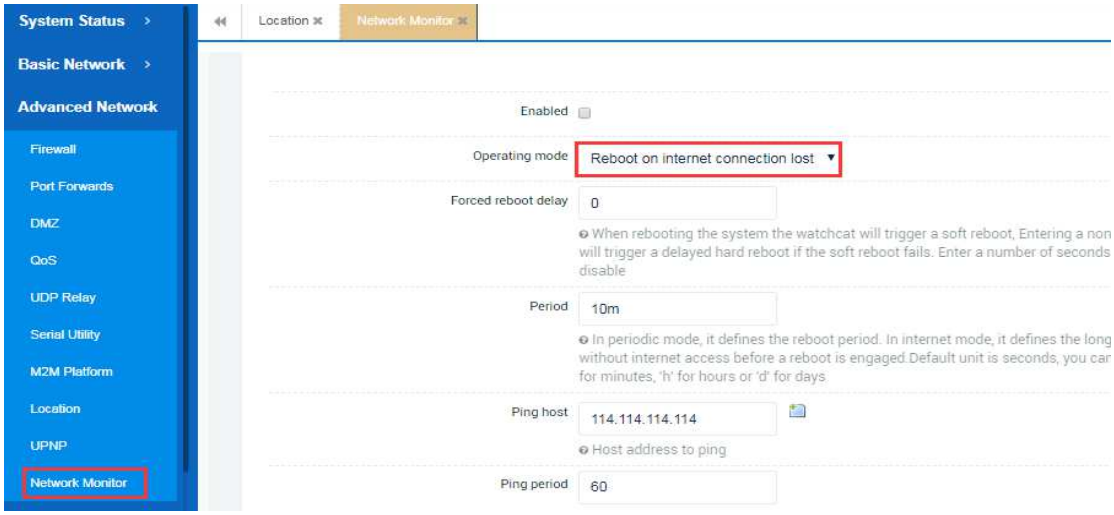
2.3.9 UPNP

As we know, UPnP allows clients in the local network to automatically configure the router. As this feature is not commonly used, so just keep the default configuration.

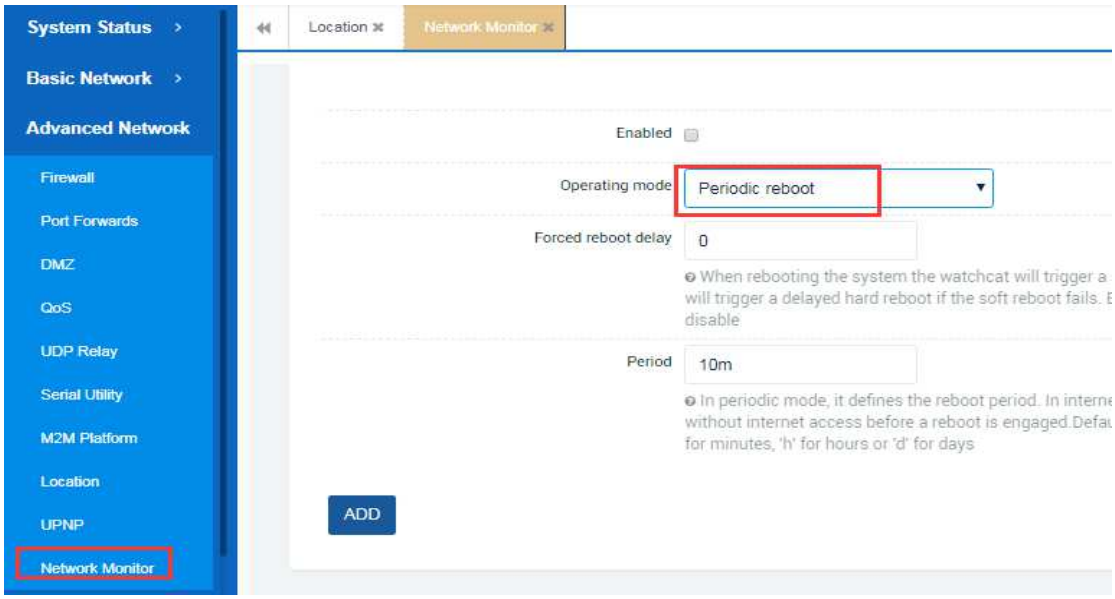


2.3.10 Network Monitor

For this section, we'll talk about the network monitoring feature that has two detection methods. One way is that it allows the router to periodically ping and check the destination ip address whether its network is normal or not. When reaching the specified ping period and the error occurs, the device will reboot.



Another way is that the router device will periodically reboot according to your specific configuration.



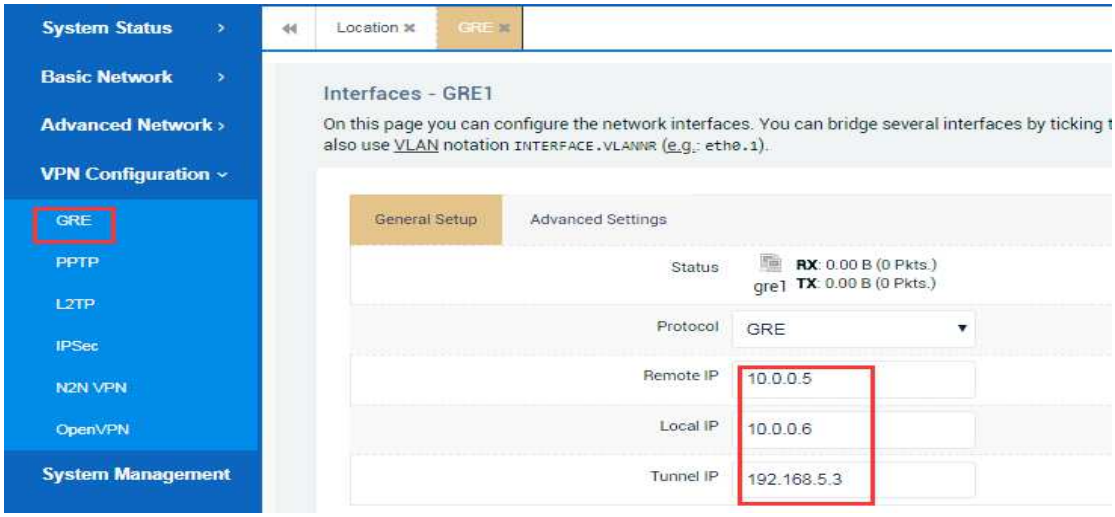
2.4 VPN configuration

In this section, we will continue to discuss some of the common VPN scenario configurations used on the router device, such as GRE,PPTP/L2TP VPN/IPSEC/N2N /OPEN VPN.

2.4.1 GRE

For this part, you can do some configuration by clicking the EDIT button , it

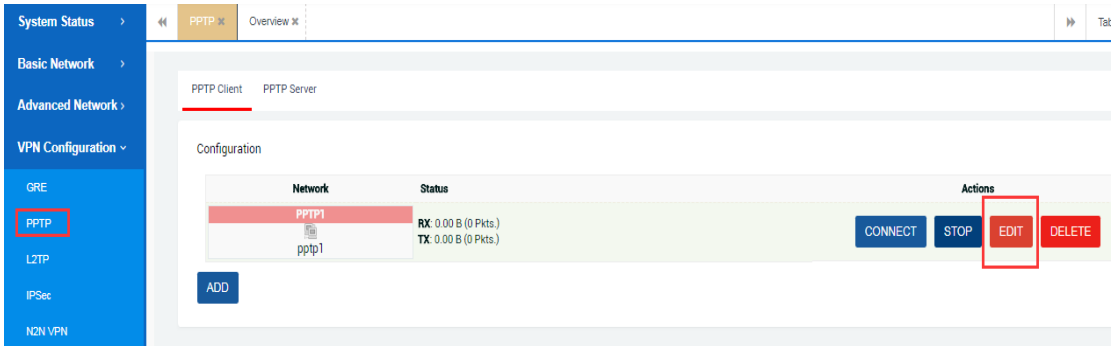
sometimes like this figures below.

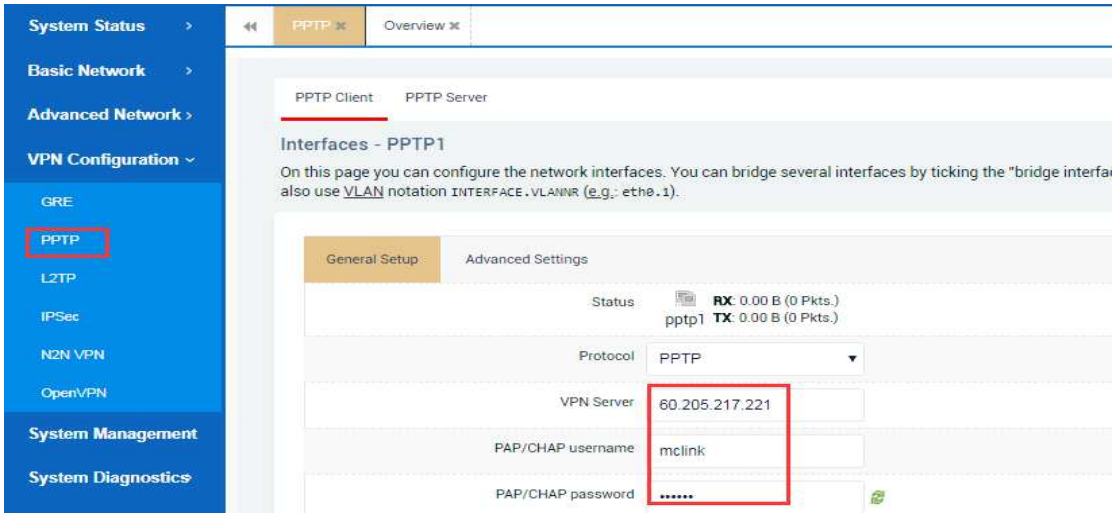


2.4.2 PPTP

For this part, if you want to use the PPTP VPN feature, you must first have a remote server with a public IP address and have already set up the routing and remote access role. The server system can be windows sever or it can be based on linux. Secondly, you need to create some user accounts for connecting to the server later .

And now you can do some detailed configurations by clicking the EDIT button. And the configurations should include VPN sever,PAP/CHAP Username,PAP/CHAP Password. After saving them, you'll soon see the router itself successfully connect to the remote VPN Server.

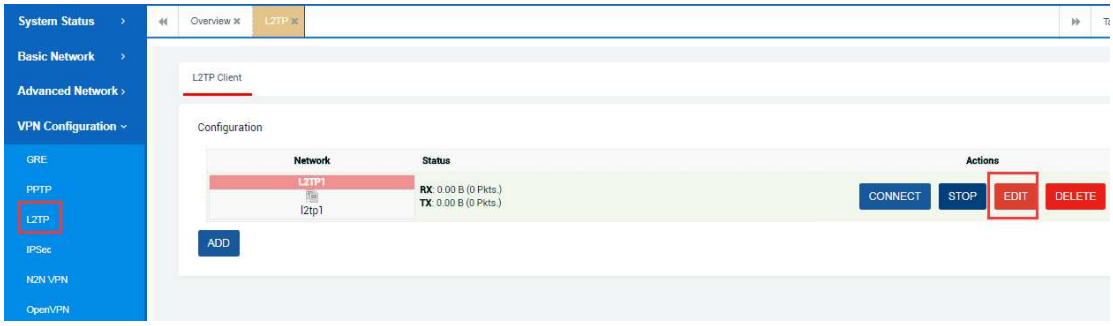


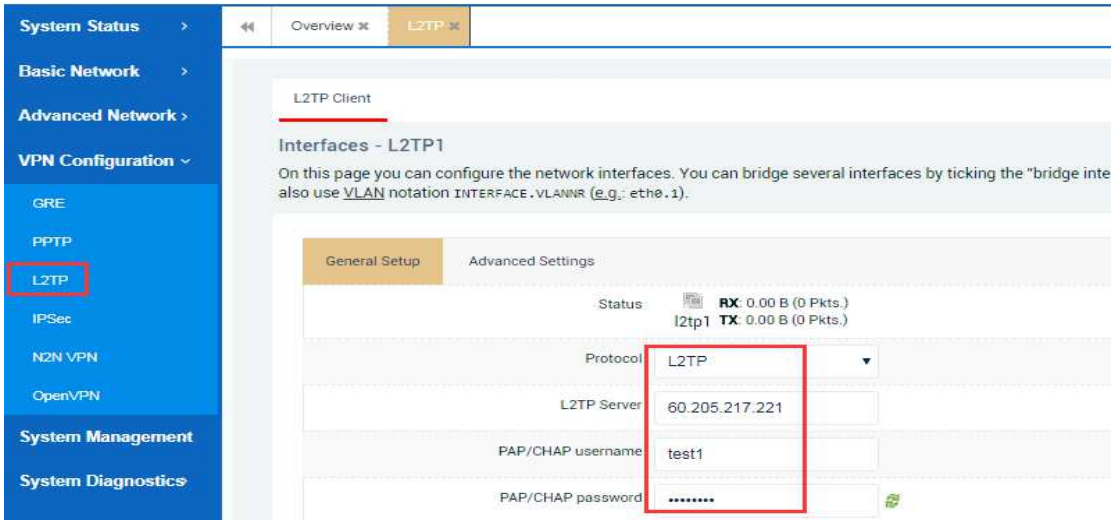


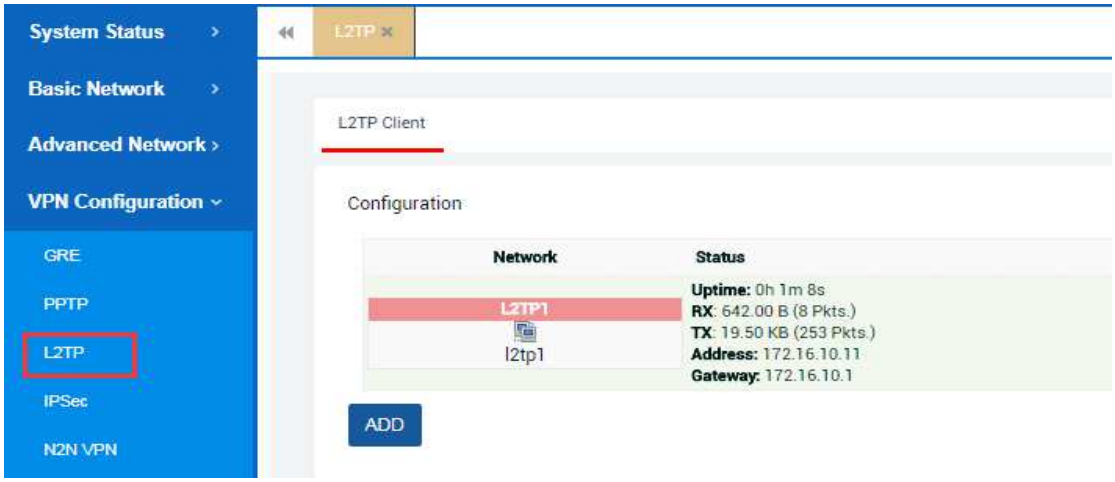
2.4.3 L2TP

For this part, if you want to use the L2TP VPN feature, you also must first have a remote server with a public IP address and have already set up the routing and remote access role.The server system can be windows sever or it can be based on linux. Secondly, you need to create some user accounts for connecting to the server later .

And now you can do some detailed configurations by clicking the EDIT button. And the configurations should include VPN sever,PAP/CHAP Username,PAP/CHAP Password. After saving them, you'll soon see the router itself successfully connect to the remote VPN Server.



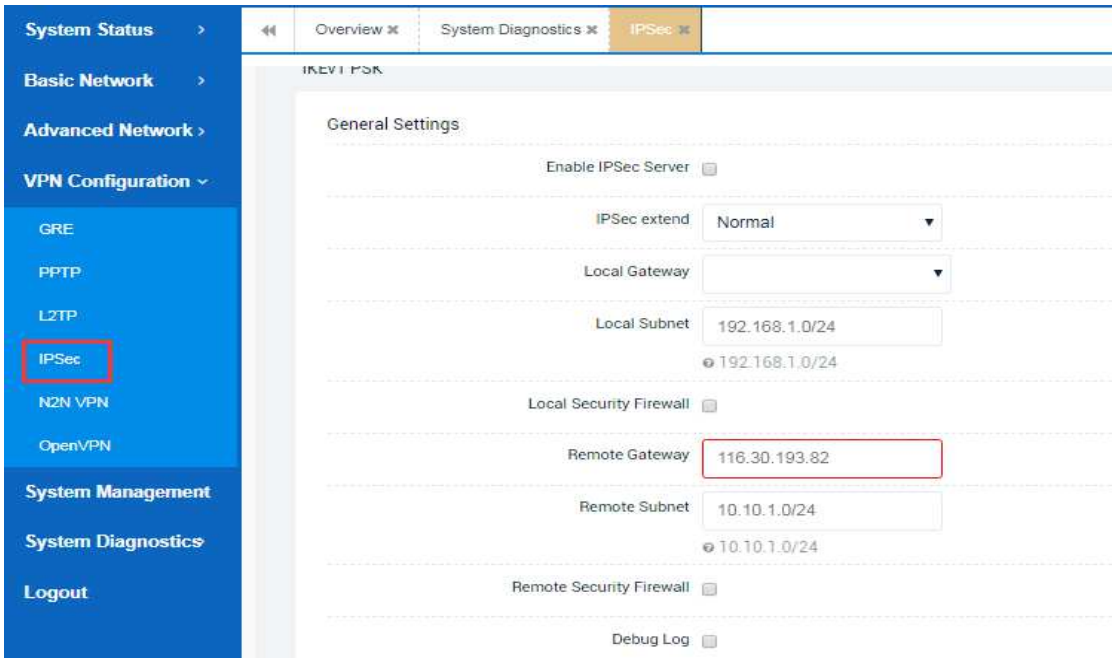




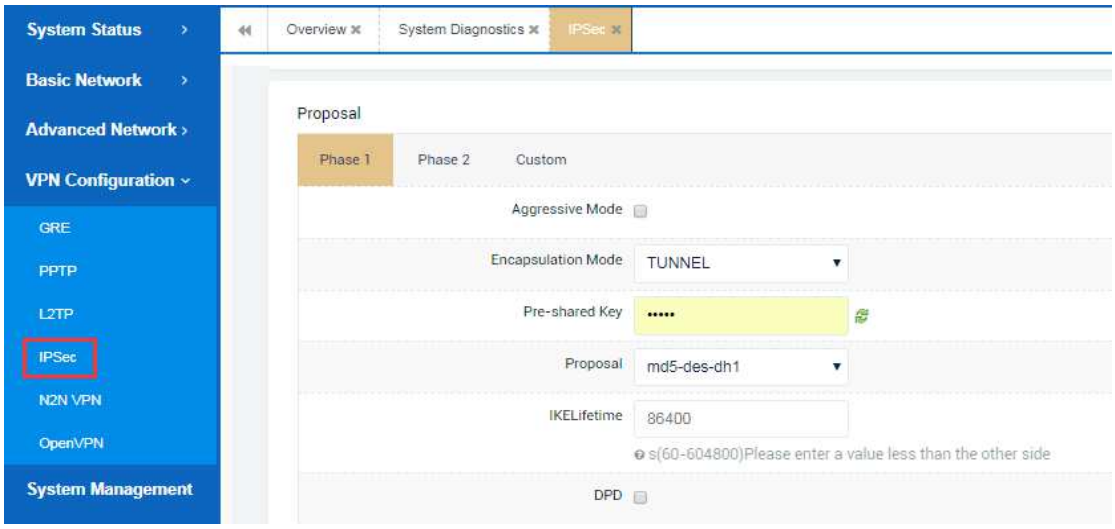
2.4.4 IPSEC

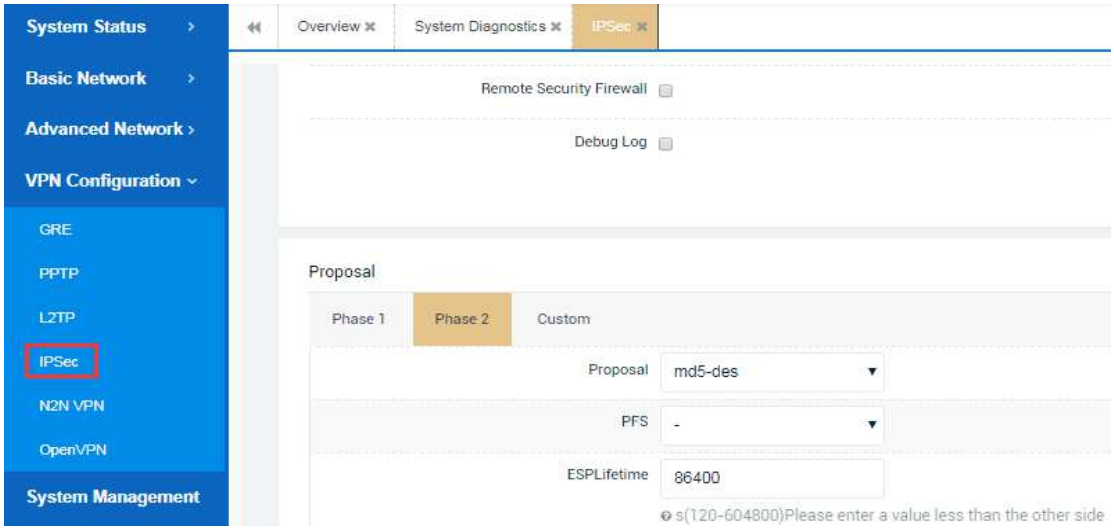
For this part, if you want to use the IPsec VPN feature, you must first have a remote server with a public IP address. And then you need to do two aspects of configuration ensure that it corresponds to the server.

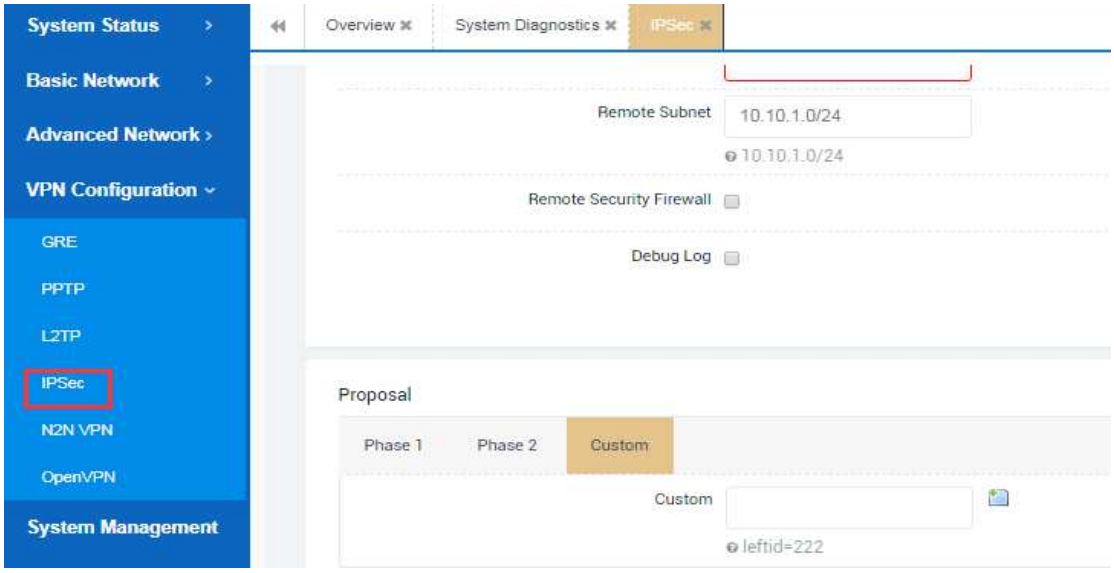
First of all, you should make the General settings including the Local /Remote gateway ip address, Local/Remote subnet.

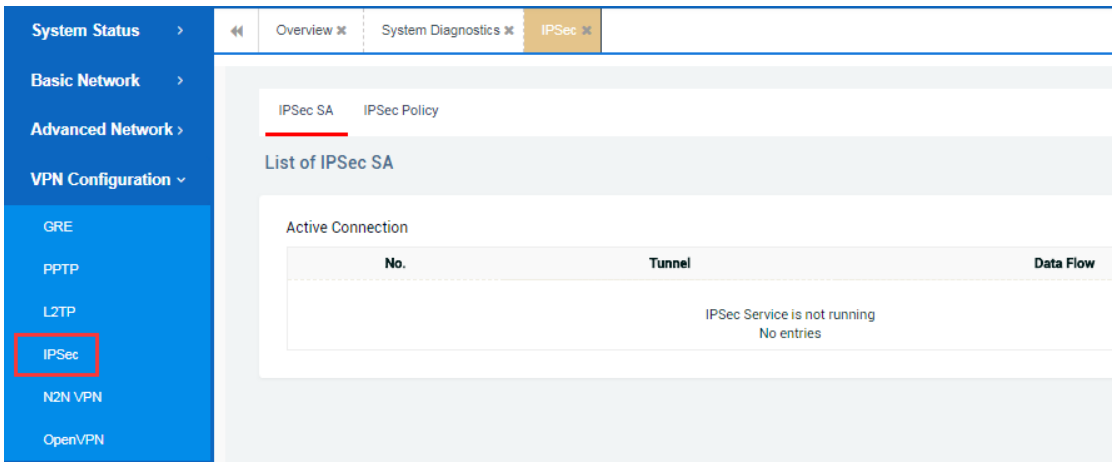


Secondly, You need to configure the phase 1, phase 2 protocol authentication parameters and do some custom parameters if necessary. All this will then allow you to quickly and correctly connect to a remote server.



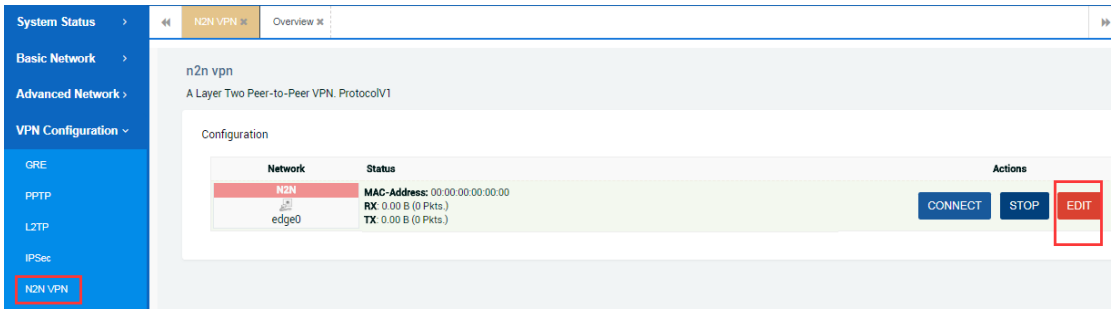

System Status
Basic Network
Advanced Network
VPN Configuration
GRE
PPTP
L2TP
IPSec
N2N VPN
OpenVPN
System Management
Overview
System Diagnostics
IPSec
Remote Security Firewall
Debug Log
Proposal
Phase 1
Phase 2
Custom
Proposal
md5-des
PFS
-
ESPLifetime
86400
s(120-604800)Please enter a value less than the other side

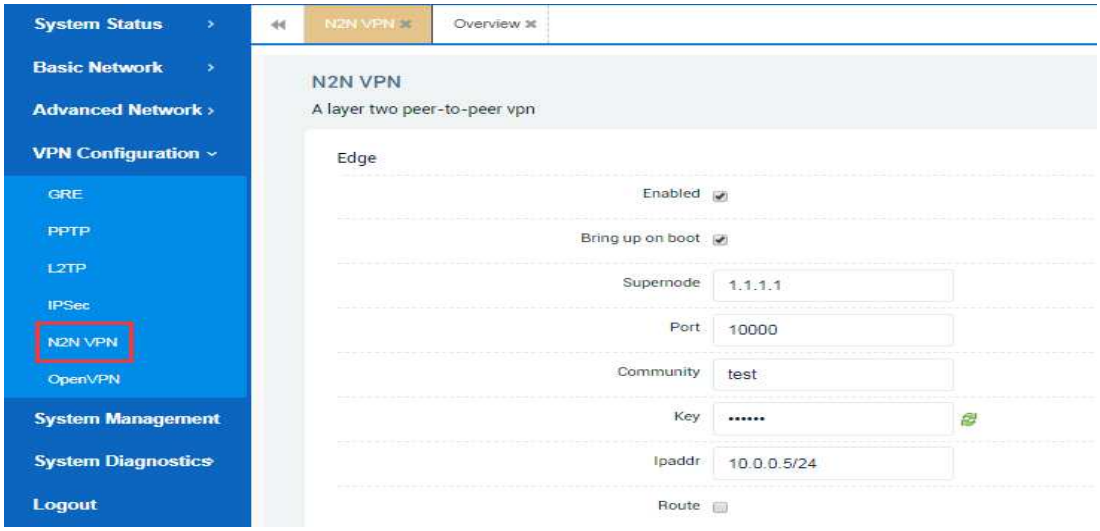

System Status
Basic Network
Advanced Network
VPN Configuration
GRE
PPTP
L2TP
IPSec
N2N VPN
OpenVPN
System Management
Overview
System Diagnostics
IPSec
Remote Subnet
10.10.1.0/24
10.10.1.0/24
Remote Security Firewall
Debug Log
Proposal
Phase 1
Phase 2
Custom
Custom
leftid=222


System Status
Basic Network
Advanced Network
VPN Configuration
GRE
PPTP
L2TP
IPSec
N2N VPN
OpenVPN
Overview
System Diagnostics
IPSec
IPSec SA
IPSec Policy
List of IPSec SA
Active Connection
No.
Tunnel
Data Flow
IPSec Service is not running
No entries

2.4.5 N2N VPN

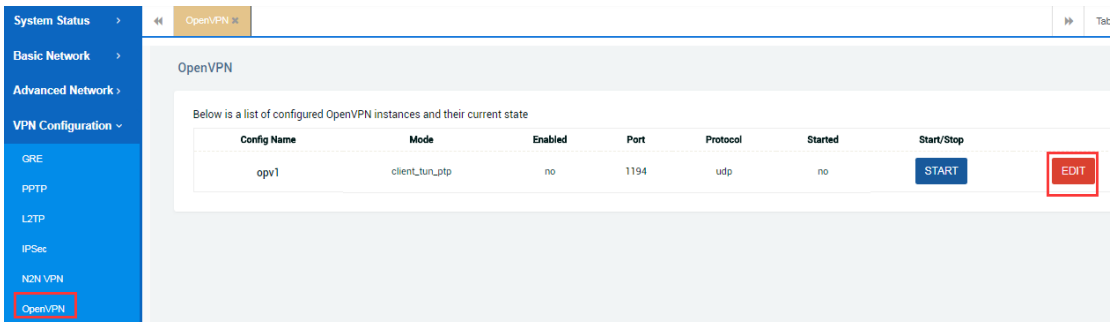
For this part, if you want to use the N2N VPN feature, you must first have a remote server called supernode with a public IP address and have opened the corresponding service port. Secondly, you need to create some user accounts for connecting to the server later . What will be configured like below.

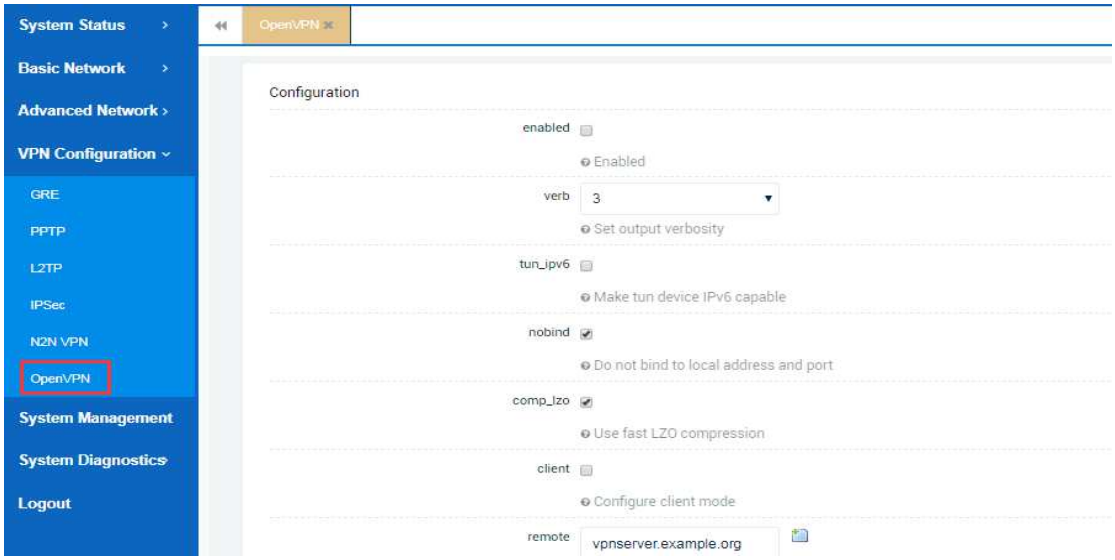




2.4.6 Open VPN

For this part, if you want to use the Open VPN feature, you also must first have a remote server with a public IP address and have opened the corresponding service port. Secondly, you need to create some client certificates such as cert certificates, key certificates, and CA certificates for users account to connect to the server later.

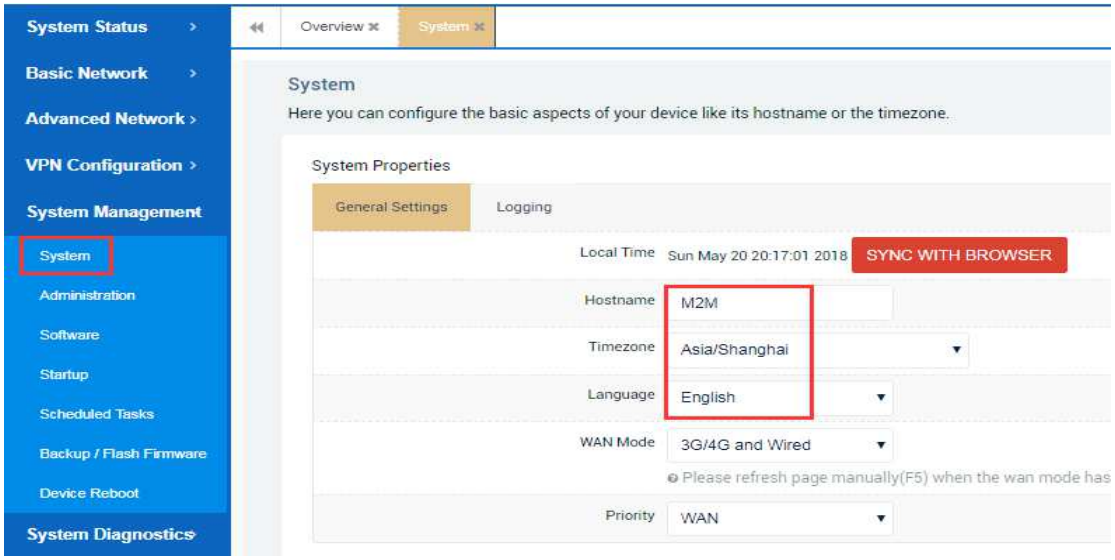




2.5 System management

2.5.1.1 General settings

For this part, you can do some general system configuration including router host name, world time zone, system language(Chinese or English), wan mode configuration, etc. The following are as follows.

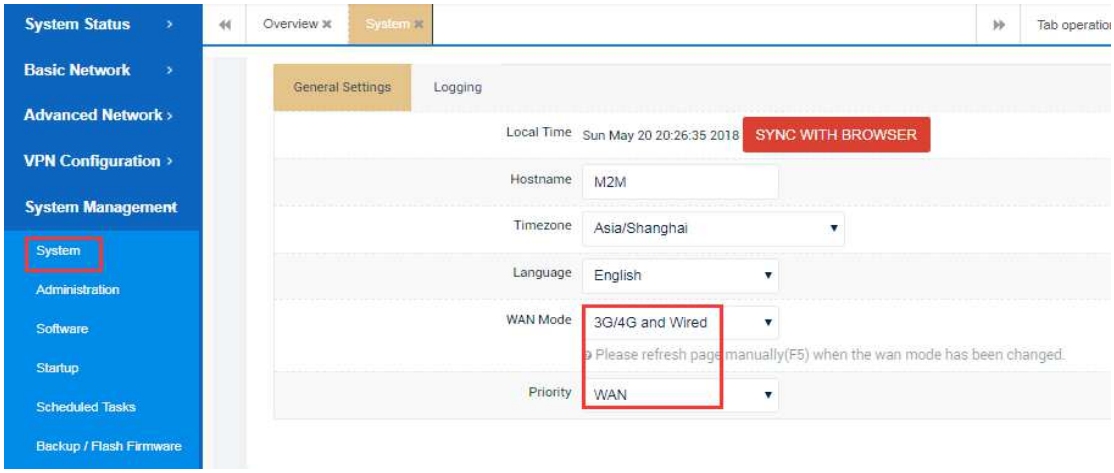


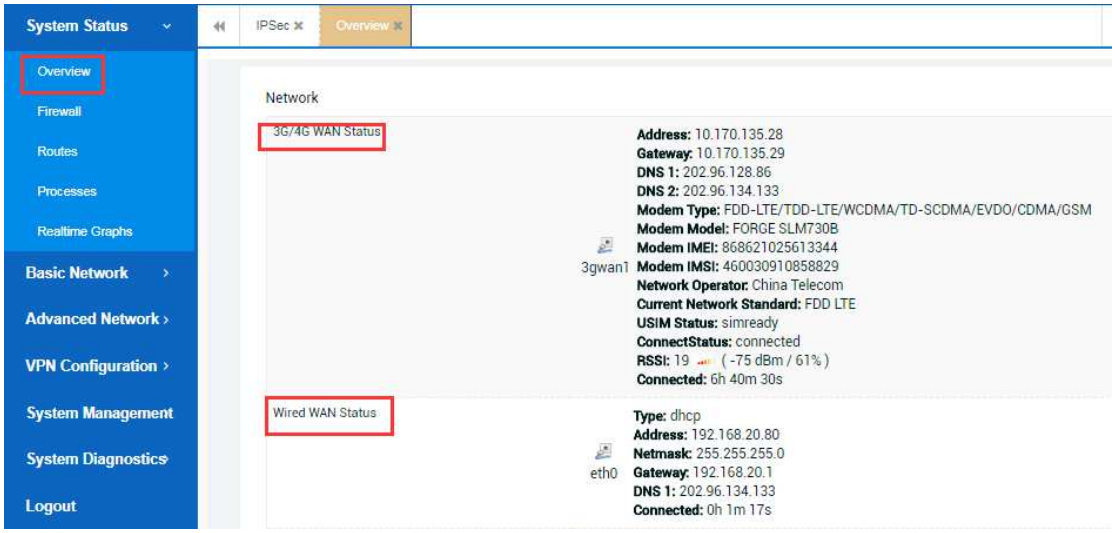
2.5.1.2 Wired and 3G /4G for wan mode

When talking about this part, we know that device system is configured with a 3G/4G and wired mode by default. Namely it supports both wired and 3G/4G dial-up modes, but there is a priority setting:WAN primary or 3GWAN1 primary.

When the router is connected to both wired and 3G/4G network, if you also choose the WAN primary, then all incoming and outgoing traffic to the device will first go through the WAN interface until the wired cable network fails. Afterwards all incoming and outgoing traffic will automatically switch to the 3G/4G interface .

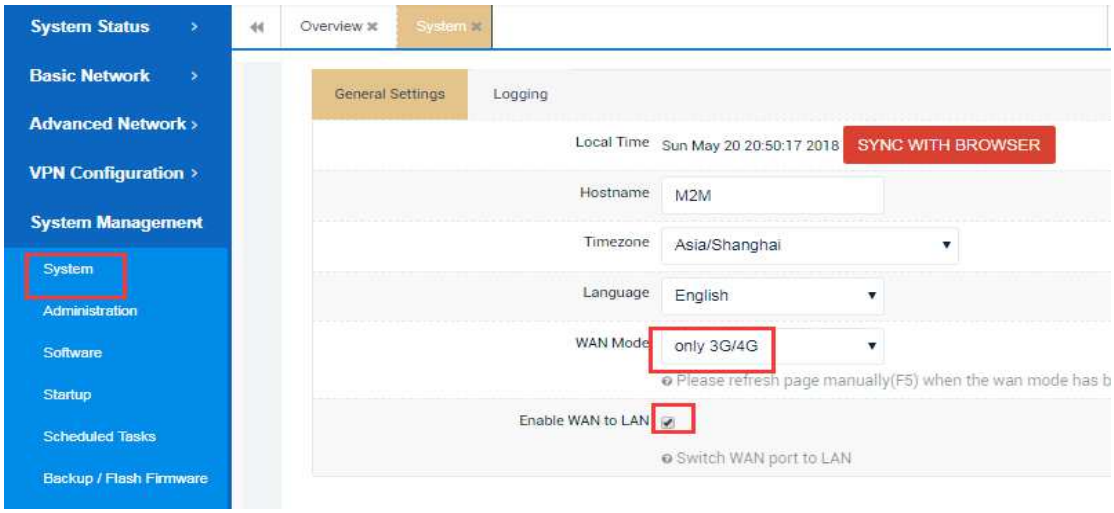
When you choose the 3GWAN1 primary, then all incoming and outgoing traffic to the device will first go through the 3GWAN1 interface until the 3GWAN1 network fails. Afterwards all incoming and outgoing traffic will automatically switch to the WAN interface . For above, you can configure and check the router status like below.

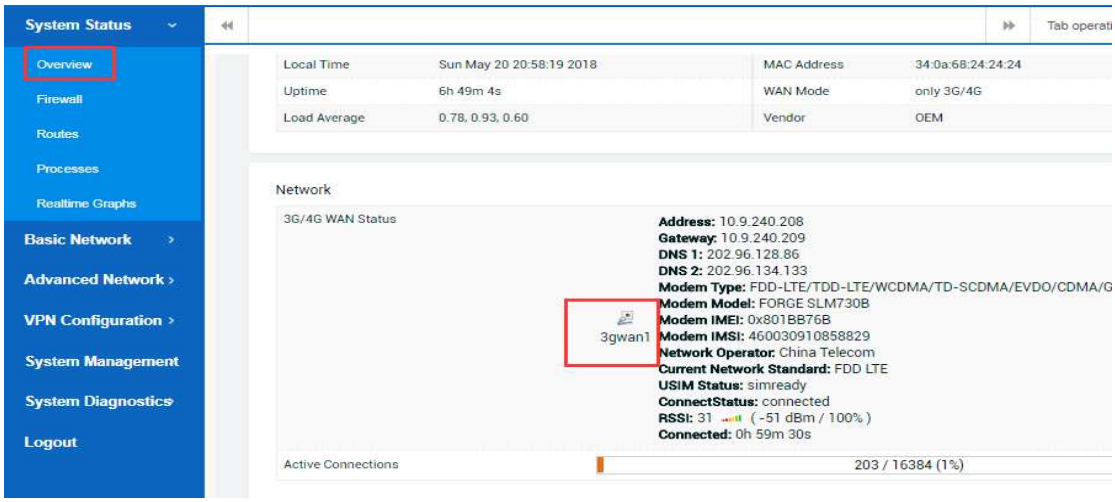




2.5.1.3 3G/4G for wan mode

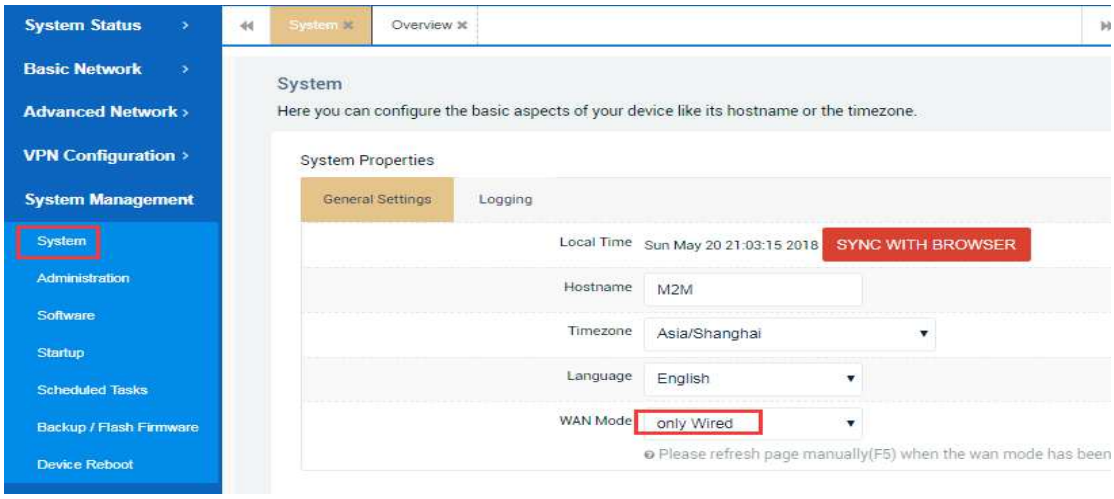
For this part , you can also set only 3G/4G for wan mode and meanwhile enable WAN to LAN by choosing it. After saving the configuration, you should refresh the whole page to make it works and the router will have two LAN ports for you to use. It's worth explaining that at this time your router can only get a 3G/4G network even if you have put a wired cable network to the WAN port of the router .The example is as follows.

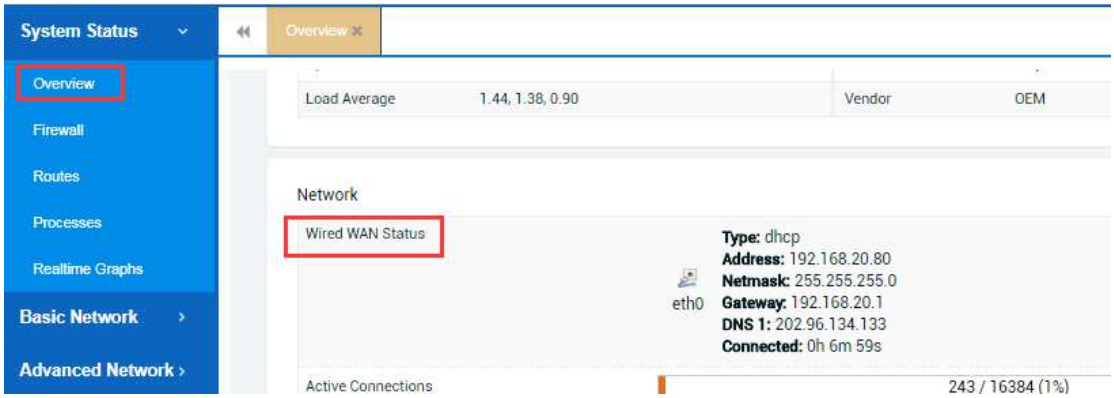




2.5.1.4 Wired for wan mode

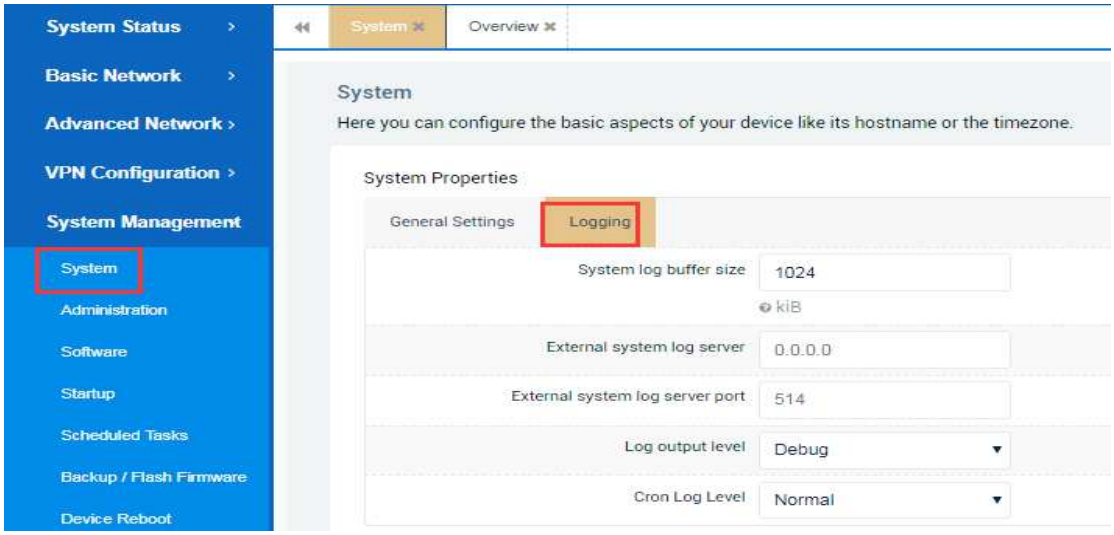
For this part , you can just set only wired for wan mode. After saving the configuration ,please refresh the whole page to make it works. It's worth explaining that at this time your router can only get a wired network even if you have insert a SIM card to the router . The example is as follows.





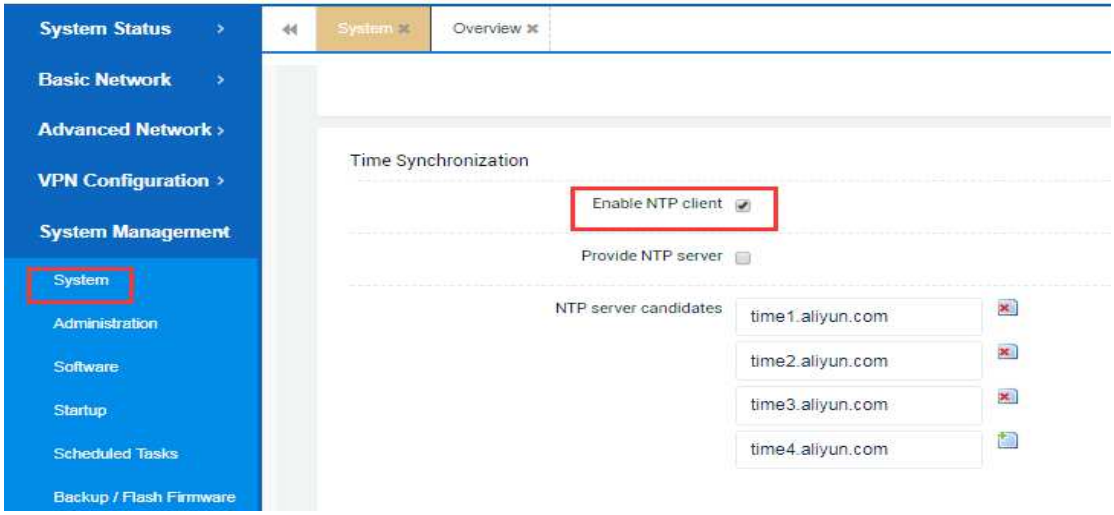
2.5.1.5 LOG information settings

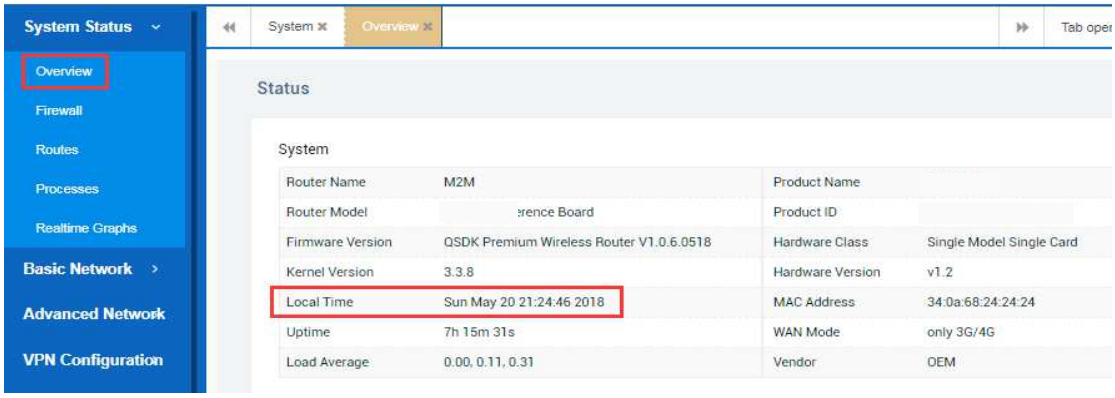
For this part, you can do some commonly used configurations of the log information including the log buffer size,external log server, log output level and cron log level . And for these configurations, keeping the default settings will be OK.



2.5.1.6 NTP settings

For this part,you can check some default configurations about the NTP service by setting which the router will synchronize its own system time to keep it consistent with network time after successfully dialing-up. There are four default NTP servers in the table and you can also change them to other NTP servers.

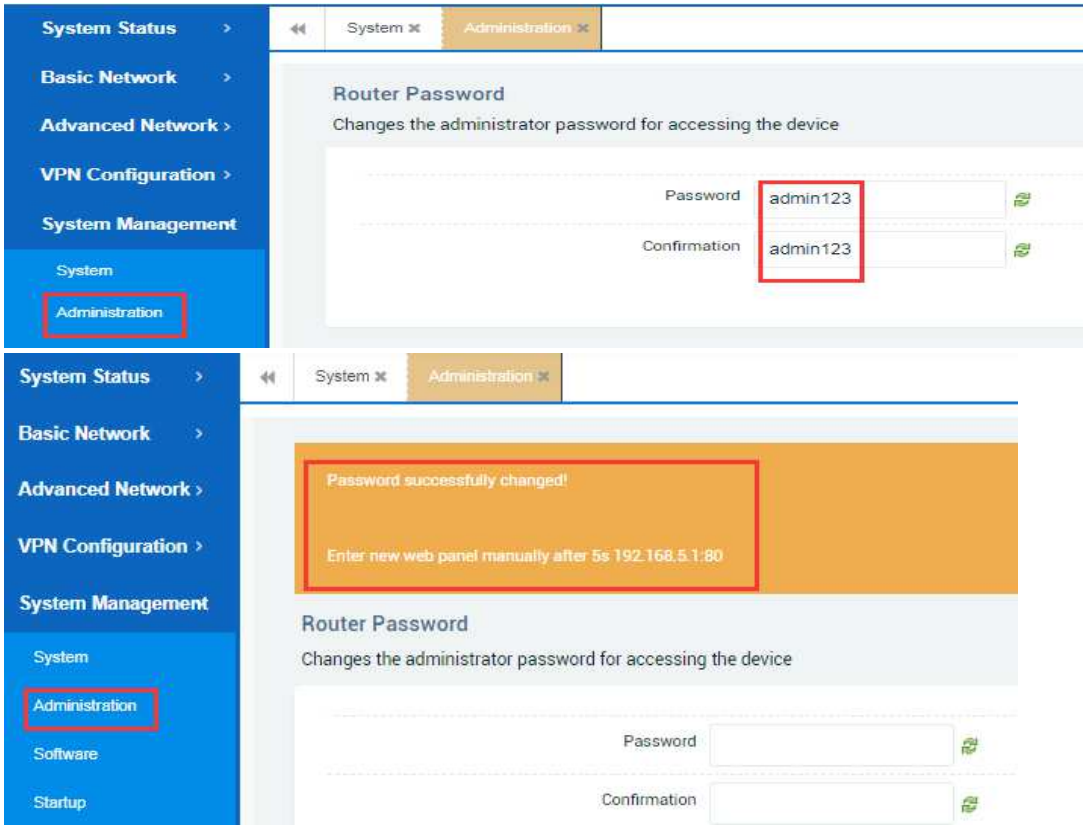




2.5.2 Administration

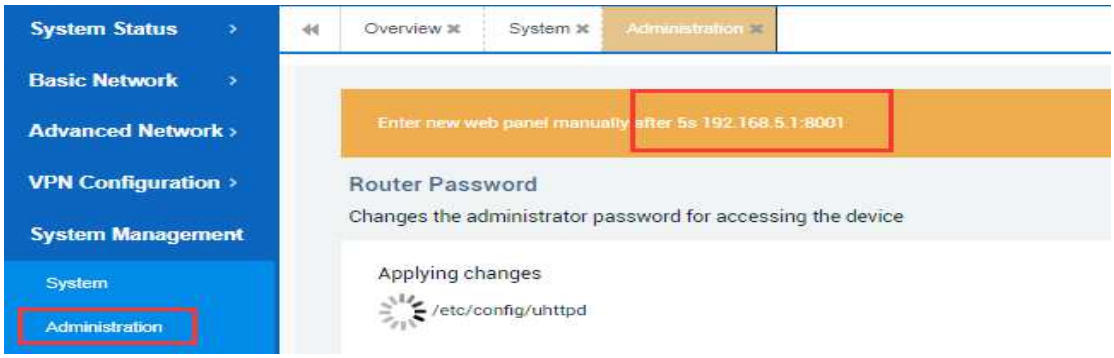
2.5.2.1 Router password setting

For this part, you can freely change the default password(username will be admin remain and can not be changed) for web login to the router. After saving the configuration,you'd better refresh the whole page and login to the router by using the changed password. All above is as follows.



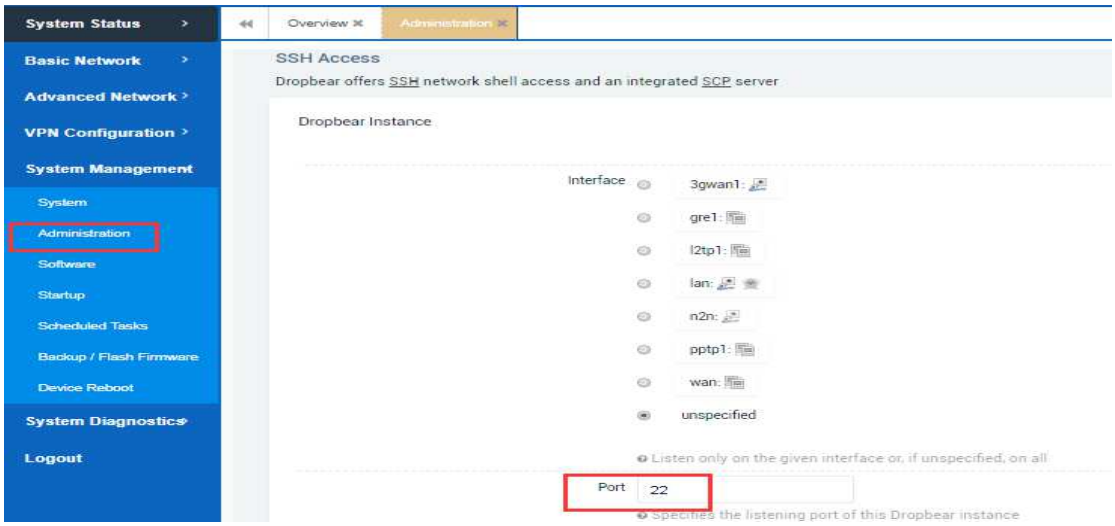
2.5.2.2 Web access setting

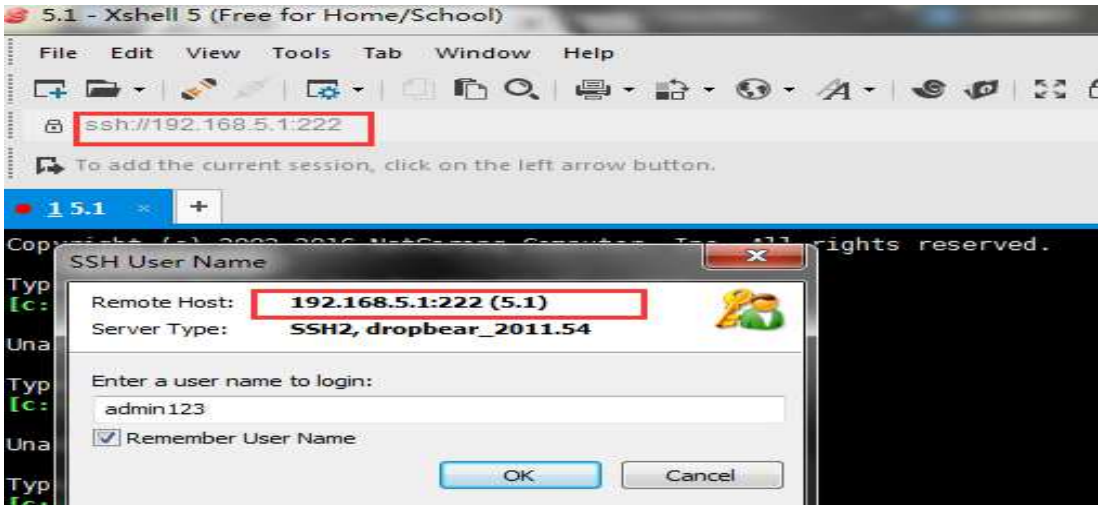
For this part, you can freely change the default web access port 80 to any other port unoccupied. After saving the configuration,you'd better refresh the whole page and login to the router by using the changed port . All above is as follows.



2.5.2.3 SSH access setting

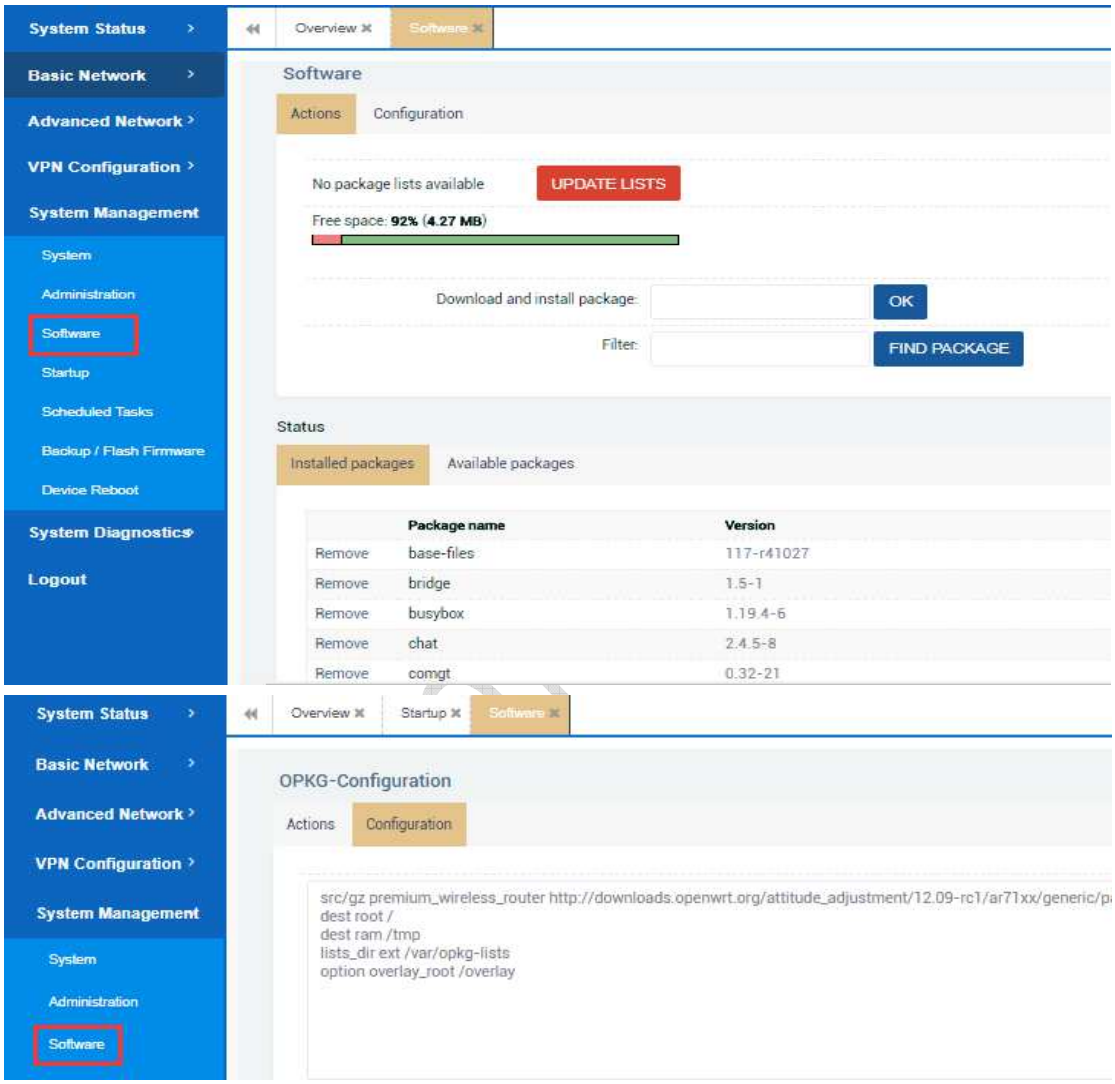
For this part, you can freely change the default SSH access port 22 to any other port unoccupied. After saving the configuration,you'd better refresh the whole page and make a new SSH access to the router by using the changed port . All above is as follows.





2.5.3 Software

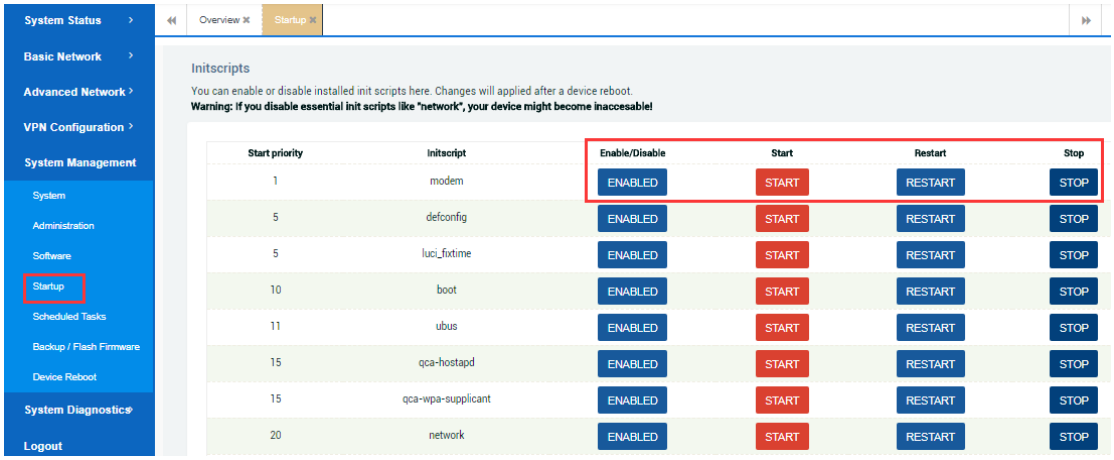
For this part,You can not only view the available memory space of the router, but also view the installed or available installation packages inside the router system. Besides, you can also do some extra configurations by using some shell scripts.



2.5.4 Startup

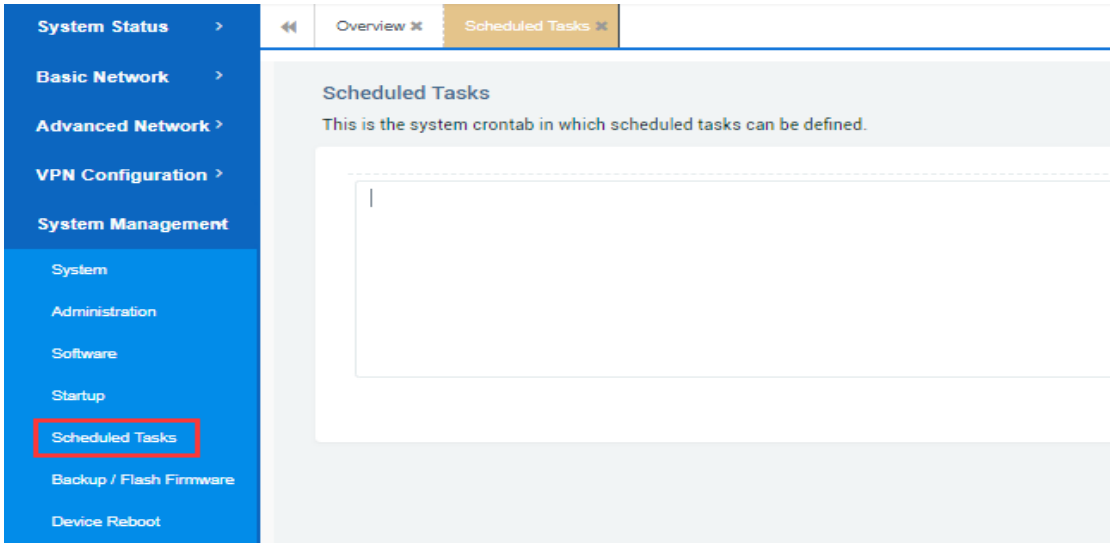
For this part, you can enable or disable installed init scripts here. Changes will applied after a device reboot.

There are some important Warnings like this: If you disable essential init scripts like "network", your device might become inaccesable!



2.5.5 Scheduled Tasks

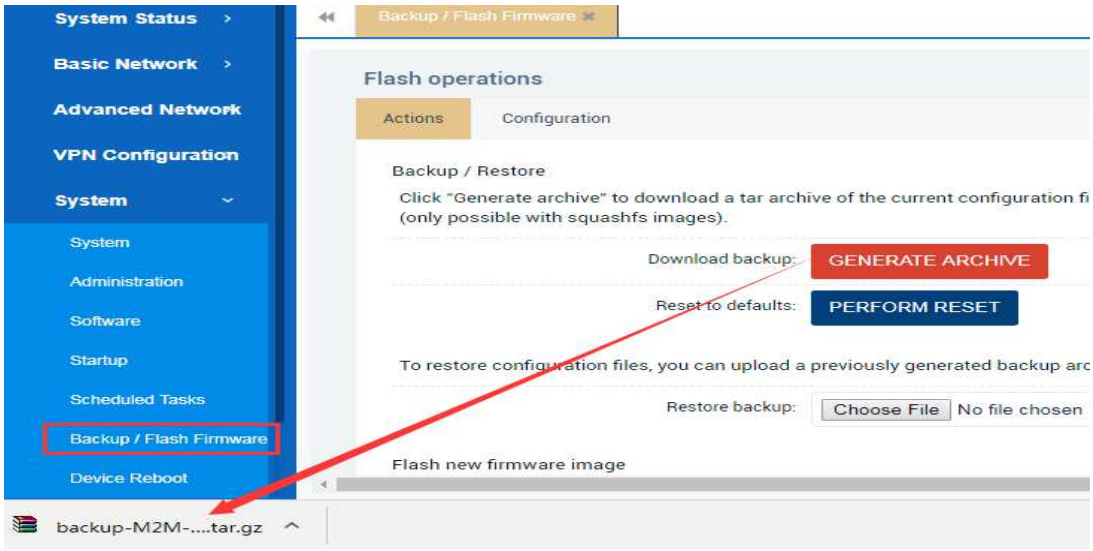
For this part ,this is the system crontab in which scheduled tasks can be defined by users.



2.5.6 Backup/Flush Firmware

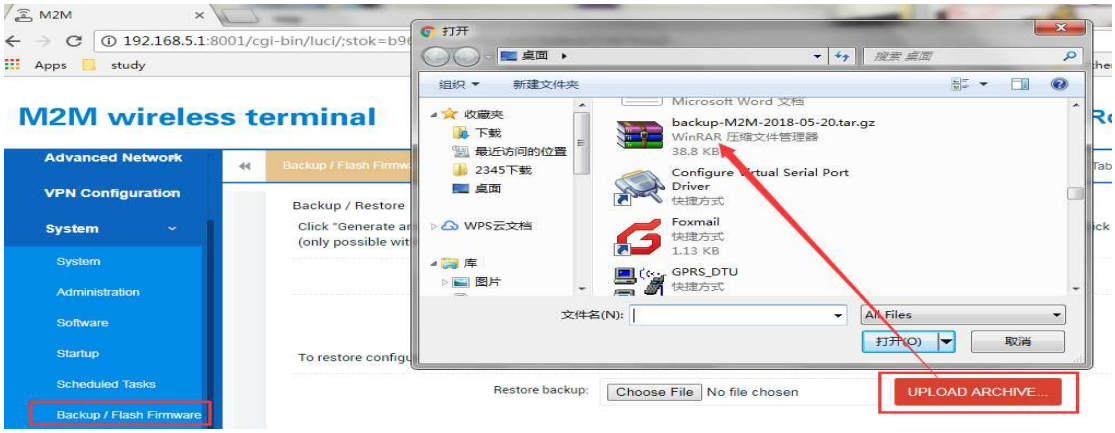
2.5.6.1 Generate Archive

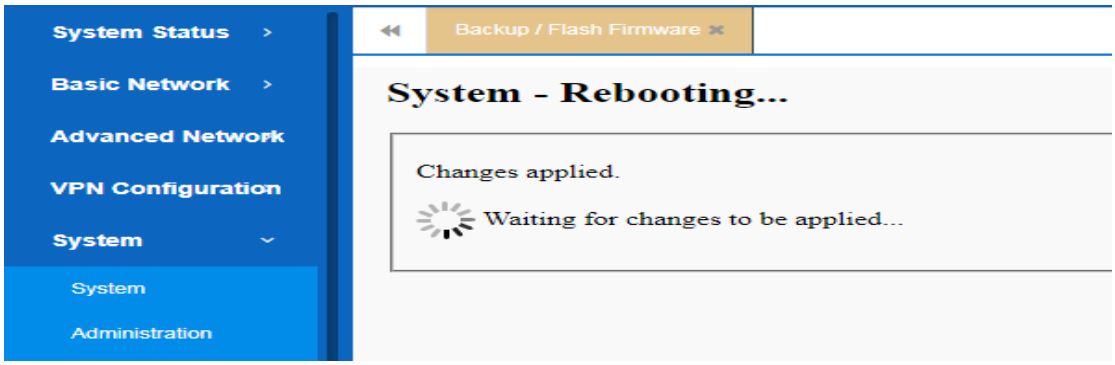
For this part, you can download some of the current configurations by clicking the 'Generate Archive ' button of the router for backup so that you can use it for the next time. You can handle it like below.



2.5.6.2 Upload Archive

For this part, you can upload the backup configurations file by clicking the 'Upload Archive ' button of the router so that you have no need to configure it again manual ly. It takes about 2-3 mins, so just be patient .You can handle it like below.

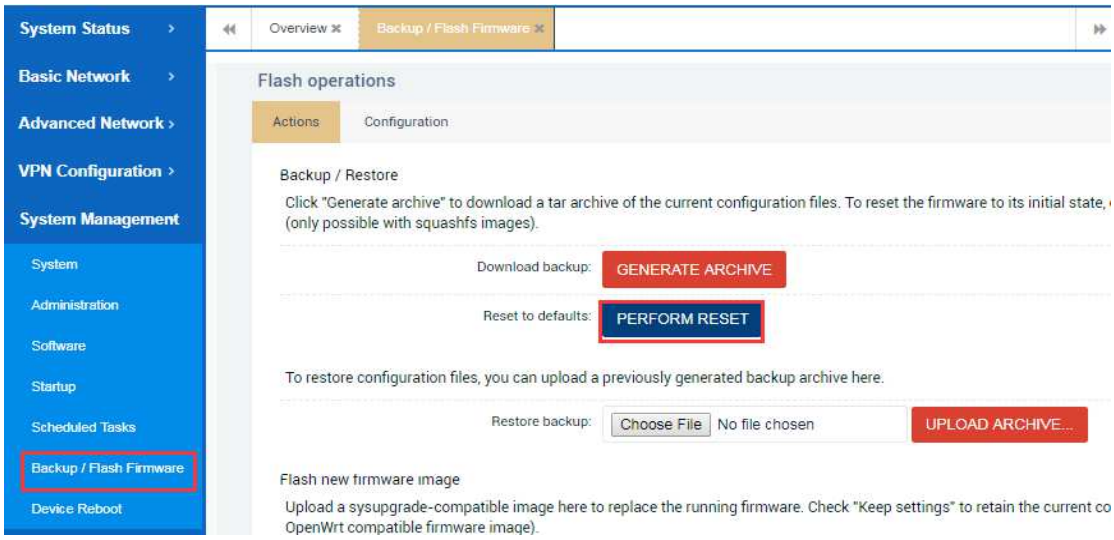


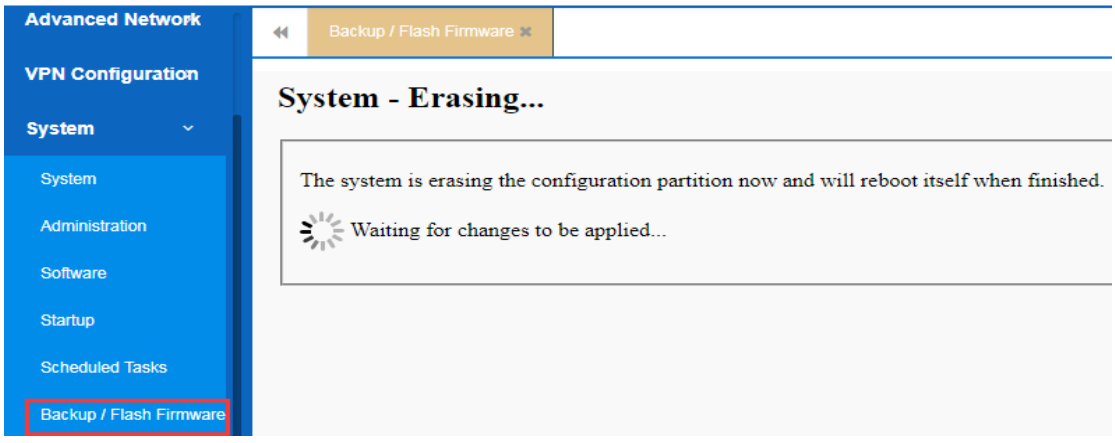


2.5.6.3 Perform Reset

For this part, you can restore the router to the factory by clicking the 'Perform Restore' button when there are some problems with the router. It often takes about 2-3 mins ,so just be patient. And when it is finished ,just relogin to the router by using the default ip address 192.168.1.1:80 and username/password as admin/admin. All above is as follows.

In addition, you can also restore the factory configuration by pressing the black reset button on the front of the router for more than 10 seconds and then releasing it.

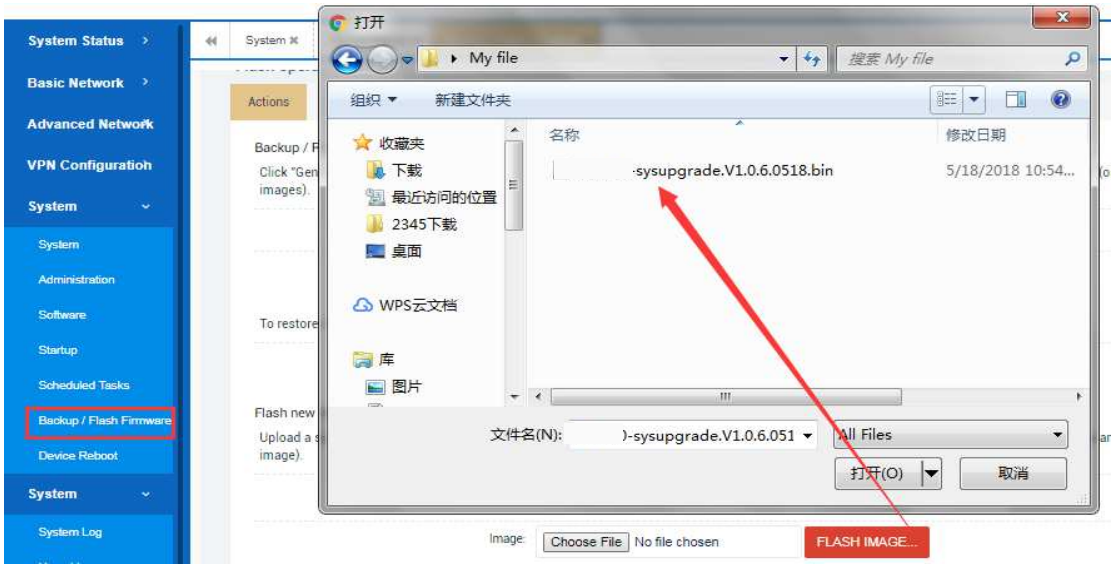


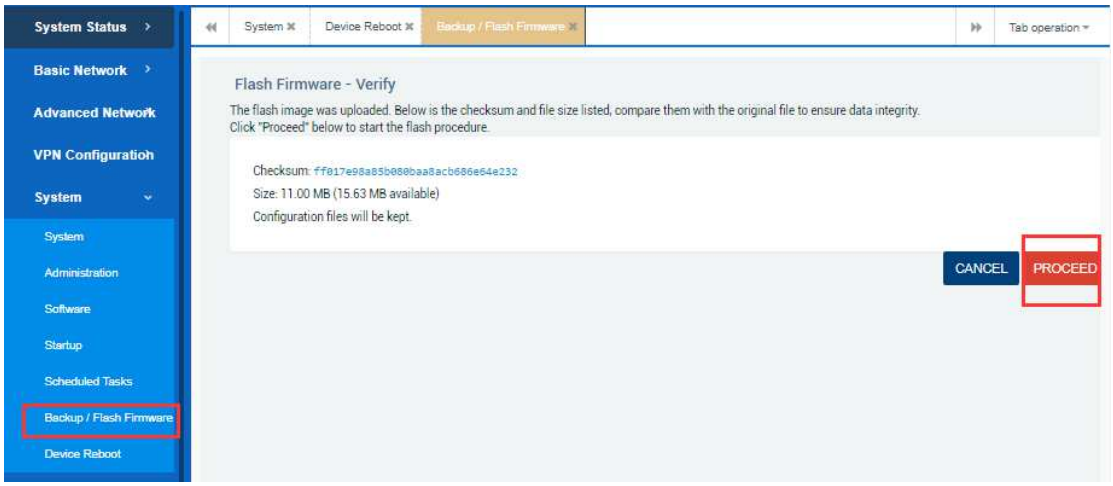


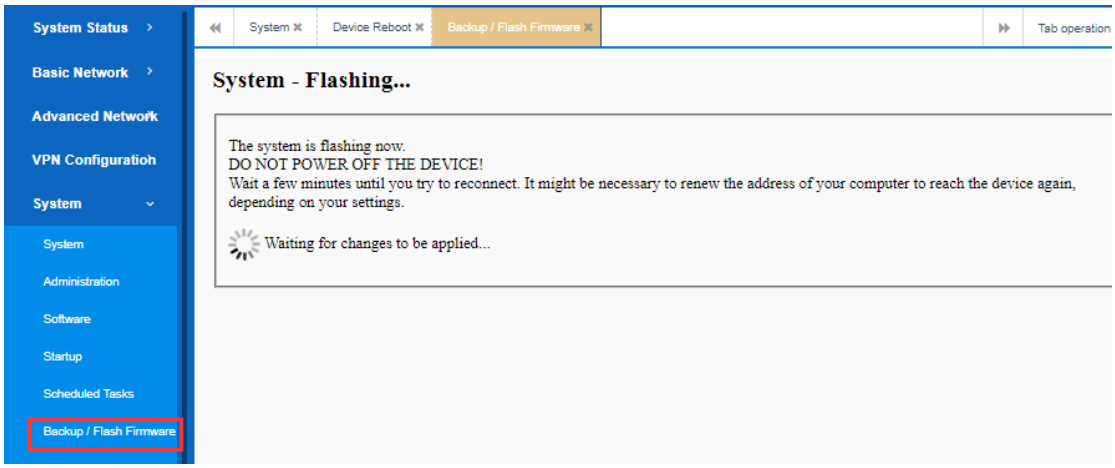
2.5.6.4 Flash Image

For this part, you can upgrade the router device if you need to do that by clicking the 'Flash Image 'button. It often takes about 2min30s, so just be more patient. And

when it’s done, it will automatically jump to the login web page.



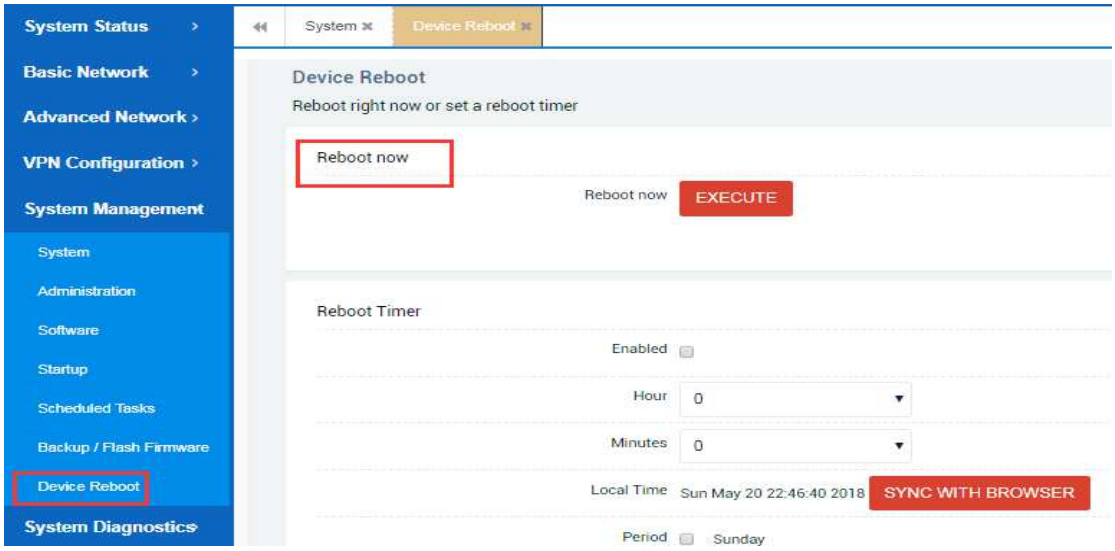




2.5.7 Device Reboot

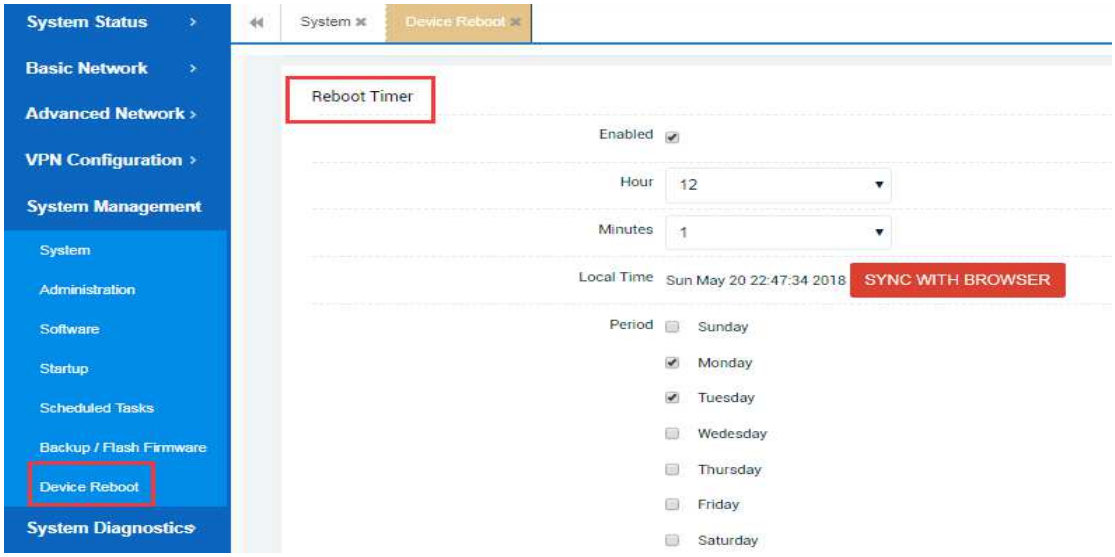
2.5.7.1 Reboot now

For this part , you can always restart your router device immediately as you want by clicking the EXECUTE button.



2.5.7.2 Reboot timer

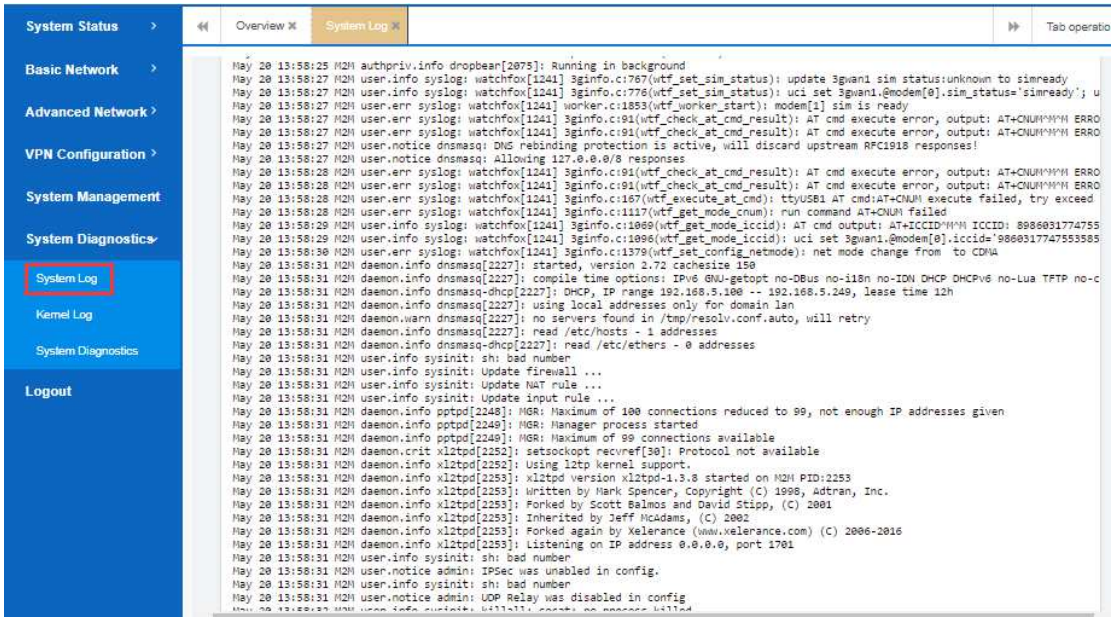
For this part ,you can set the router device to restart at any time you want by doing some specific configurations.



2.6 System diagnostics

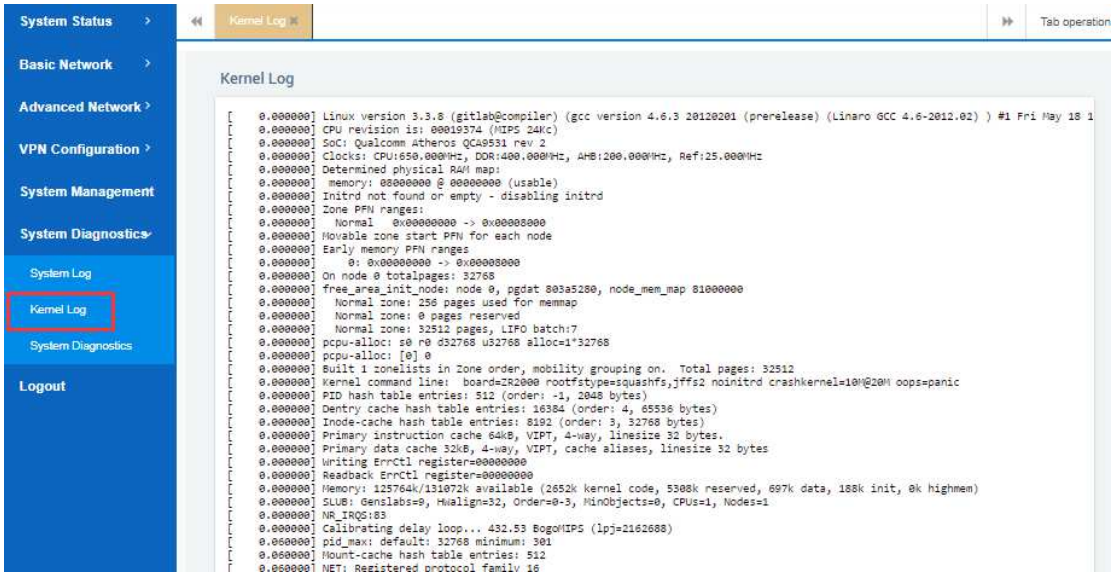
2.6.1 System Log

Through this page, you can view and analyze some system logs of the router. By checking these logs, you can basically know if some certain functions of the device are working normally. In addition, you can also place these logs in a notepad file by pressing Ctrl+A and Ctrl+C and then send it to after-sales technical personnel to analyze and solve some device issues.



2.6.2 Kernel Log

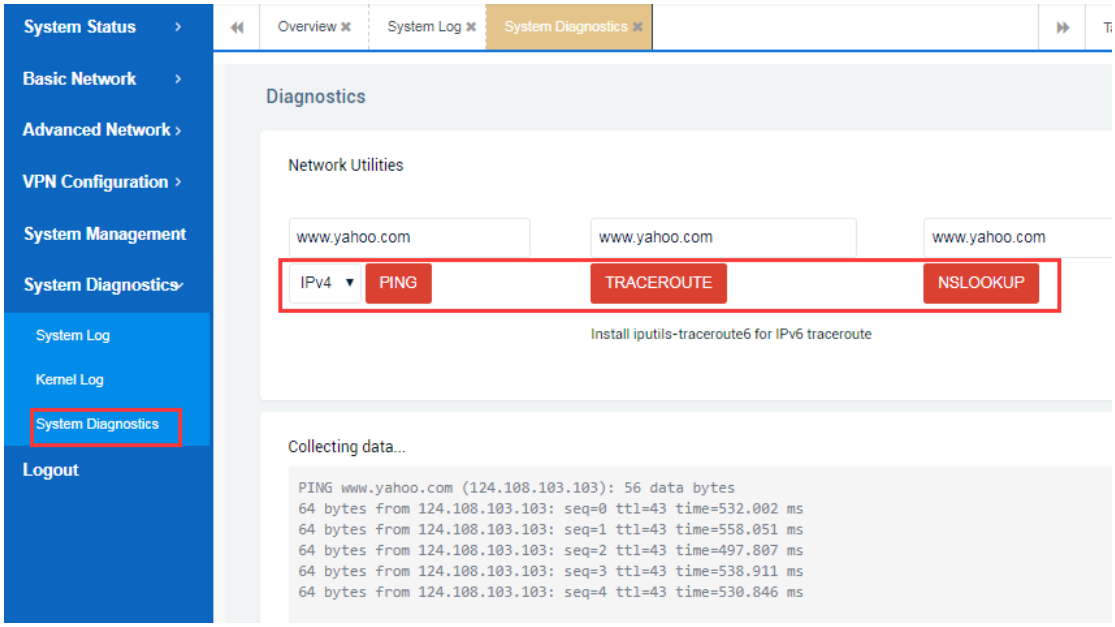
Through this page, you can view and analyze some current running status information of the router. In addition, you can also place this information in a notepad file by pressing Ctrl+A and Ctrl+C and then send it to after-sales technical personnel to analyze and solve some device issues.



2.6.3 System Diagnostics

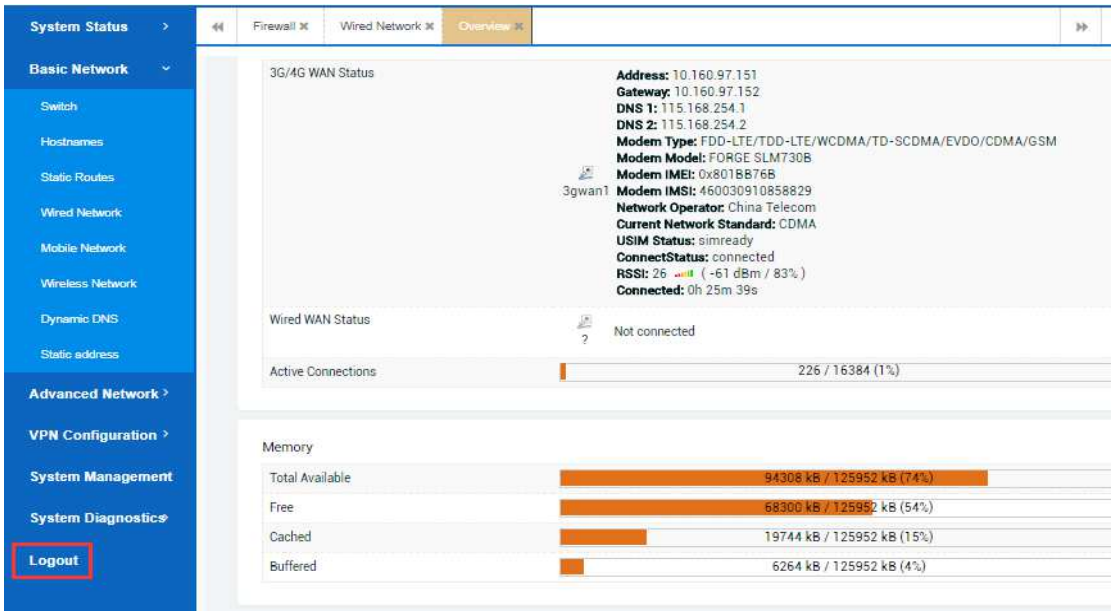
For this part,you can quickly and efficiently determine whether the router device can access the network normally by using the PING tool. If you can easily ping a public network address successfully, it indicates that the router network is good. If you fail to ping some pubic network addresses, it indicates that there are some network problems that need to be solved.

You can also track the routes of the target network by using the TRACEROUTE tool. Besides,you also can resolve some domain names by using the NSLOOKUP tool.



2.7 Logout

If you want to log out of the router, you can click the Logout button and then it will return to the relogin web page.



3.Troubleshooting of common problems

3.1 Fail to login to the router

1) Check whether the RJ45 cable connection between the router and the computer is normal and not loosen.

2) Confirm whether the RJ45 network cable is normal and not been damaged or the crystal head is not ok.

3) Confirm whether your computer's network card is set to automatically obtain and has gotten the IP address of the same network segment as the router instead of obtaining an invalid IP address such as 169.254.x.x.

4) Your computer has been set up with a manual ip address but not on the same network segment as the router, so you need to change it to the same network segment.

5) The router's default gateway IP address 192.168.1.1 or access port 80 has been modified, so you can now restore it to factory configuration and relogin.

3.2 How to restore factory configuration

1) You can restore the factory configuration operation by logging in to the router and then choose ‘System Management’--’Backup/flash firmware’--’Perform Reset’ to make a soft reboot.

2) You can restore the factory configuration by pressing and holding the RST reset button of the router for about 10 seconds and releasing it when the router is powered on.

3.3 Have not an access to the internet for PC

1) Confirm whether the SIM card inserted to the router is normally available and ensure that there is no arrears or downtime.

2) Confirm whether the router makes a successful dial-up when inserting a SIM card.

3) Confirm whether your computer's network card is set to automatically obtain and has gotten the IP address of the same network segment as the router instead of obtaining an invalid IP address such as 169.254.x.x.