XG4104 XGPON ONU Maintenance Manual



Content

1 OVERVIEW **5**

1.1 SAFETY 5

1.1.1 *Basic Requirements* *5*

1.1.2 *Environmental Requirements* *5*

1.1.3 *Electrical Safety* *6*

1.1.4 *Laser Safety* *6*

1.1.5 *Instructions for Cleaning* *7*

1.1.6 *Other Instructions* *7*

1.2 XGPON ONU OVERVIEW 7

1.3 APPLICATIONS 8

1.4 INTERFACE 8

1.5 LED INDICATORS 10

1.6 PRODUCT FEATURE 11

1.6.1 *Interface Feature* *11*

1.6.2 *Technical Features* *11*

1.6.3 *Technical Specification* *12*

1.7 CABLE CONNECTION 13

2 ONT CONFIGURATION **1**

2.1 ONU LOGIN PREPARATION 1

2.2 LOGIN ONU 1

2.3 STATUS 2

2.3.1 *Device Status* *2*

2.3.2 *Wan Information* 4

2.3.3 *LAN information* 7

2.3.4 *Voice Information* 11

2.4 NETWORK 12

2.4.1 *Broadband* 12

2.4.2 *Binding* 14

2.4.3 *LAN* 15

2.4.4 *QOS* 17

2.4.5 *Wlan* 18

2.4.6 *Management* 19

2.4.7 *Time* 22

2.4.8 *Route* 23

2.5 SECURITY 23

2.5.1 *Url Filter* 24

2.5.2 *Firewall* 25

2.5.3 *MAC Filter* 26

2.6 APPLICATION 26

2.6.1 *Voice* 26

2.6.2 *IGMP* 28

2.6.3 *Home-storage* 28

2.6.4 *NAT* 31

2.7 MANAGEMENT 33

2.7.1 *User Account* 34

2.7.2 *System Management* 34

2.7.3 *Diagnosis* *37*

3 FREQUENT ASKED QUESTIONS 1

ABBREVIATION 1

1 Overview

1.1 Safety

Please read and follow all warning notices and instructions marked on the product or included in its packaging, and observe all safety instructions listed in this manual.

1.1.1 Basic Requirements

- Install the device in a well-ventilated place that is not directly exposed to sunlight.
- Keep the device dry and prevent the device from coming into contact with other objects during storage, transportation, and operation of the device.
- Install the device in compliance with the requirements.
- Do not open the device enclosures without permission, but contact the service technician when a problem occurs with the device.
- No entity or person should modify the structure, security design, performance design, etc. of the device without authorization.
- Abide by local laws and regulations and respect the legal rights of others when using the device.

1.1.2 Environmental Requirements

- Install the device in a well-ventilated place that is not directly exposed to sunlight.
- Keep the device clean.
- Keep the device away from water sources or wet places.
- Do not place any objects on top of the device. This is to protect the device from damage, such as overheating or melting, which can be caused by those objects.
- Leave a space of at least 50mm around the device for heat dissipation.
- Leave a space of at least 100mm on the top of the device for heat dissipation.
- Keep the device away from heat sources or fire sources, such as electric heaters and candles.

- Keep the device away from electrical appliances with strong magnetic fields or strong electric fields, such as microwave ovens, refrigerators, and mobile phones.
- Do not store the device in an environment where there are corrosive chemicals.

1.1.3 Electrical Safety

- Use the accessories delivered with the device, such as the power adapter, battery, etc..
- The power supply voltage and current of the device must meet the requirements on the input voltage and current of the device, and provide current overload protection.
- Do not connect the POTS port to an external PSTN line, to prevent damage to the device or cause other safety issues.
- Keep the power plug clean and dry to avoid electric shock or other hazards.
- Follow the insulation requirements of operational safety, for example, keep your hands dry, use insulated tools, etc., when plugging in the device's cables.
- Stop operation of the device and switch off the power before removing or inserting cables.
- Switch off the power and remove all the cables from the device during periods of lightning activity, including the power cable, optical fibers, and network cables.
- Switch off the power and remove the power plug if the device needs to be shut down for a long period of time.
- Protect the device from water or other liquids. If such an incident occurs, switch off the power immediately and remove all the cables from the device, including the power cable, optical fibers, and network cables. Contact the service technician in the event of a device failure.
- Do not step on, pull, drag, or excessively bend the cables because they may become damaged. Damaged cables can cause a device failure.
- Do not use cables that are damaged or have deteriorated.

1.1.4 Laser Safety

- Persons handling fiber optic cables must be trained for laser safety.
- Do not bend the fiber optic cable to a diameter smaller than 7.5 cm/3 inches, so as not to damage the fiber or prevent the signal from passing through properly.

- Do not look directly into the optical port on the device without eye protection. The laser emitted from the optical port can cause injury to your eyes.

1.1.5 Instructions for Cleaning

- Before cleaning the device, stop operation of the device, switch off the power, and remove all cables from the device, including the power cable, optical fibers, network cables, etc. When inserting and removing optical fibers, keep the optical fiber connectors clean.

- When cleaning the device, do not use liquids such as cleaning fluid or spray-on detergents to clean the outer case of the device. Use a soft, dry cloth instead.

1.1.6 Other Instructions

In case of any abnormalities, such as smoke, abnormal sound, or odor, being emitted from the device, immediately stop operation of the device, switch off the power, and remove all cables, from the device, including the power cable, optical fibers, and network cables. Contact the service technician in the event of a device failure.

Prevent foreign objects such as metal objects from falling into the device through the heat dissipation mesh.

Protect the outer case of the device from scratches, as paint that peels off the scratched areas can cause device abnormalities. If the paint falls into the device it may cause short circuits. In addition, peeled-off paint can cause an allergic reaction in the human body.

Ensure that the device is kept out of the reach of children. Guard against risks such as children playing with the device or swallowing small parts of the device.

1.2 XG4104 XGPON ONU Overview

XG4104 (Hereafter referred as ONU) is a highly integrated XGPON access device. This device provides high performance access services for end users, SOHO (Small Office Home Office) and small companies.

Figure 1- 1 Appearance



1.3 Applications

- Small Company
- High Speed Bandwidth Sharing
- Shared High Speed Internet Accessing
- Audio, Video Stream Transmission
- Network and Online Game

1.4 Interface

Figure 1- 2 Front Interface appearance of XG4104

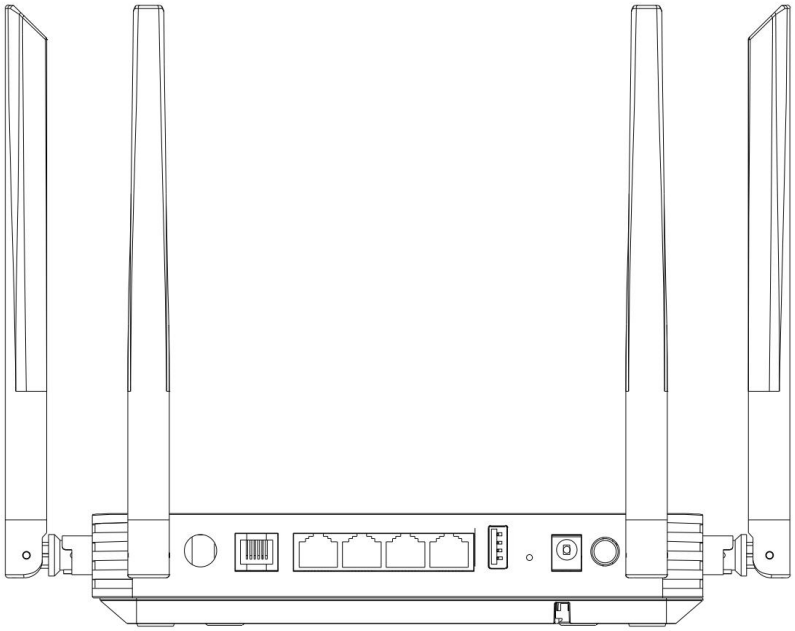


Figure 1- 3 Back Interface appearance of XG4104

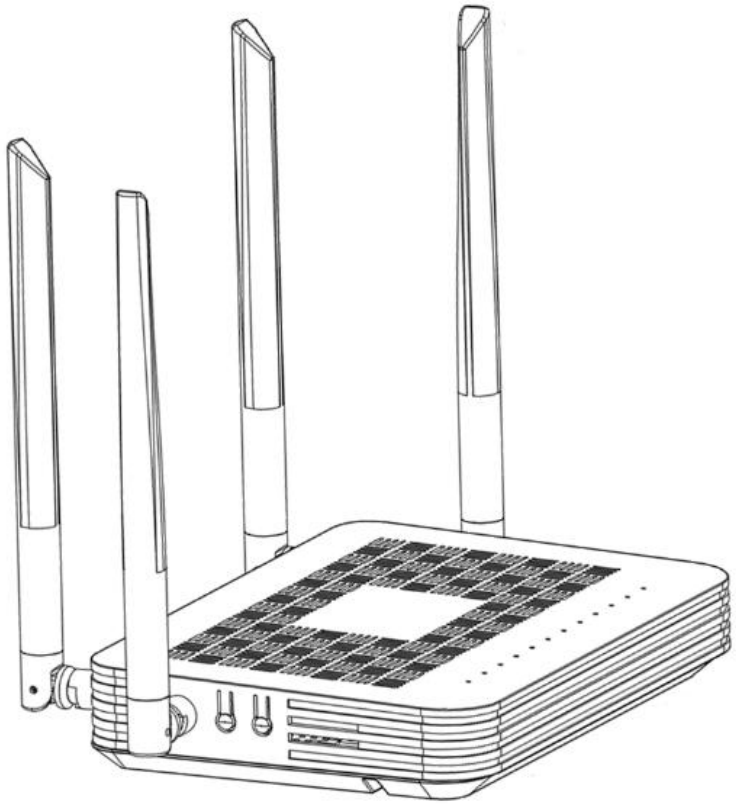


Table 1- 1 The descriptions of ONT interfaces and buttons:

Interface	Description
POWER	12V/1.5A, power input interface
ON/OFF	Power switch button
RST	Reset the ONT
LAN1/LAN2/LAN3	RJ-45 10/100/1000Mbps Base-T Ethernet Interface
LAN4	RJ-45 10/100/1000/2.5Gbps Base-T Ethernet Interface
VOIP	RJ-11 FXS Interface
USB	USB interface
PON	XGPON interface
WPS	WPS switch button
WIFI	WIFI switch button

1.5 LED Indicators

Figure 1- 4 LED Indicators

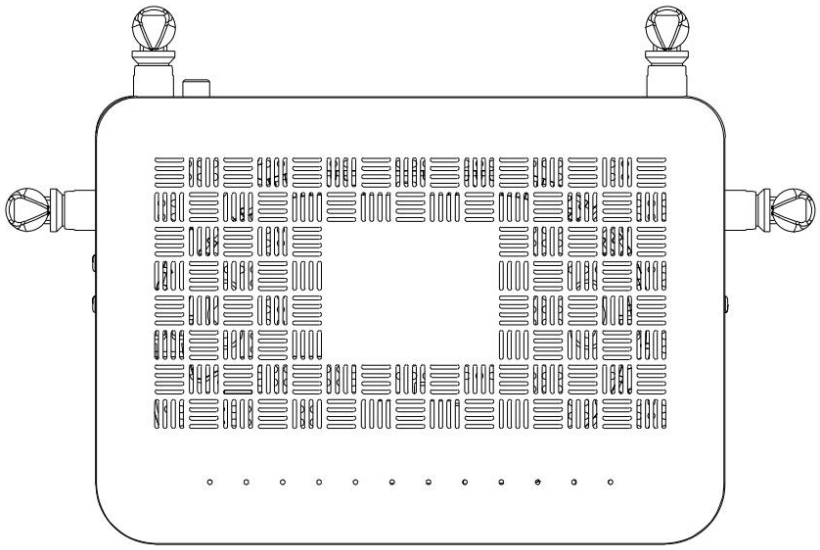


Table 1- 2 The descriptions for ONU LED Indicators

LED	Color	Indicates
PWR	Green/Solid	Normal

LED	Color	Indicates
	Off	No power
LOS	Red	Optical link is NOT OK（rang: out of -8~-29 dbm）
	Green/Flash	Optical link is OK（rang: in -8~-29 dbm）
	Green/solid	Registerd successful and active
Internet	Green/solid	The wan interface of the internet is configured
	off	The Internet WAN interface is not configured or the Internet WAN interface is configured but does not take effect.
LAN1/ LAN2/ LAN3/ LAN4	Green/Flash	device connected
		Active or Link data receive and transfer (Green/flash)
	Off	device not connected
		link down
VOIP	Green	successfully registered to softswitch
	Off	Not be registered to softswitch
USB	Green	Connected and data receive and transfer
	Off	No power/error/USB is not connected/USB disable
WIFI	Green	Wireless is working properly
	Off	No power/WIFI disable
WPS	Green	WPS started working
	Offf	WPS is not working

1.6 Product Feature

1.6.1 Interface Feature

- 1 XGPON interface: SC/APC interface, complying with XGPON standards
- 3*10Mbps/100Mbps/1000Mbps,RJ-45, complying with IEEE802.3 – 2005 standards
- 1*100/1000/2.5GMbps ,RJ-45, complying with IEEE802.3 – 2005 standards
- 1 Pots interface: RJ-11
- 1 USB interface: Standard USB 3.0 interface

1.6.2 Technical Features

The device provides the following functions:

- Broadband service: Connected to Internet through the XGPON access method.
- Ethernet service: The Ethernet devices are connected to the Internet by connecting the Ethernet interfaces of the device.
- VoIP service: Provides FXS interfaces, connected to the VoIP telephones. Supports SIP protocols.
- Data sharing, backup and restore: Provides USB 3.0 interface to connect to the USB storage device for file sharing, quick backup, and data restoring.

The device focuses on the security, QoS, and network management to provides the above functions.

- Security: Provides multi-level authentication based on the device, user and service, and provides the data channel encryption.
- QoS: Provides QoS services meeting the requirements of various services for the local devices and network.

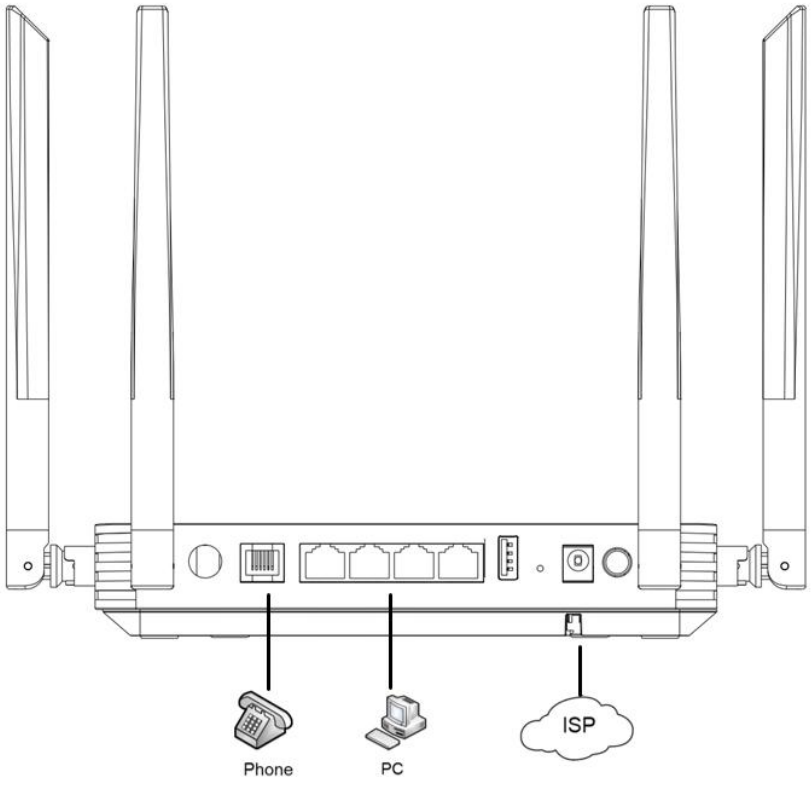
1.6.3 Technical Specification

Table 1- 3 Technical Specification

Item	Specification
Dimension	190mm*135mm*33mm（L*W*H)
Rated current	1.5 A
Rated voltage	12V
Operation temperature	-5℃ – 45℃
Operation humidity	5% – 95%

1.7 Cable Connection

Figure 1- 5 1.7 Cable Connection



2 ONT Configuration

2.1 ONU Login Preparation

Before accessing ONU, make sure the connection between PC and ONU is correct.

Step 1: Configure PC IP address, for example: 192.168.1.(2~254), mask 255.255.255.0, Gateway 192.168.1.1.

Step 2: Ping ONU IP address (Default is 192.168.1.1).

If PC can ping the ONU IP address, it means the connection between PC and ONU is ready.

```
C:\Users\Cisco>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=2ms TTL=64
Reply from 192.168.1.1: bytes=32 time=2ms TTL=64
Reply from 192.168.1.1: bytes=32 time=2ms TTL=64
Reply from 192.168.1.1: bytes=32 time=3ms TTL=64
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms
```

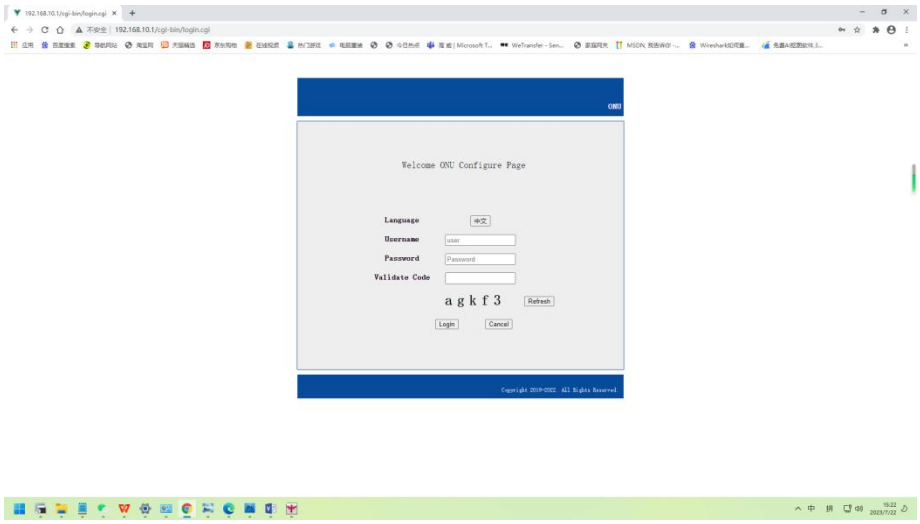
2.2 Login ONU

Please use following steps to login the ONU.

Step 1: Run IE browser and enter http://192.168.1.1 (ONU default IP address) in the address bar.

Step 2: Enter administrator user name and password in the login window.

Figure 2- 1 Login ONU



2.3 Status

This section showing the follow infomation

1. Device Information
2. Wan Information
3. Lan Information
4. Voice Information

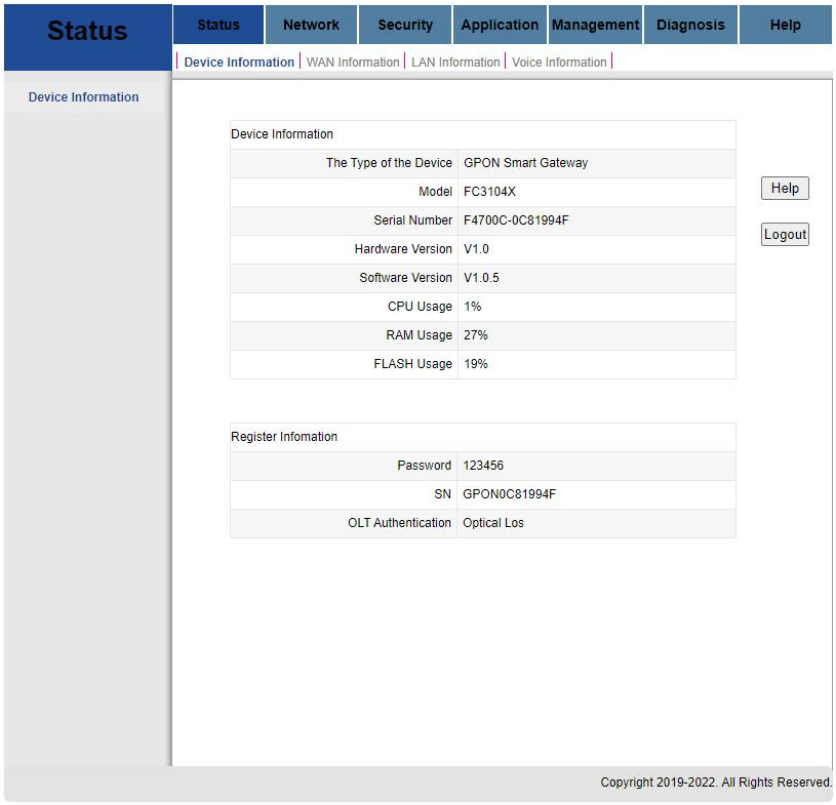
2.3.1 Device Status

1. the device information page is displayed by default. You can also choose Device Information on the Status tab to display the device information page, which display the device information about model, serial number, hardware version, software version, PON serial number, and password.

2. LAN configuration info which is used as management IP.

3. WAN configuration info.

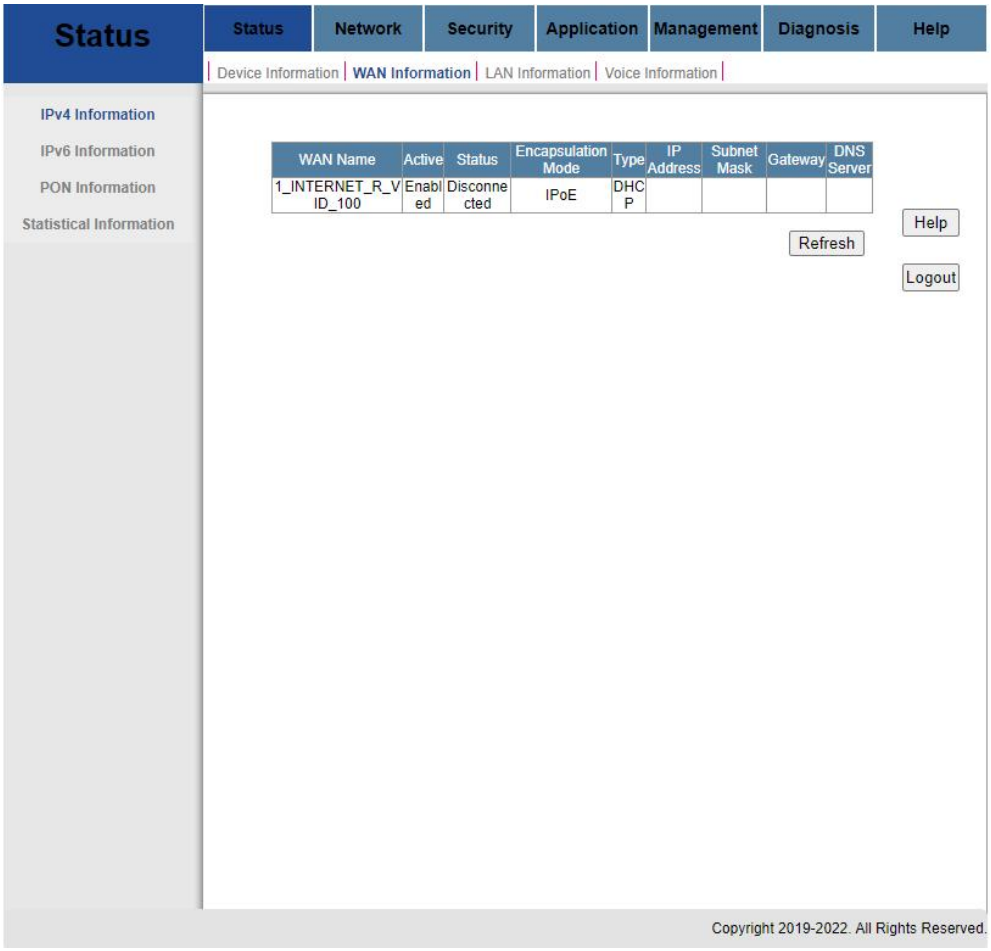
Figure 2- 2 Device Status



2.3.2 Wan Information

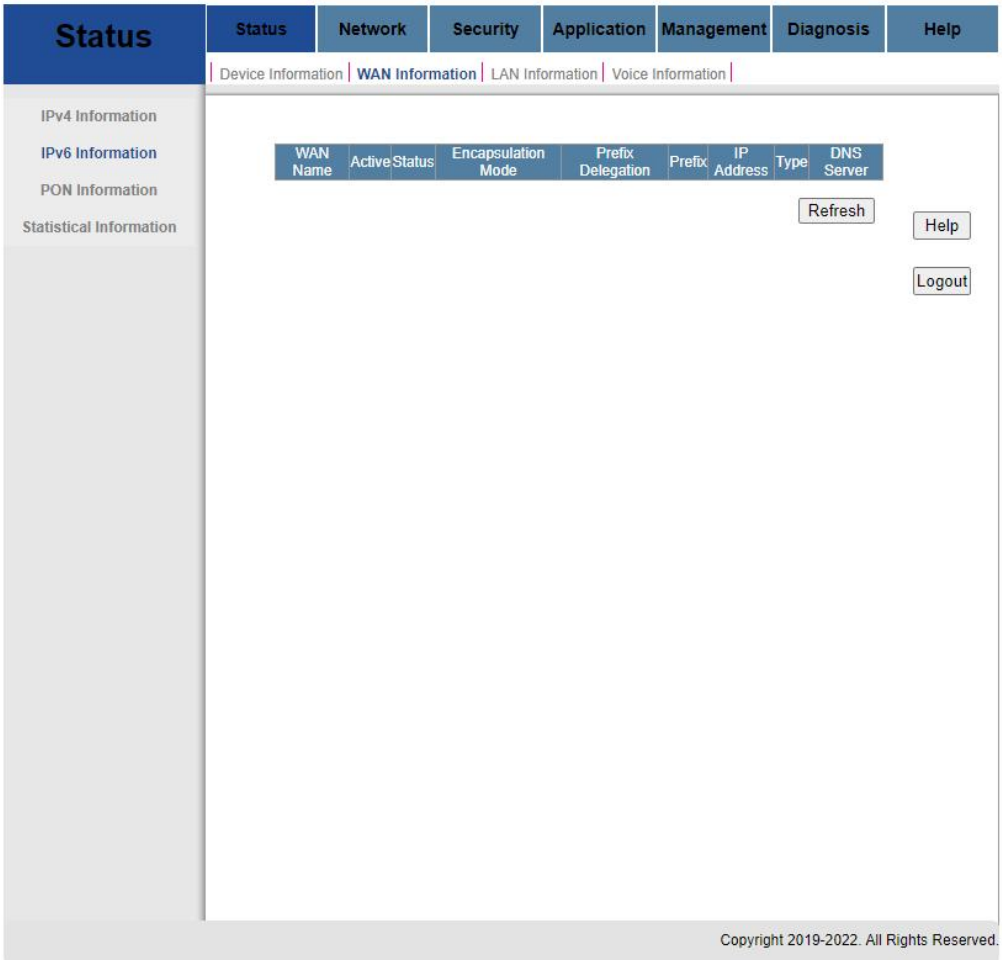
2.3.2.1 IPV4 Information

Figure 2- 3-2-1 IPV4 Status



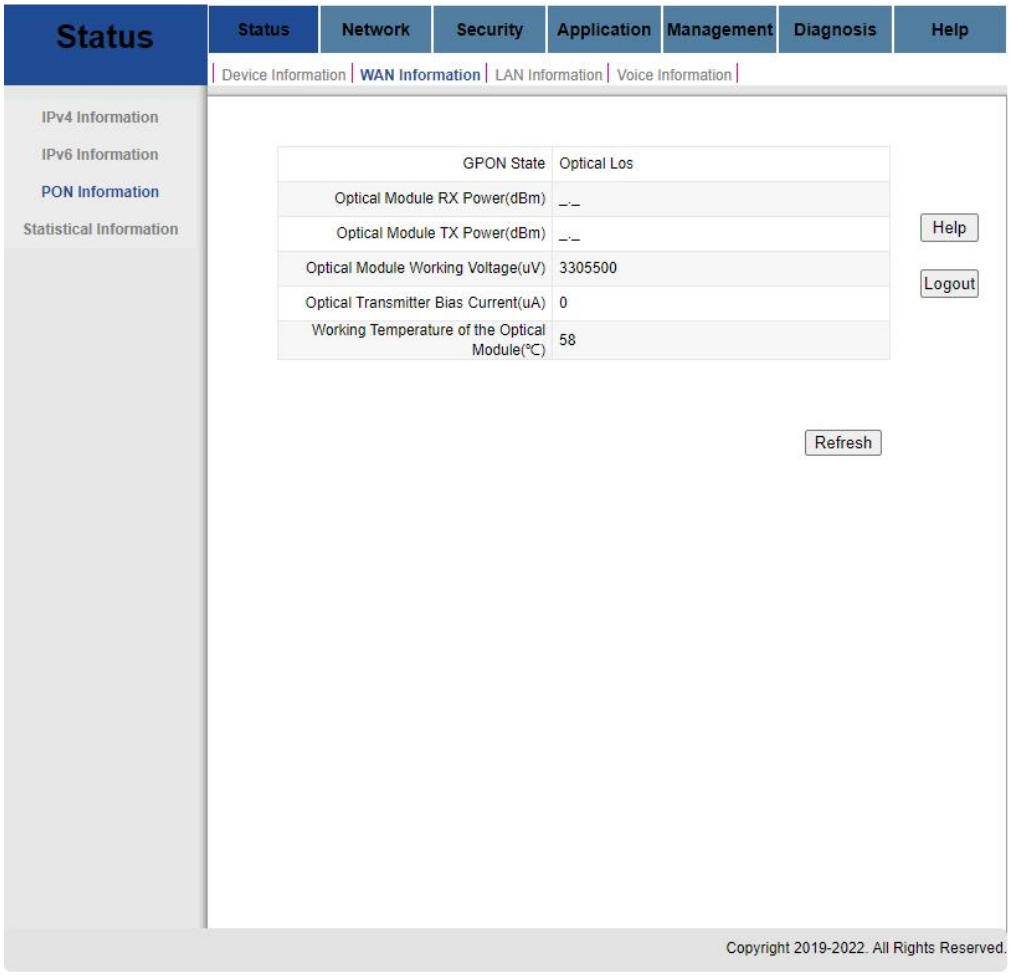
2.3.2.2 IPV6 Information

Figure 2- 3-2-2IPV4 Status


Status
Status
Network
Security
Application
Management
Diagnosis
Help
Device Information
WAN Information
LAN Information
Voice Information
IPv4 Information
IPv6 Information
PON Information
Statistical Information
WAN Name
Active
Status
Encapsulation Mode
Prefix Delegation
Prefix
IP Address
Type
DNS Server
Refresh
Help
Logout
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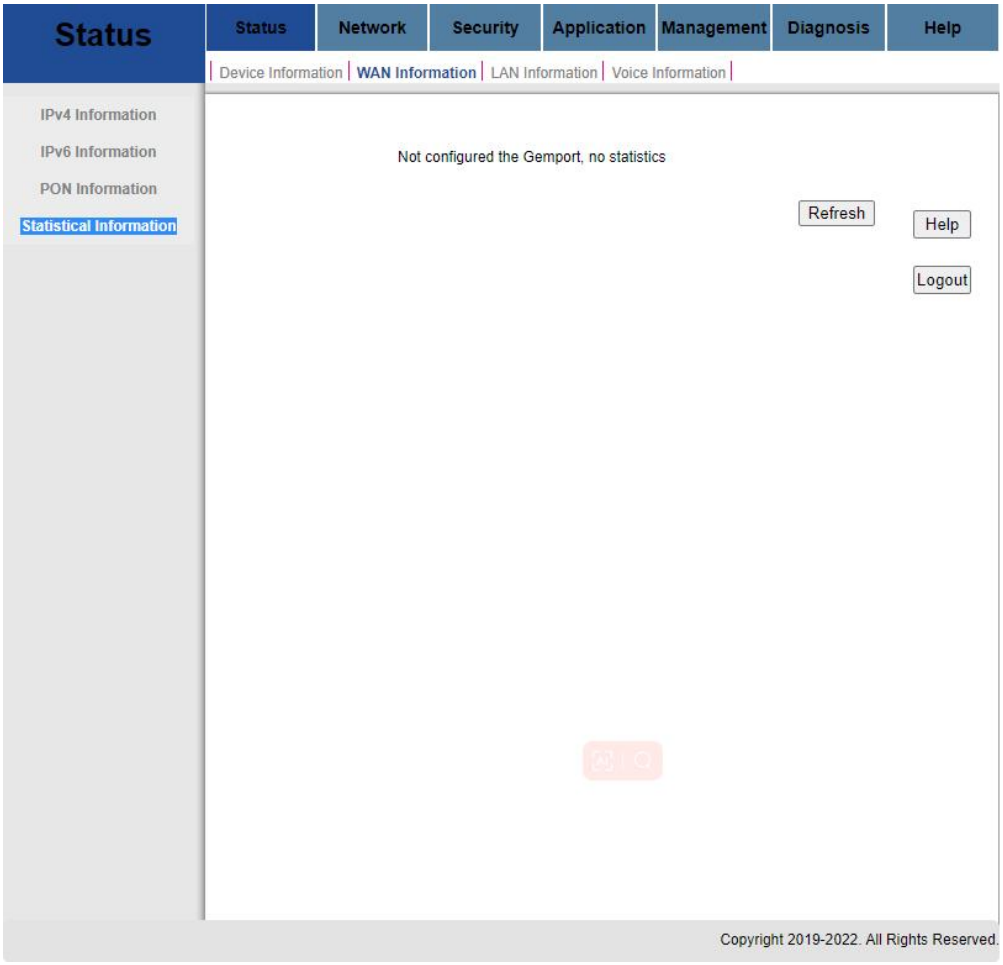
2.3.2.3 PON Information

Figure 2- 3-2-3 Pon Status



2.3.2.4 Statistical Information

Figure 2- 3-2-4 Statistical Information



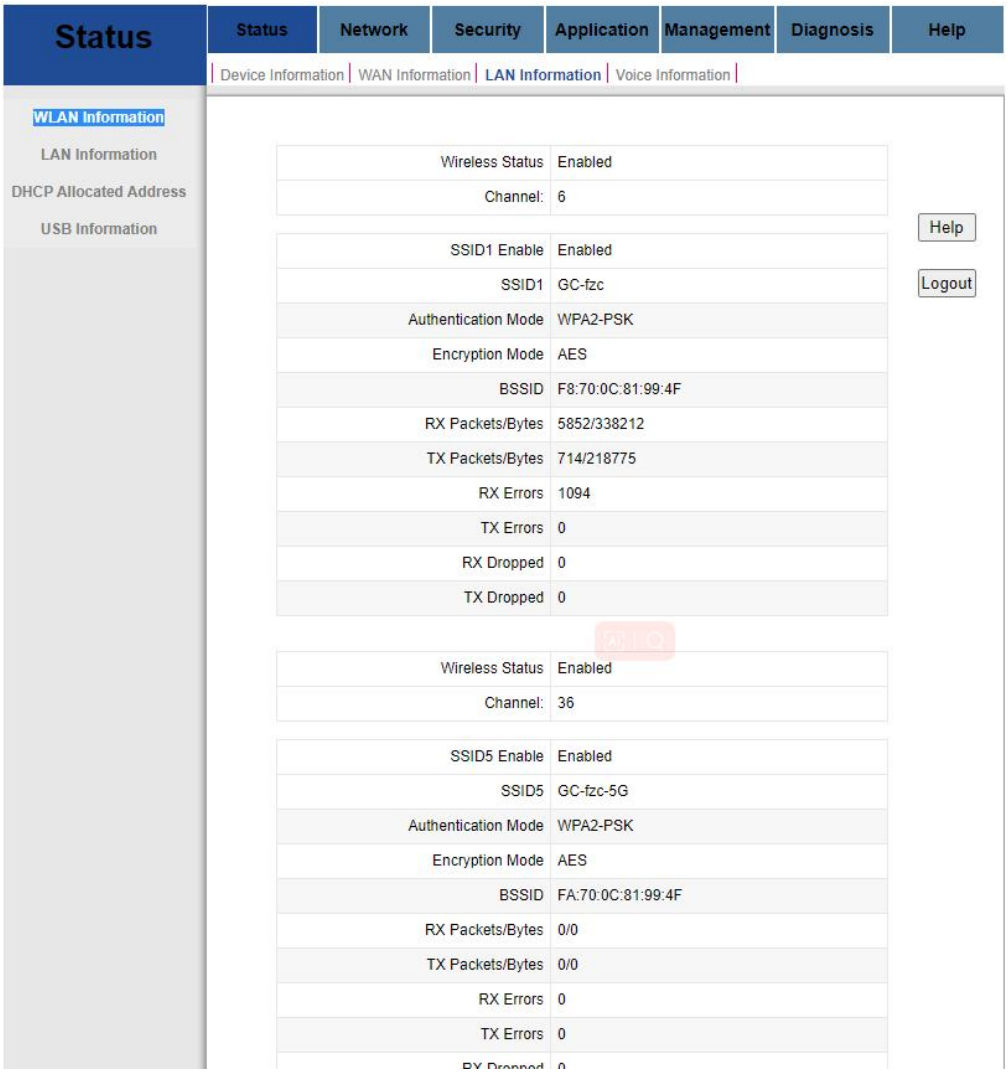
2.3.3 LAN information

In this page, you can view the information of LAN

2.3.3.1 WLAN Information

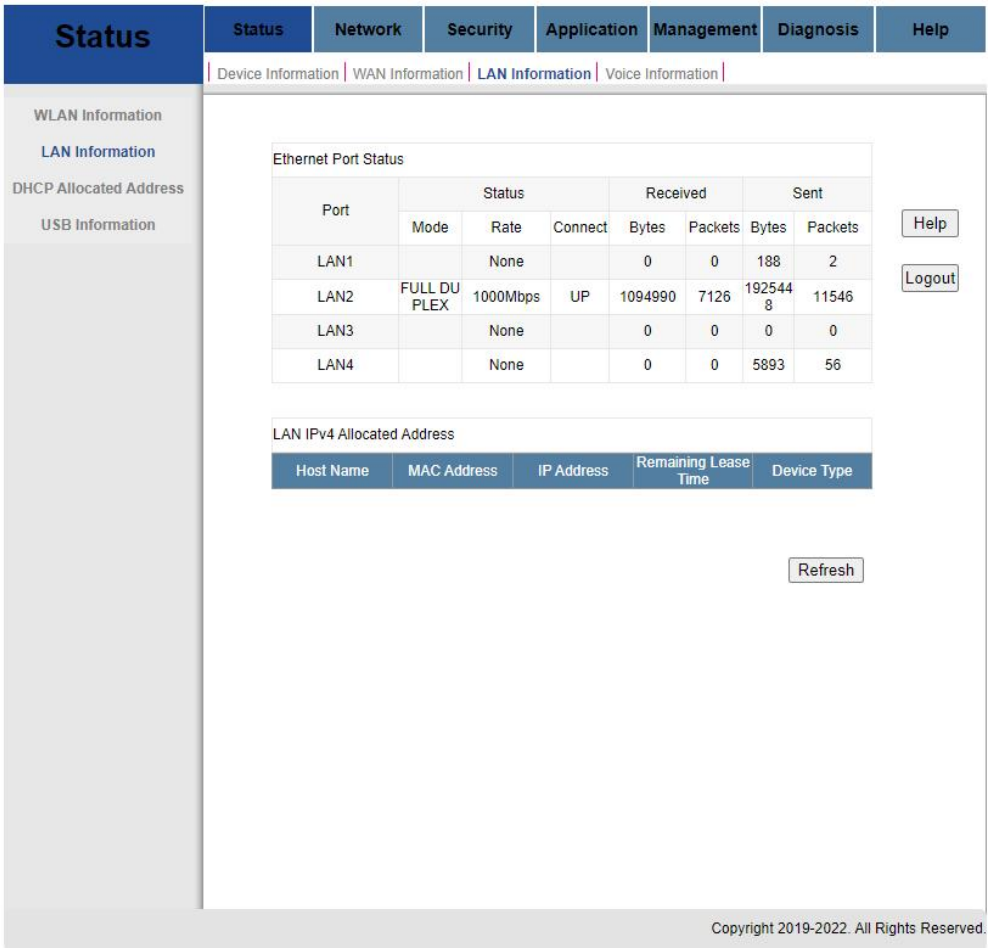
In this page, you can view the information of WLAN

Figure 2-4 WLAN Information



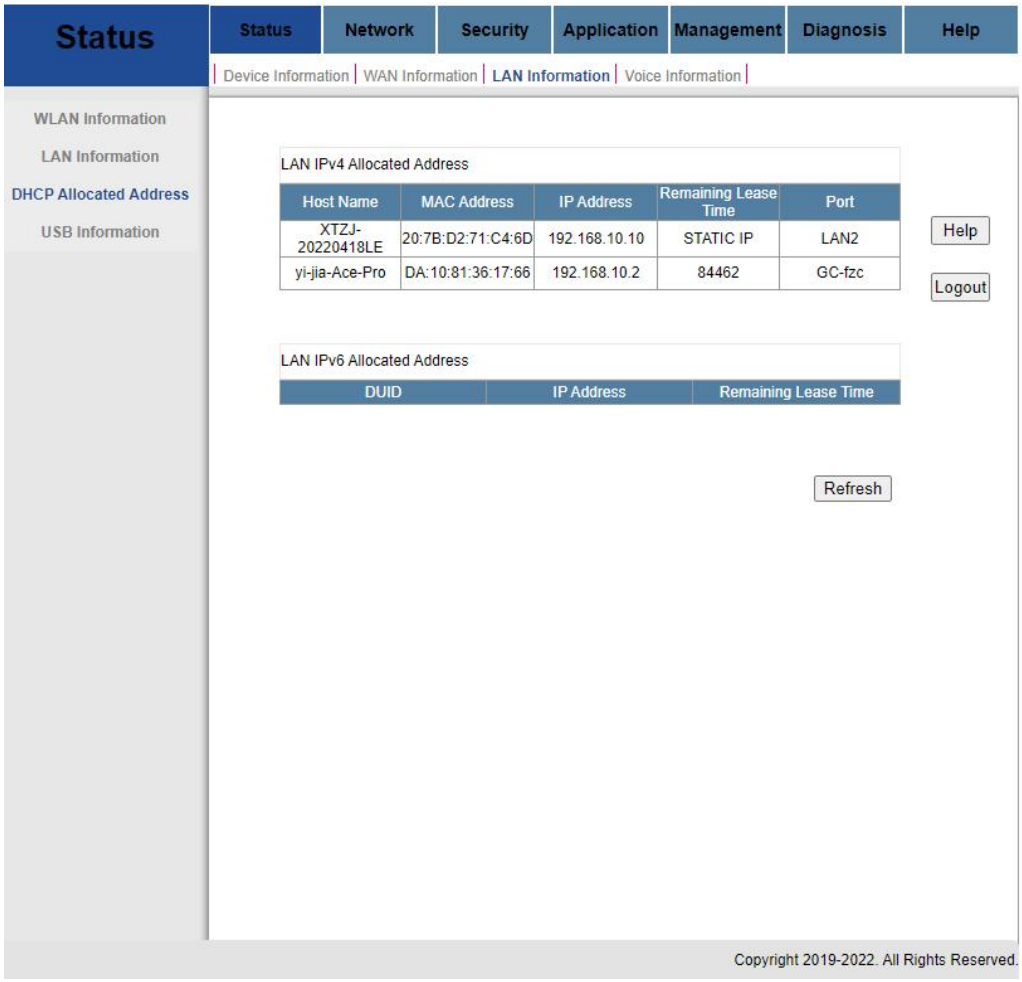
2.3.3.2 LAN Information

In this page, you can view the information of LAN



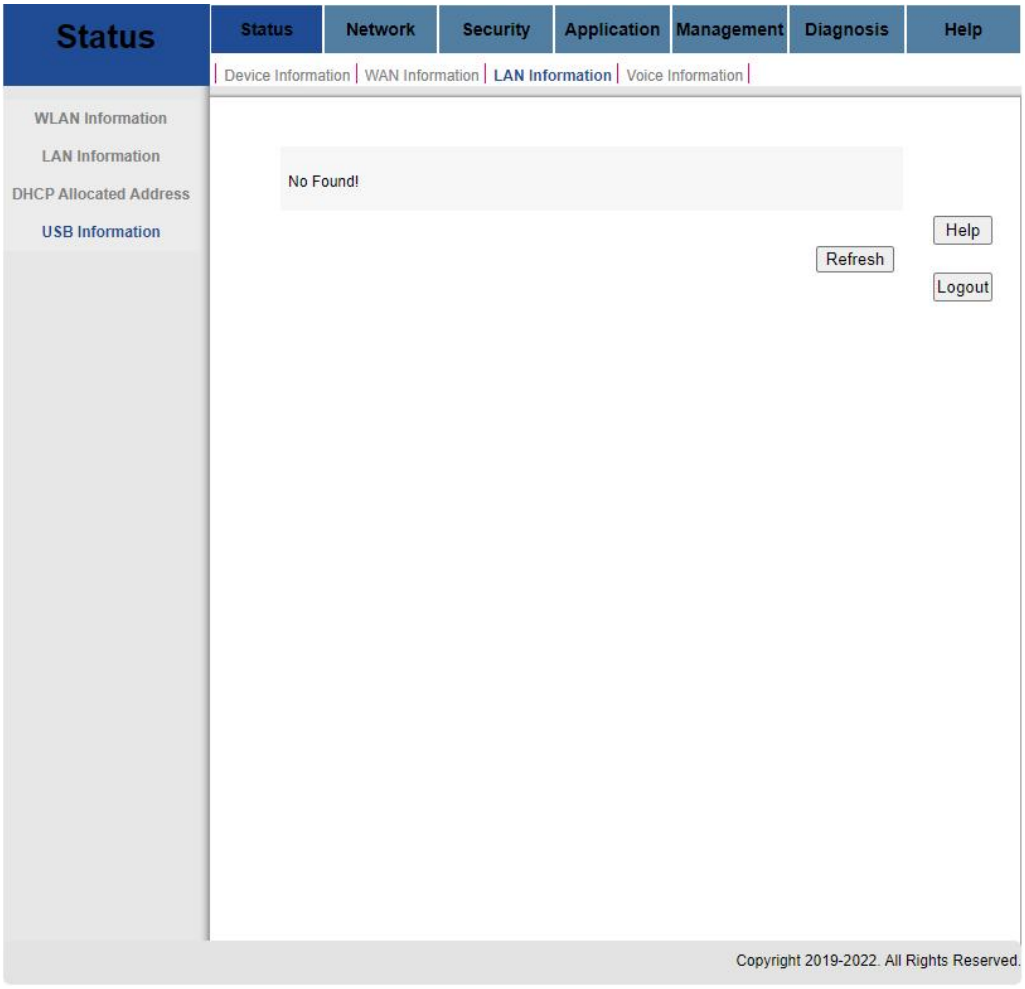
2.3.3.3 DHCP Allocated Address

In this page, you can view the information of dhcp client



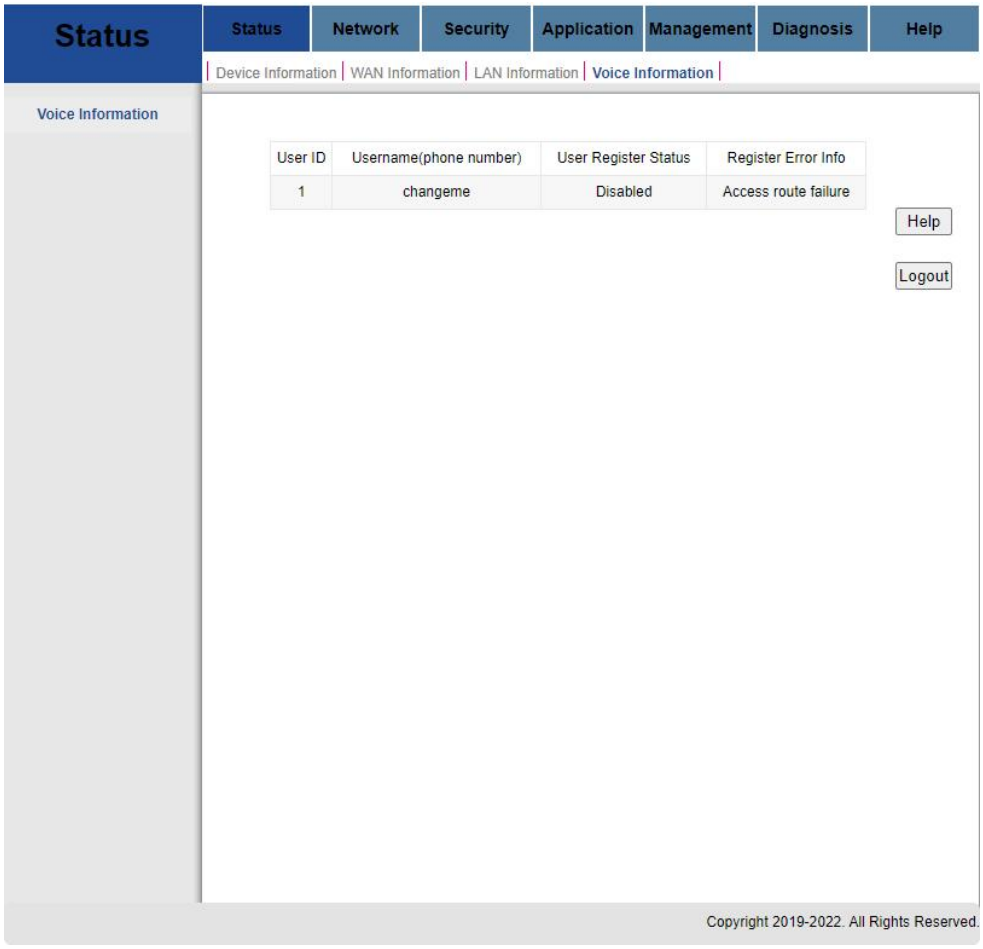
2.3.3.4 USB Information

In this page, you can view the information of USB



2.3.4 Voice Information

In this page, you can view the voip registration status.



2.4 Network

2.4.1 Broadband

This section includes the following WAN setup and port mapping function

Figure 2- 6 WAN Setup

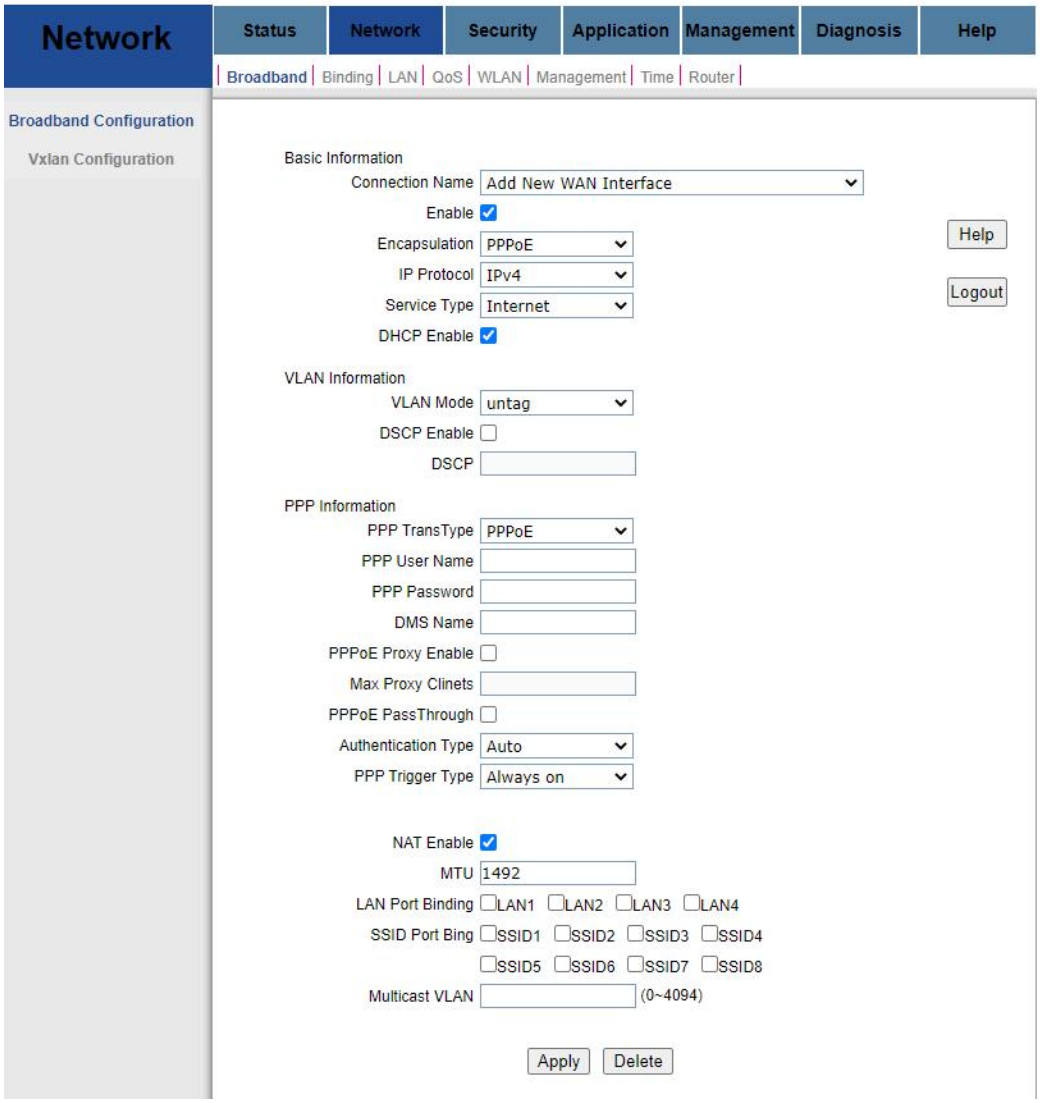


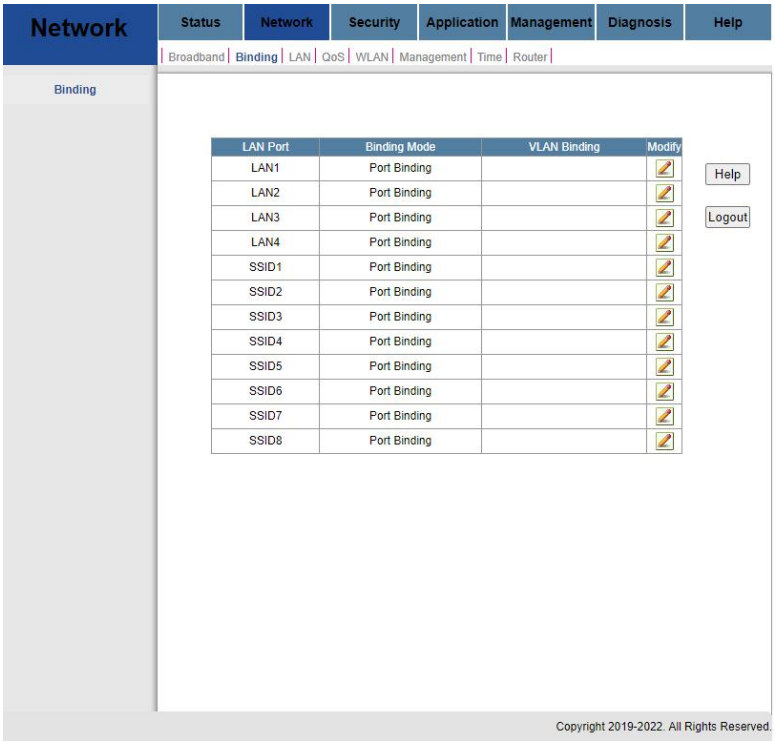
Table 2- 1 WAN Setup parameters

Parameter	Description
Enable	Enable/disable WAN
Vlan mode	The packets for the specified WAN connection are tagged with the VLAN ID.if enable vlan is checked. The packets for the specified WAN connection are untagged .if enable vlan is unchecked.
VLAN ID	The WAN ID configuration at the device side should be consistent with the VLAN ID configuration at the OLT side Range: 1 – 4094
802.1p_Mark	Specify the 802.1p value to modify the Ethernet network priority. Range: 0 – 7

IP Protocl	IPV4 ,IPV6， IPV4/6
Encapsulation	Bridged PPPoe IPOE
Enable NAT	Enable/disable NAT
Service Type	The connection type including the following: TR069: Used for the TR069 remote maintenance and management INTERNET: Used for the broadband Internet access service TR069_INTERNET: Used for TR069 remote maintenance and management, and the broadband Internet access service VOICE: Used for the VoIP service VOIP_INTERNET: Used for the broadband Internet access service and VoIP service TR069_VOICE: Used for the TR069 remote maintenance and management, and VoIP service TR069_VOICE_INTERNET: Used for the TR069 remote maintenance and management, broadband Internet access service, and VoIP service
Multicast VLAN	Multicast VLAN

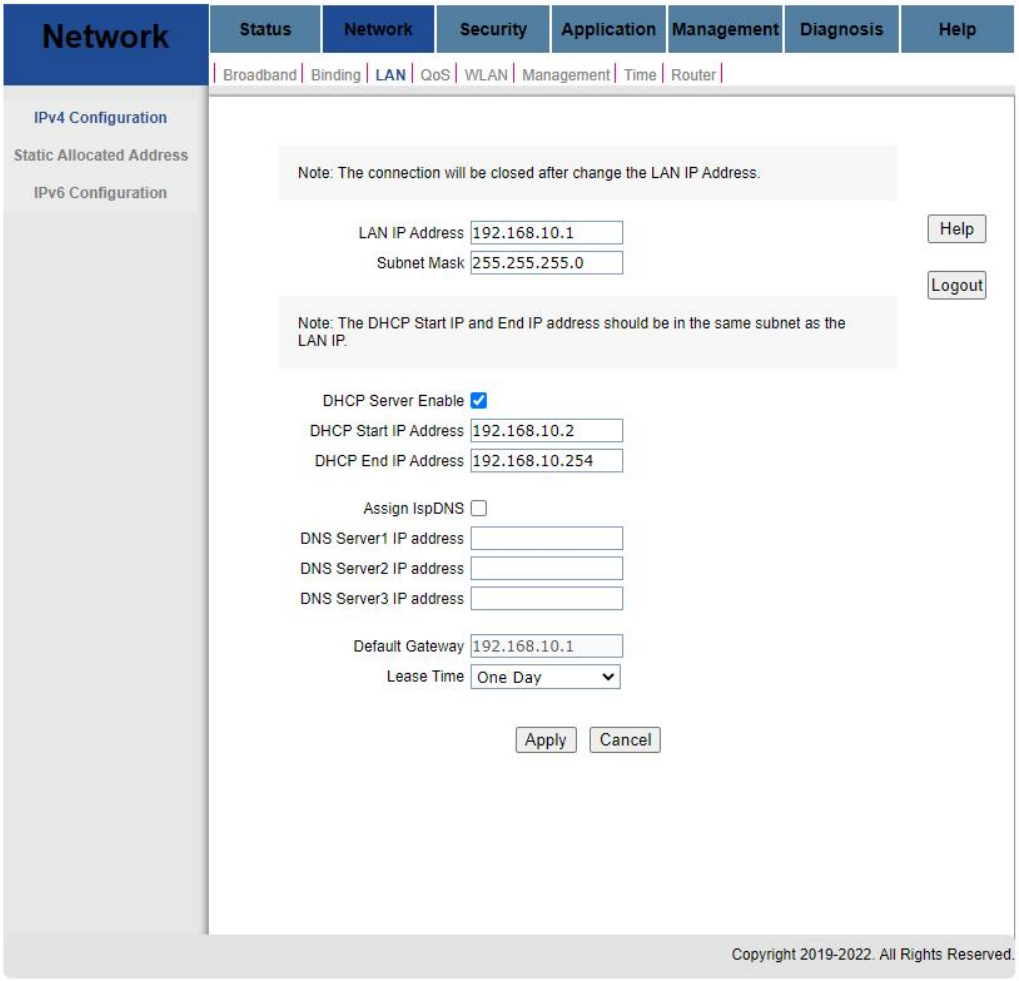
2.4.2 Binding

This page is used to configure vlan change for a port in vlan mode.



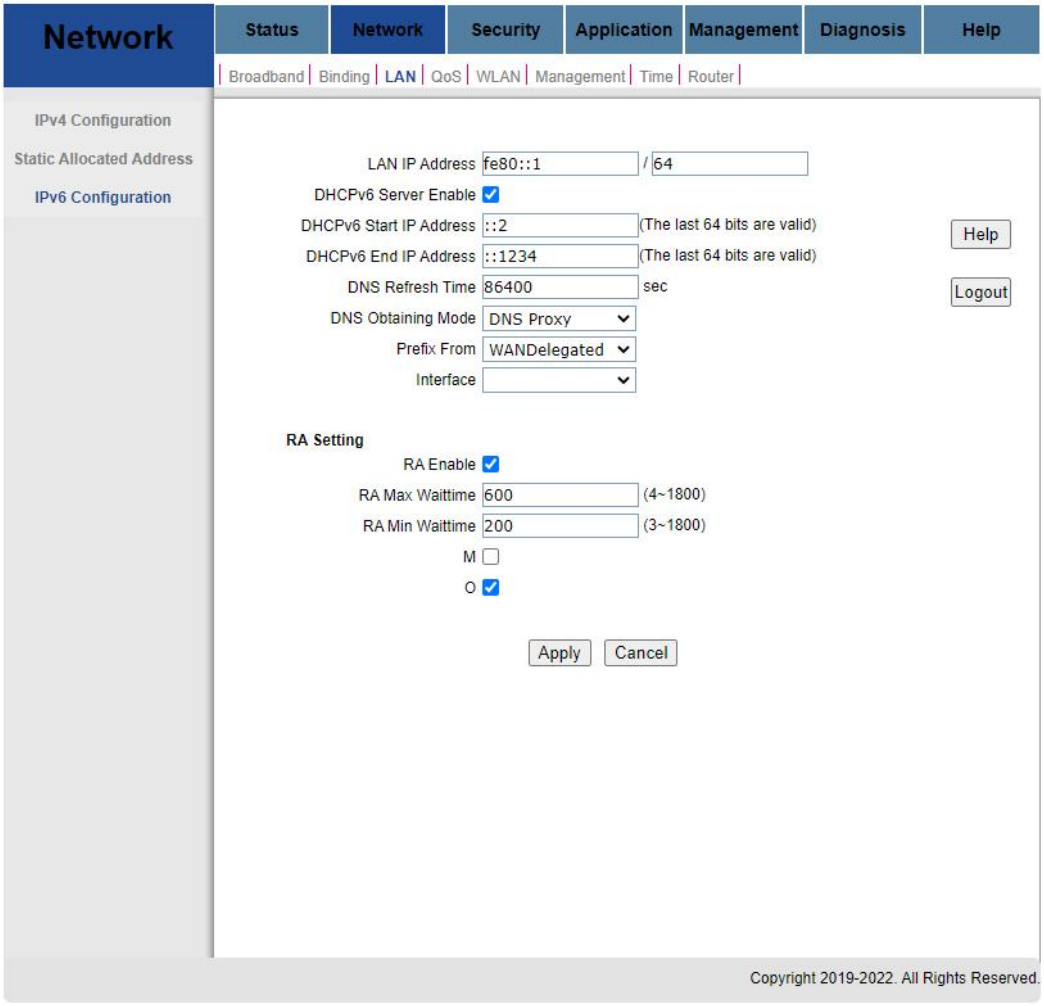
2.4.3 LAN

2.4.3.1 IPV4 configuration

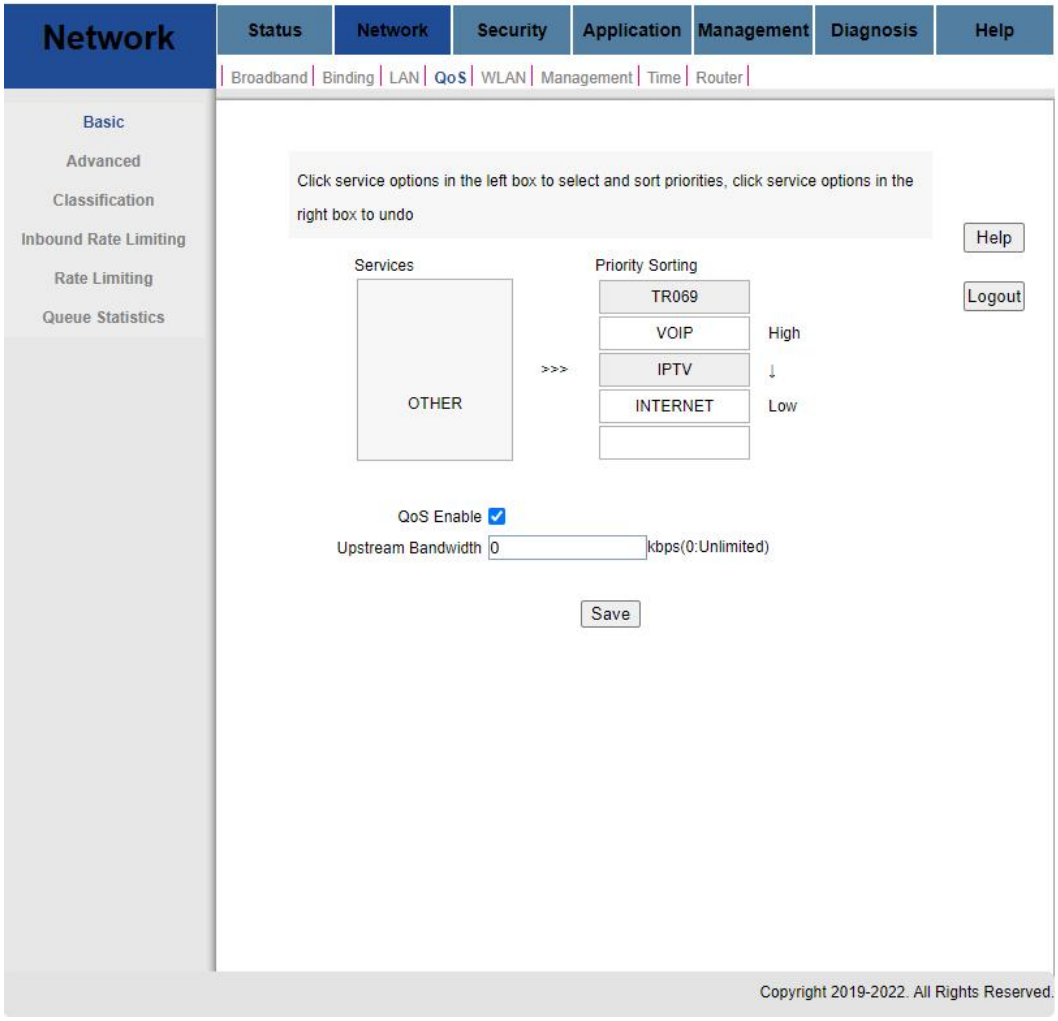


Parameter	Description
DHCP Server	Enable Disable
IP Pool Range	The start/end IP address of the DHCP address pool
DNS Option	Use DNS Relay Set Manually(In this option DNS can be set manually.)
Max Lease Time	The time during which the client PCs use the IP addresses assigned by the DHCP server After the lease time expires, the private IP address will be available for assigning to other network devices. Default: 86400 seconds

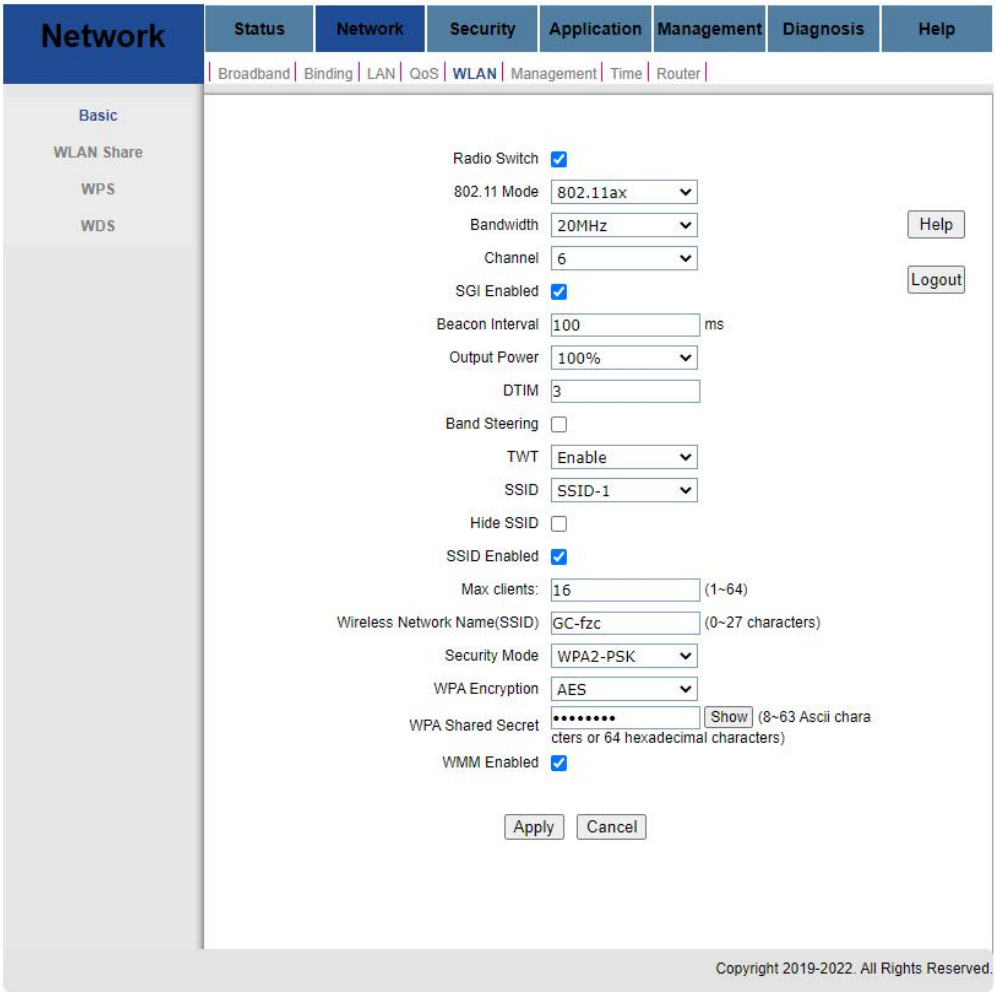
2.4.3.2 IPV6 configuration



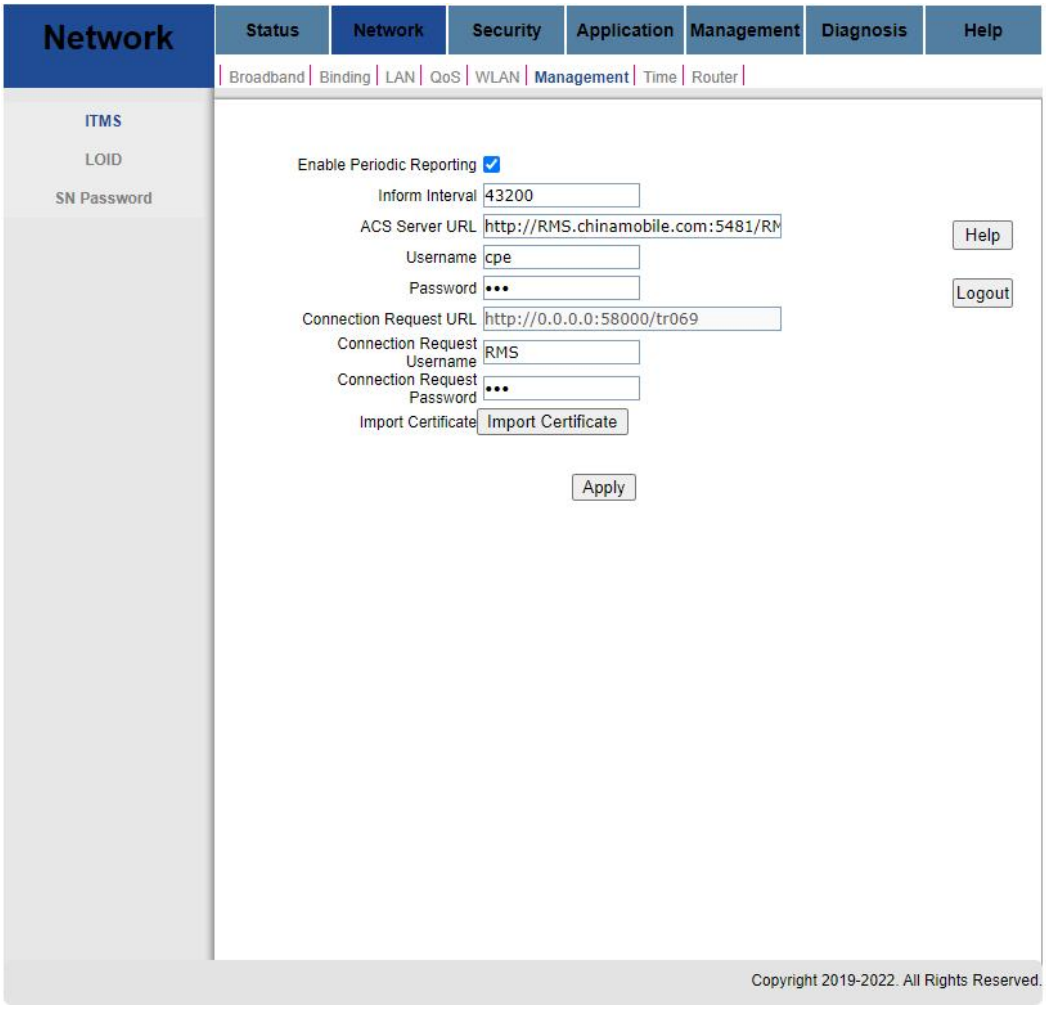
2.4.4 QOS


Network
Status
Network
Security
Application
Management
Diagnosis
Help
Broadband | Binding | LAN | QoS | WLAN | Management | Time | Router
Basic
Advanced
Classification
Inbound Rate Limiting
Rate Limiting
Queue Statistics
Click service options in the left box to select and sort priorities, click service options in the right box to undo
Help
Logout
Services
Priority Sorting
OTHER
>>>
TR069
VOIP
IPTV
INTERNET
High
↓
Low
QoS Enable
Upstream Bandwidth 0 kbps(0:Unlimited)
Save
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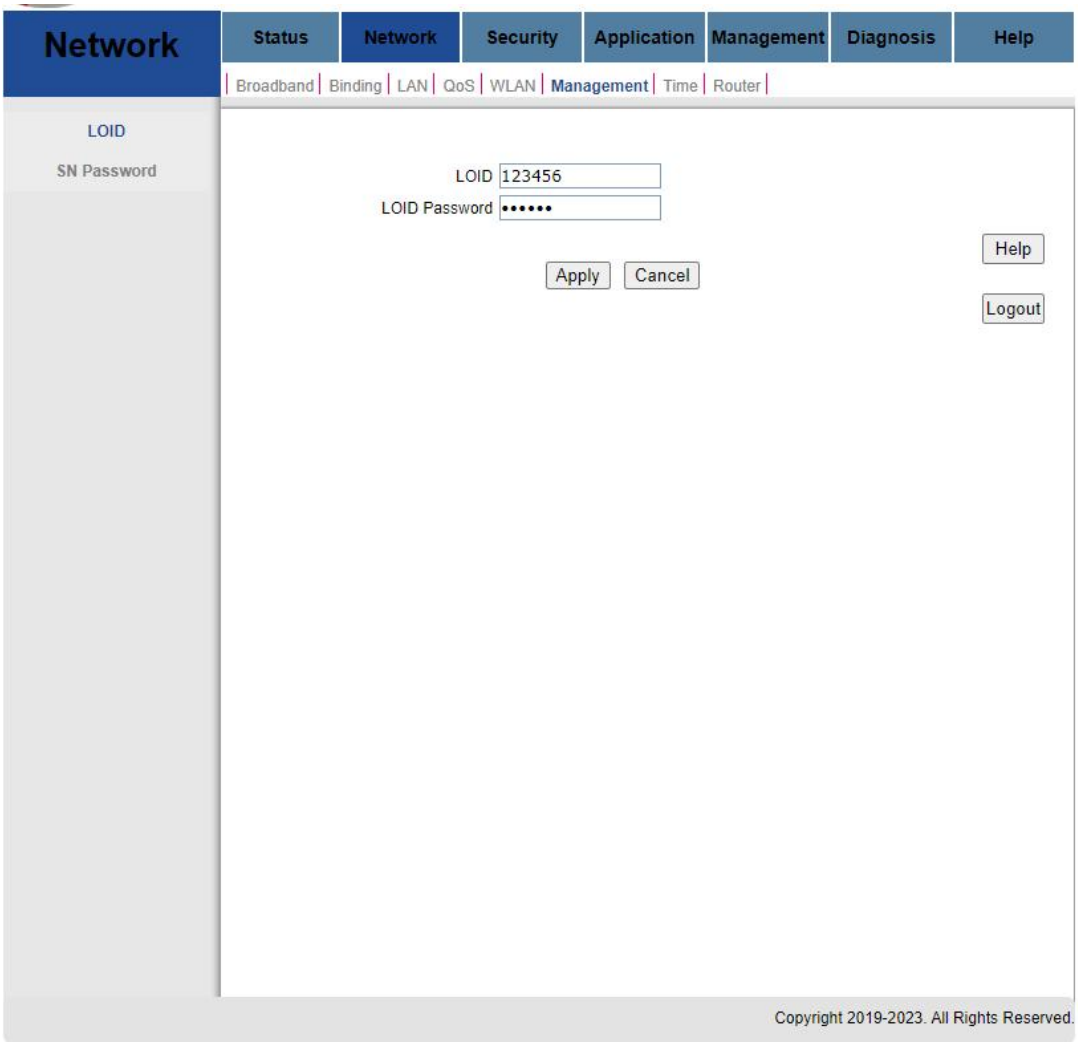
2.4.5 Wlan


Network
Status
Network
Security
Application
Management
Diagnosis
Help
Broadband | Binding | LAN | QoS | WLAN | Management | Time | Router
Basic
WLAN Share
WPS
WDS
Radio Switch
802.11 Mode
802.11ax
Bandwidth
20MHz
Channel
6
SGI Enabled
Beacon Interval
100
ms
Output Power
100%
DTIM
3
Band Steering
TWT
Enable
SSID
SSID-1
Hide SSID
SSID Enabled
Max clients:
16
(1~64)
Wireless Network Name(SSID)
GC-fzc
(0~27 characters)
Security Mode
WPA2-PSK
WPA Encryption
AES
WPA Shared Secret
Show
(8~63 Ascii characters or 64 hexadecimal characters)
WMM Enabled
Apply
Cancel
Help
Logout
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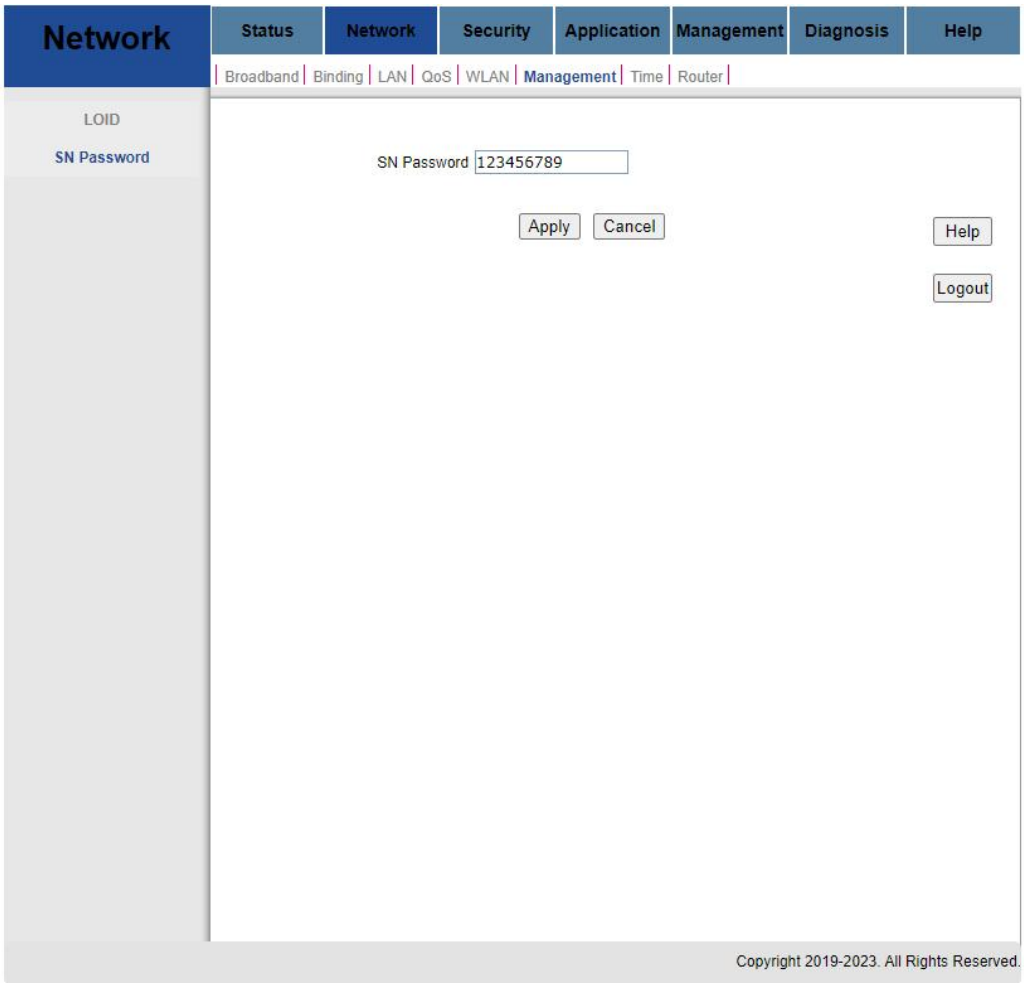
2.4.6 Management



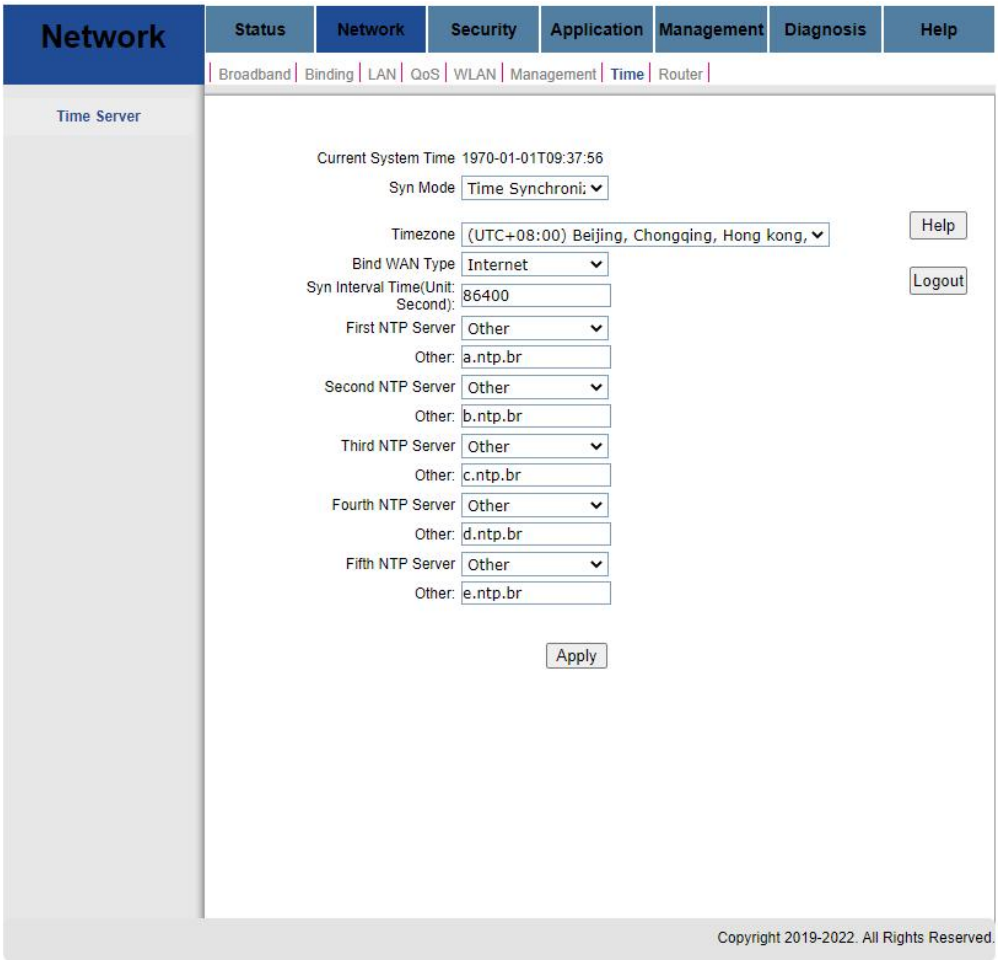
2.4.6.1 LOID


Network
Status
Network
Security
Application
Management
Diagnosis
Help
Broadband | Binding | LAN | QoS | WLAN | Management | Time | Router
LOID
SN Password
LOID 123456
LOID Password ••••••
Apply
Cancel
Help
Logout
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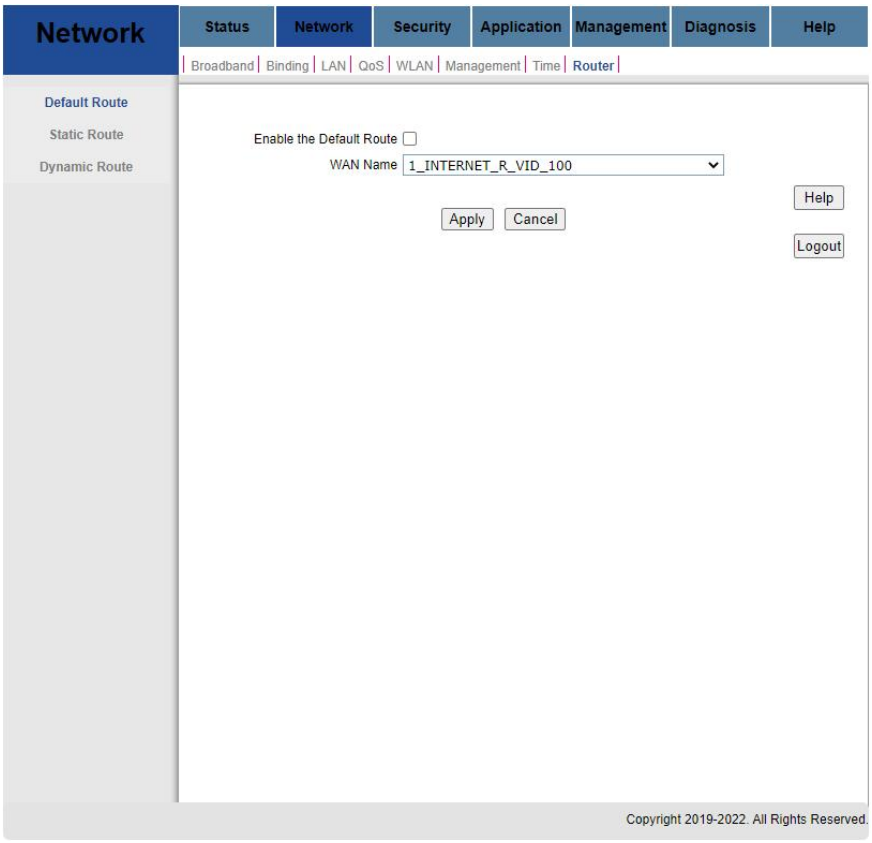
2.4.6.2 SN Password



2.4.7 Time

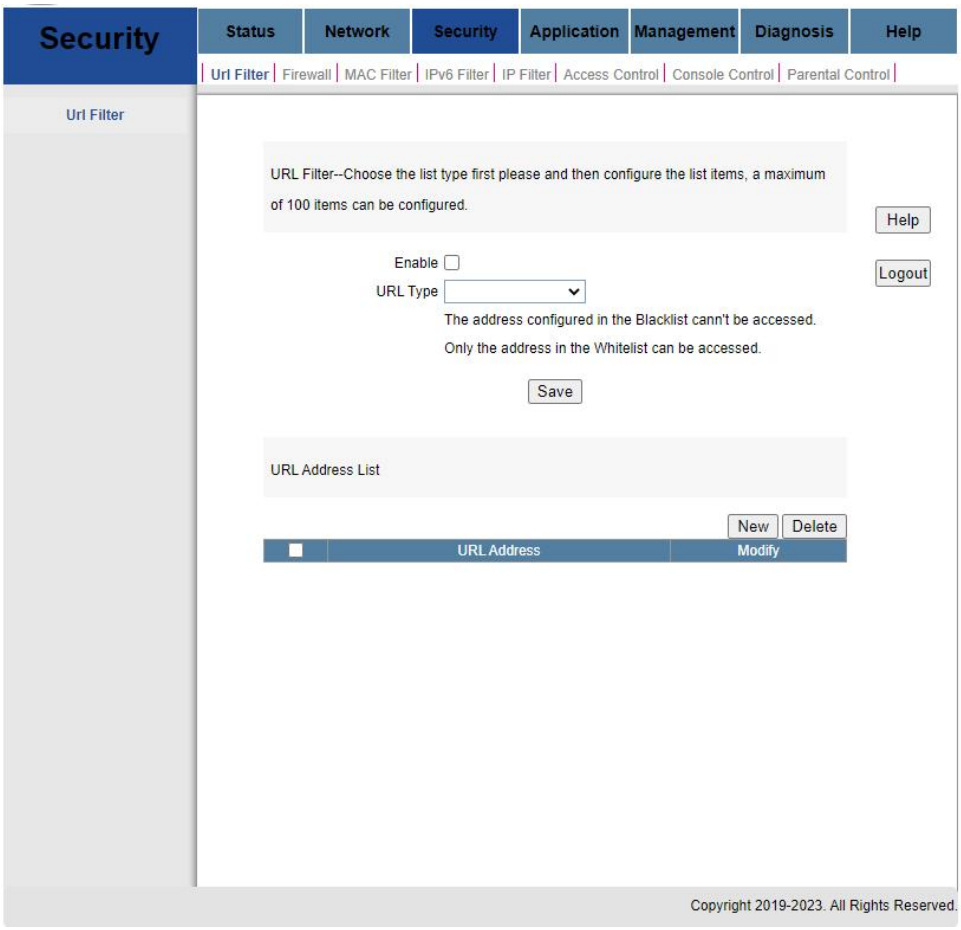

Network
Status
Network
Security
Application
Management
Diagnosis
Help
Broadband | Binding | LAN | QoS | WLAN | Management | Time | Router
Time Server
Current System Time 1970-01-01T09:37:56
Syn Mode Time Synchroni
Timezone (UTC+08:00) Beijing, Chongqing, Hong kong,
Bind WAN Type Internet
Syn Interval Time(Unit: Second): 86400
First NTP Server Other
Other: a.ntp.br
Second NTP Server Other
Other: b.ntp.br
Third NTP Server Other
Other: c.ntp.br
Fourth NTP Server Other
Other: d.ntp.br
Fifth NTP Server Other
Other: e.ntp.br
Apply
Help
Logout
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2.4.8 Route

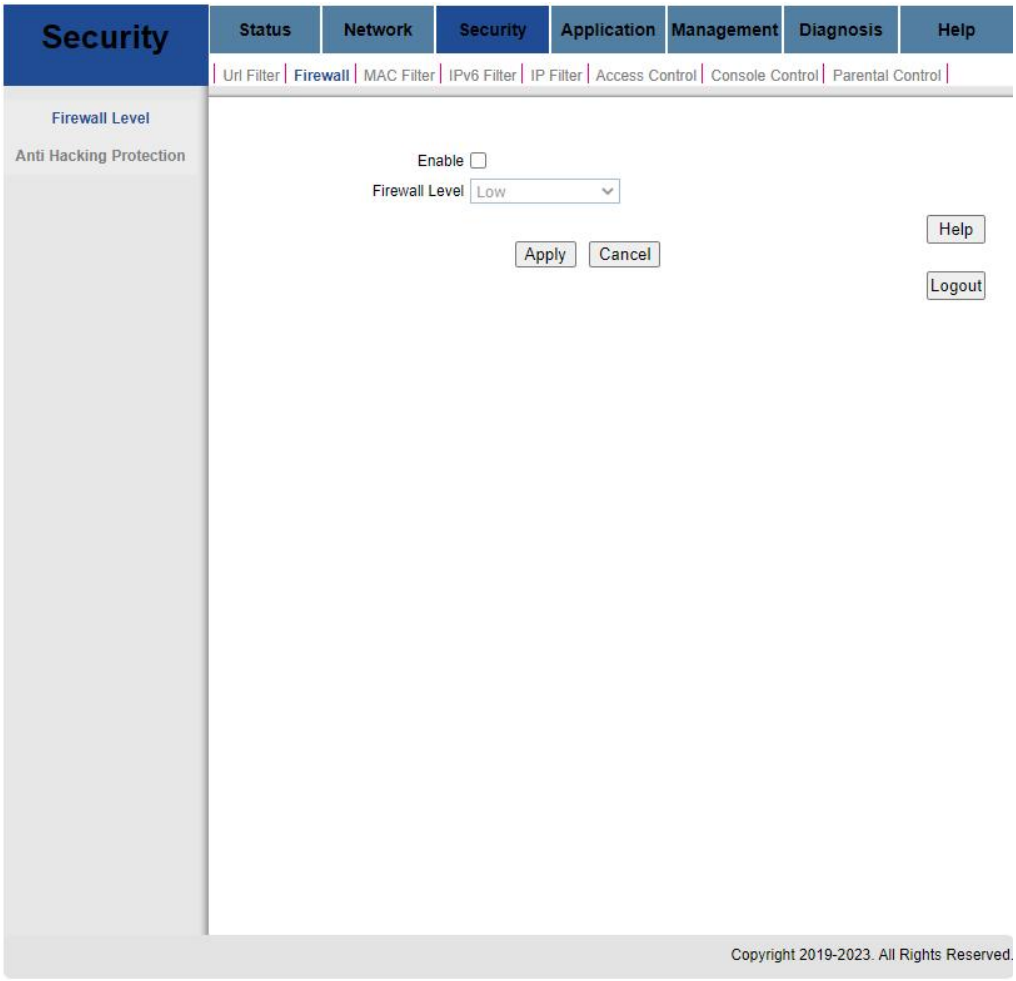


2.5 Security

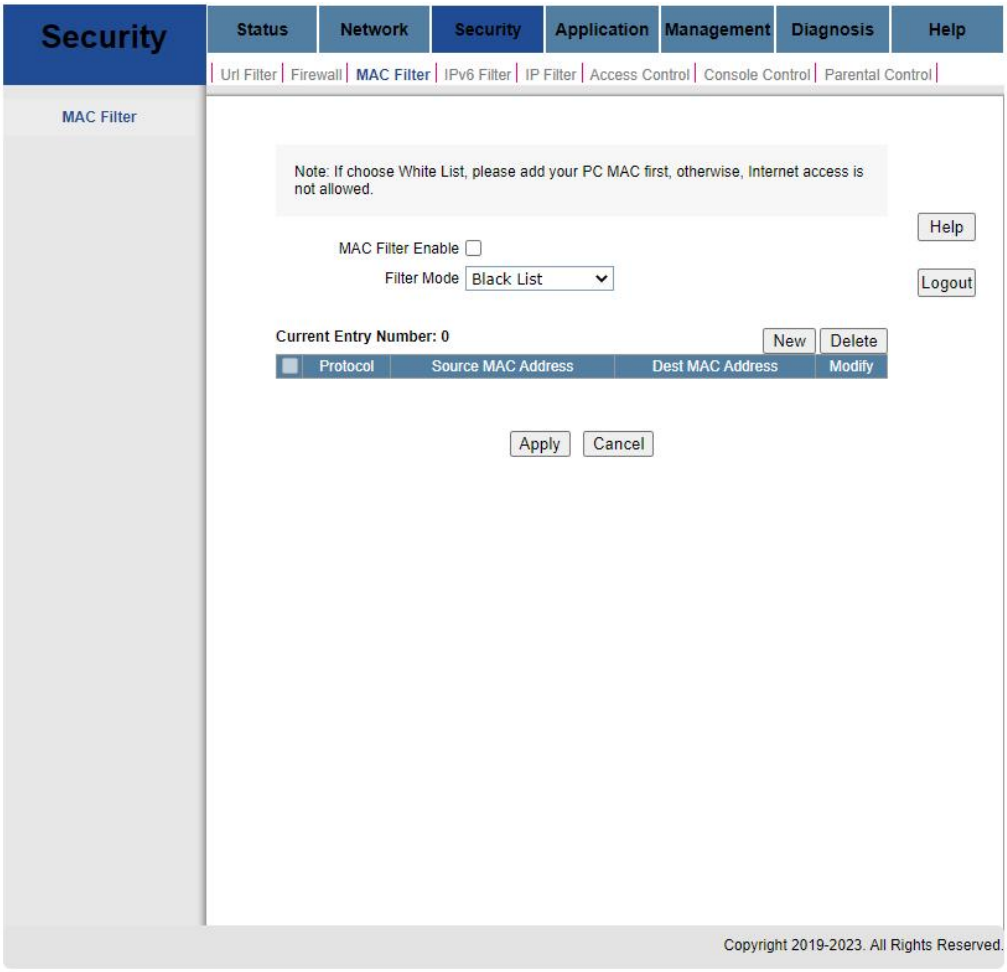
2.5.1 Url Filter



2.5.2 Firewall



2.5.3 MAC Filter



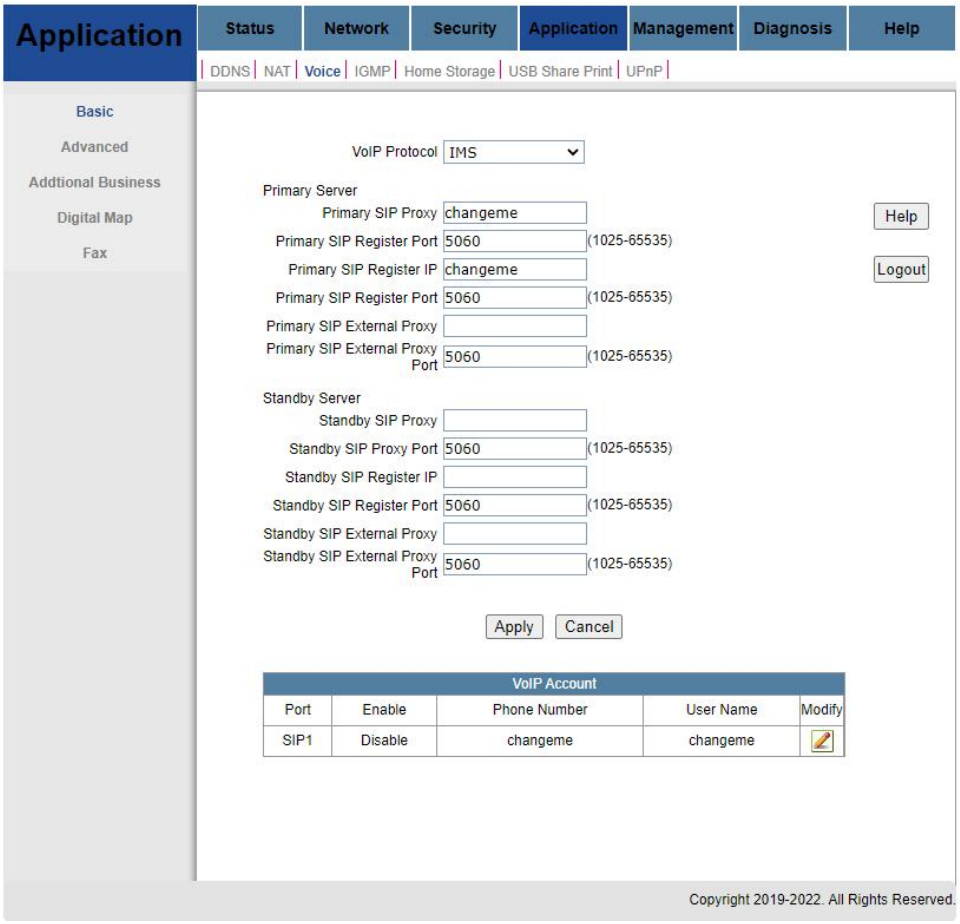
2.6 Application

This page allows you to configure IGMP and VOIP parameters.

2.6.1 Voice

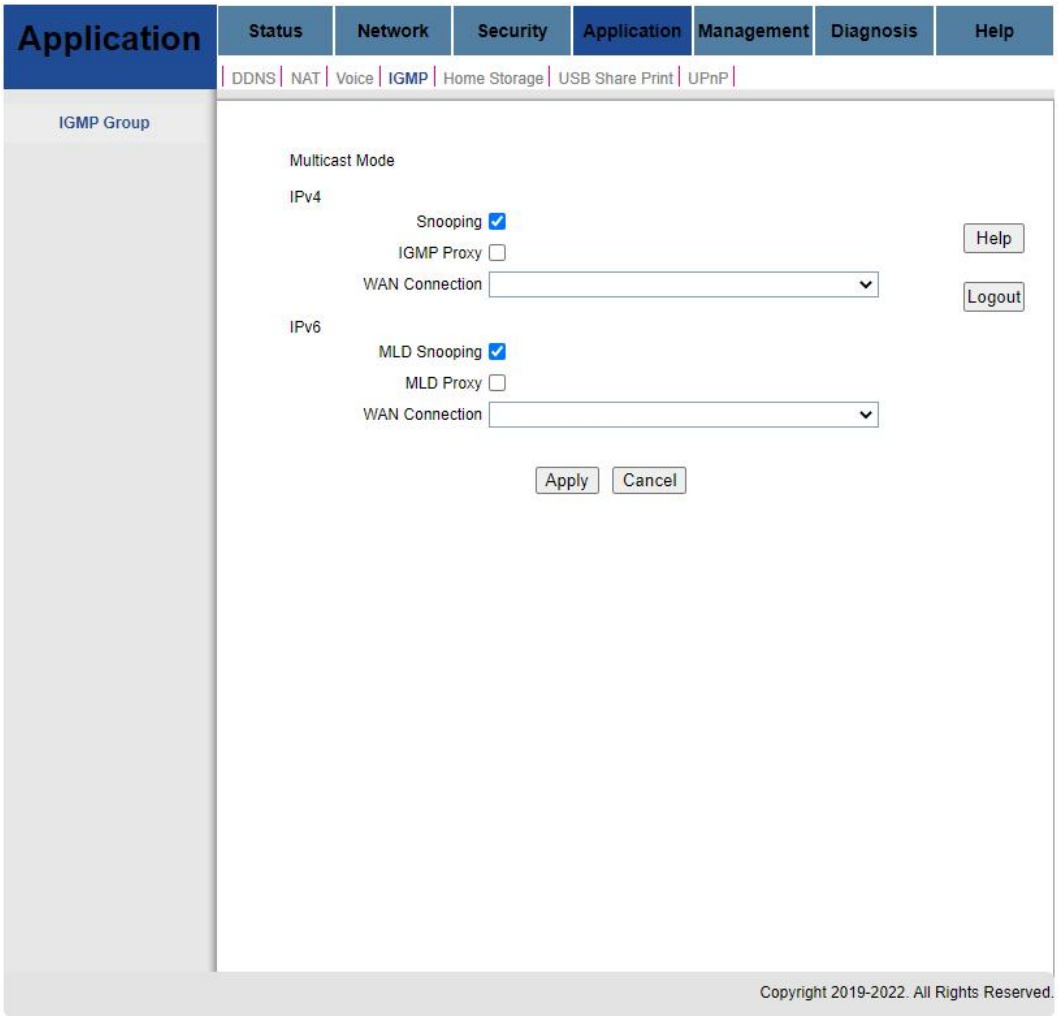
This page is used to configure SIP Server and SIP Account.

Figure 2- 7 DHCP Server and DHCP Relay



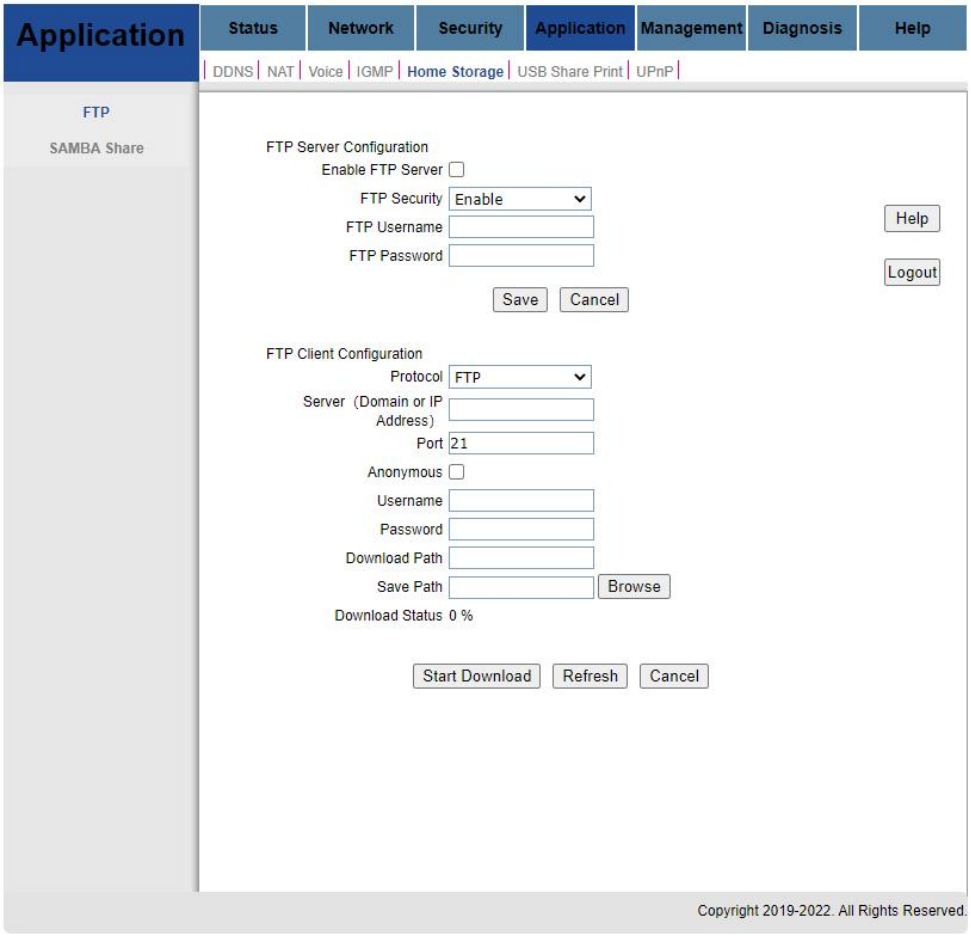
2.6.2 IGMP

Figure 2- 8 DHCP Client

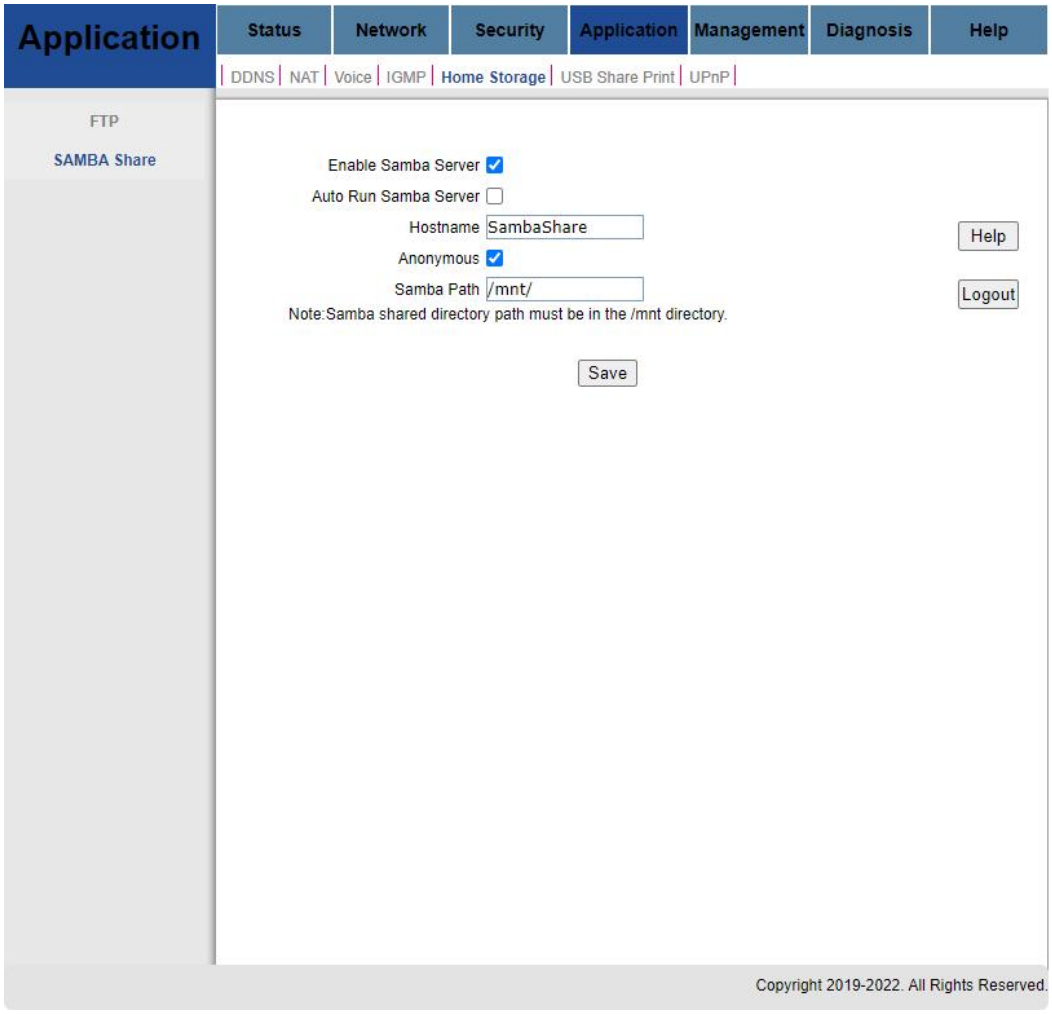


2.6.3 Home-storage

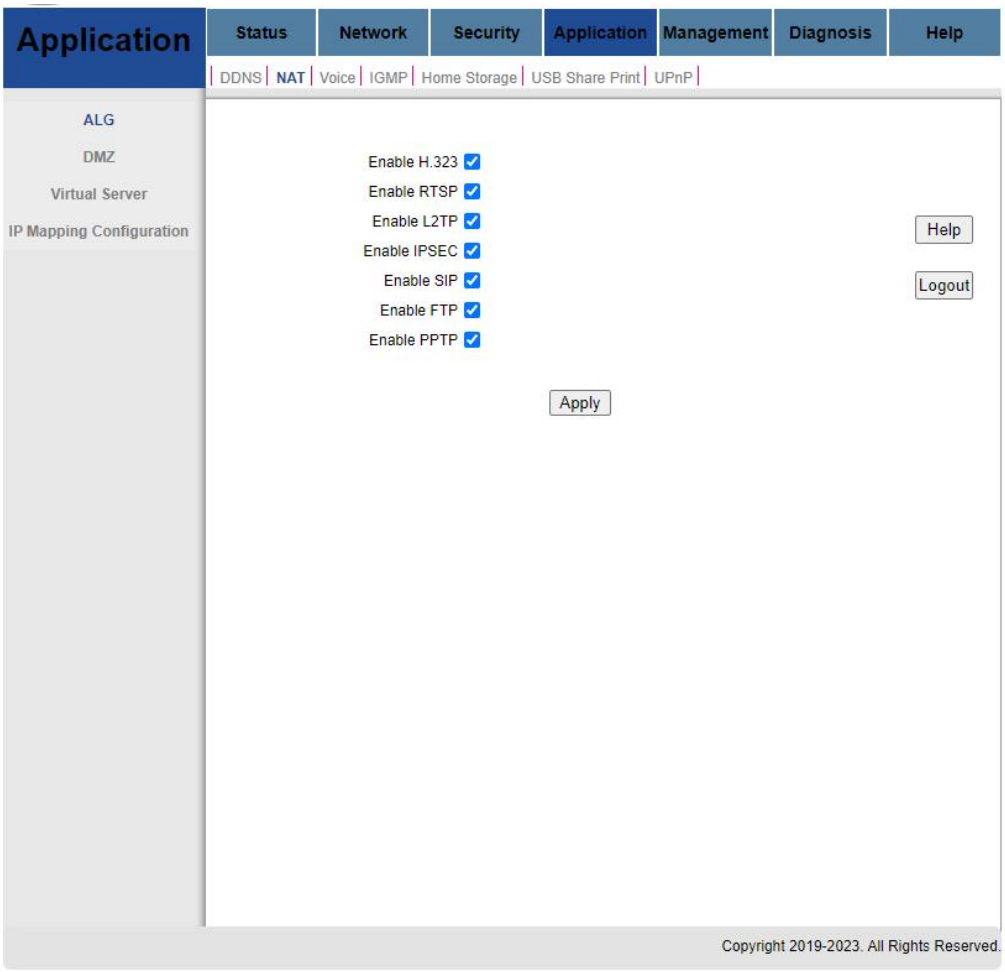
2.6.3.1 FTP



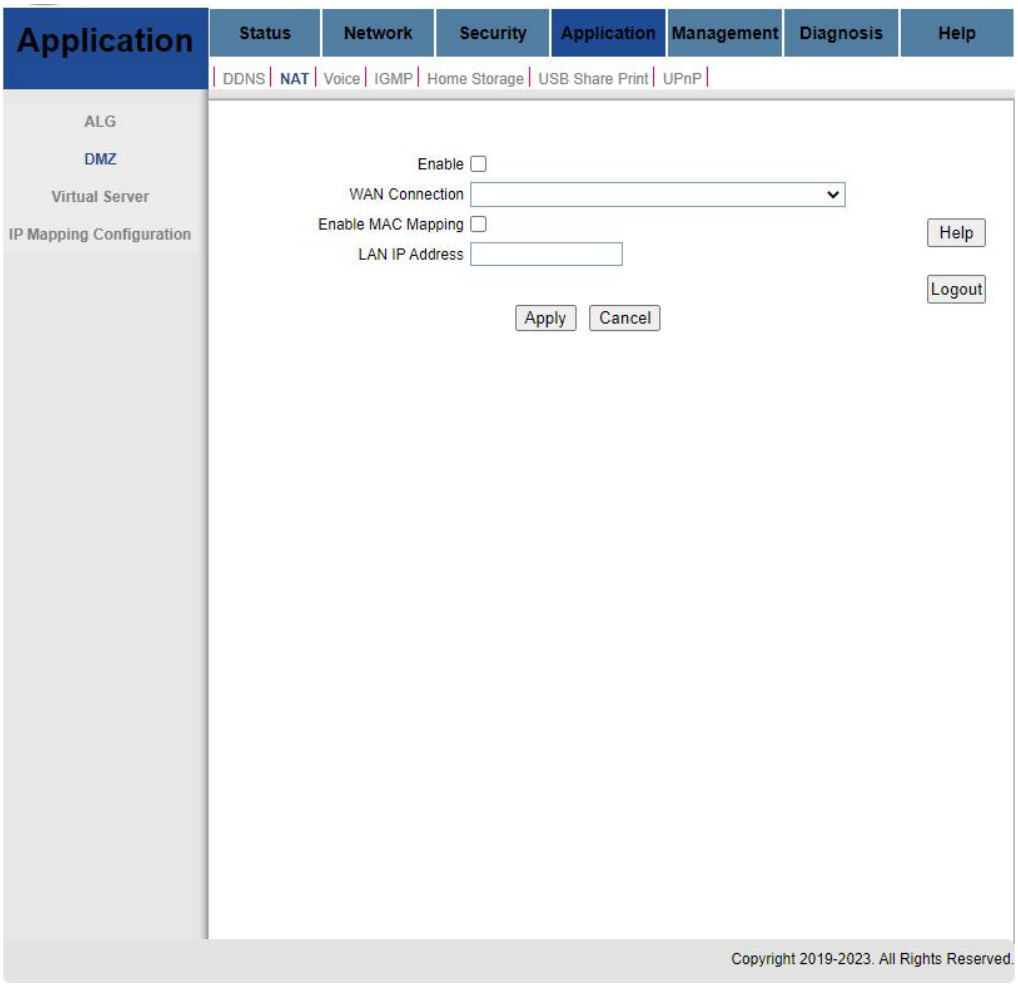
2.6.3.1 SAMBA Share


Application
Status
Network
Security
Application
Management
Diagnosis
Help
DDNS
NAT
Voice
IGMP
Home Storage
USB Share Print
UPnP
FTP
SAMBA Share
Enable Samba Server
Auto Run Samba Server
Hostname
SambaShare
Anonymous
Samba Path
/mnt/
Note:Samba shared directory path must be in the /mnt directory.
Save
Help
Logout
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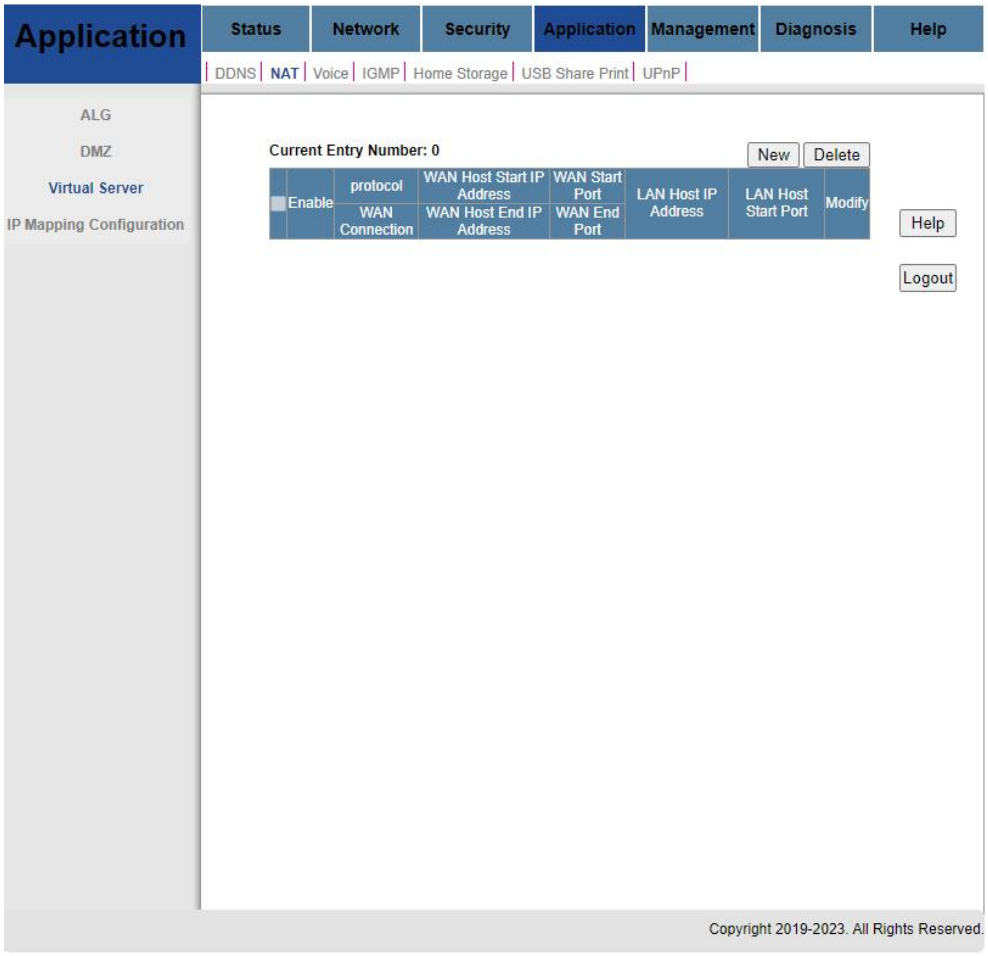
2.6.4 NAT


Application
Status
Network
Security
Application
Management
Diagnosis
Help
DDNS
NAT
Voice
IGMP
Home Storage
USB Share Print
UPnP
ALG
DMZ
Virtual Server
IP Mapping Configuration
Enable H.323
Enable RTSP
Enable L2TP
Enable IPSEC
Enable SIP
Enable FTP
Enable PPTP
Help
Logout
Apply
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2.6.4.1 DMZ


Application
Status
Network
Security
Application
Management
Diagnosis
Help
DDNS
NAT
Voice
IGMP
Home Storage
USB Share Print
UPnP
ALG
DMZ
Virtual Server
IP Mapping Configuration
Enable
WAN Connection
Enable MAC Mapping
LAN IP Address
Help
Logout
Apply
Cancel
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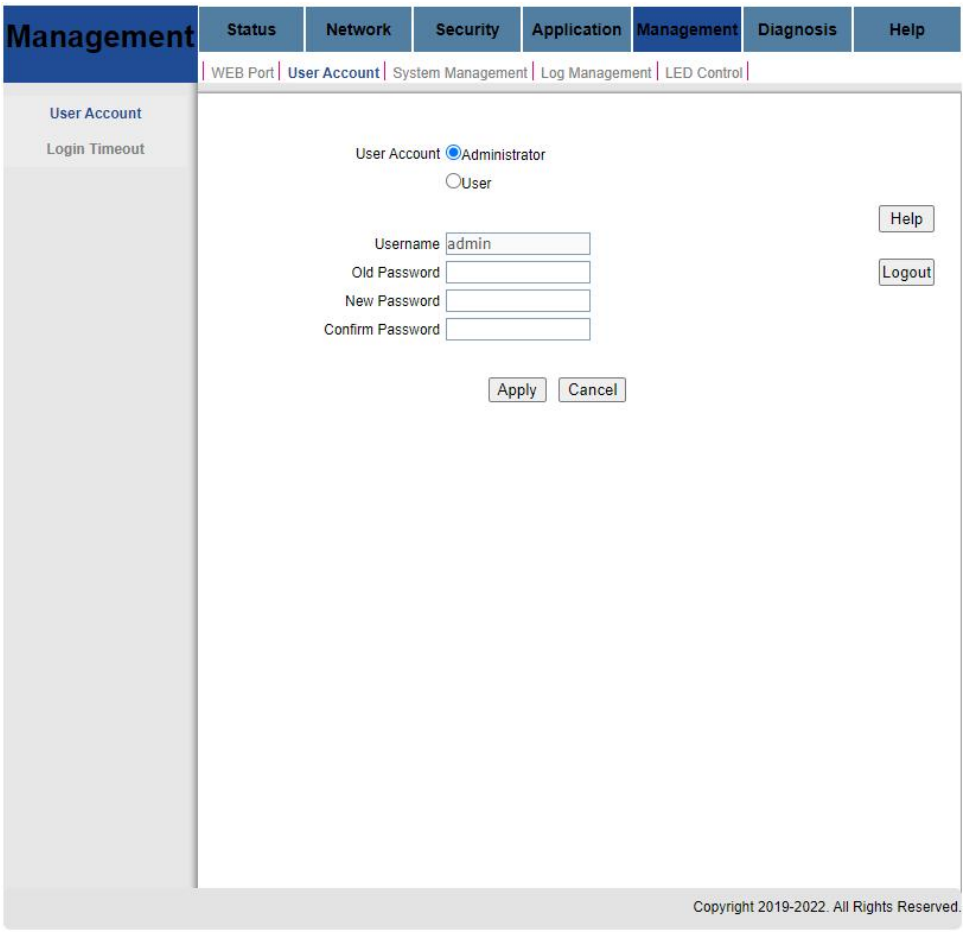
2.6.4.2 Port Forward(Virtual Server)



2.7 Management

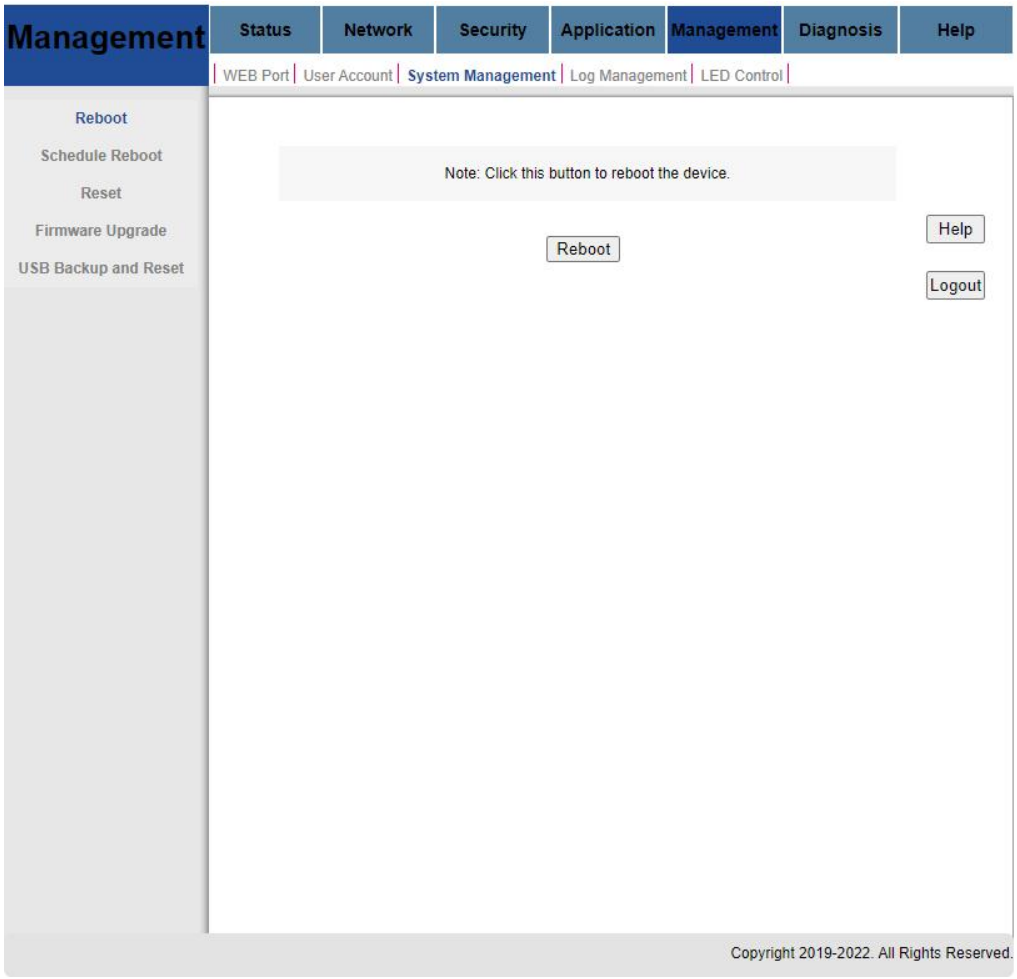
This page is the device maintenance .

2.7.1 User Account

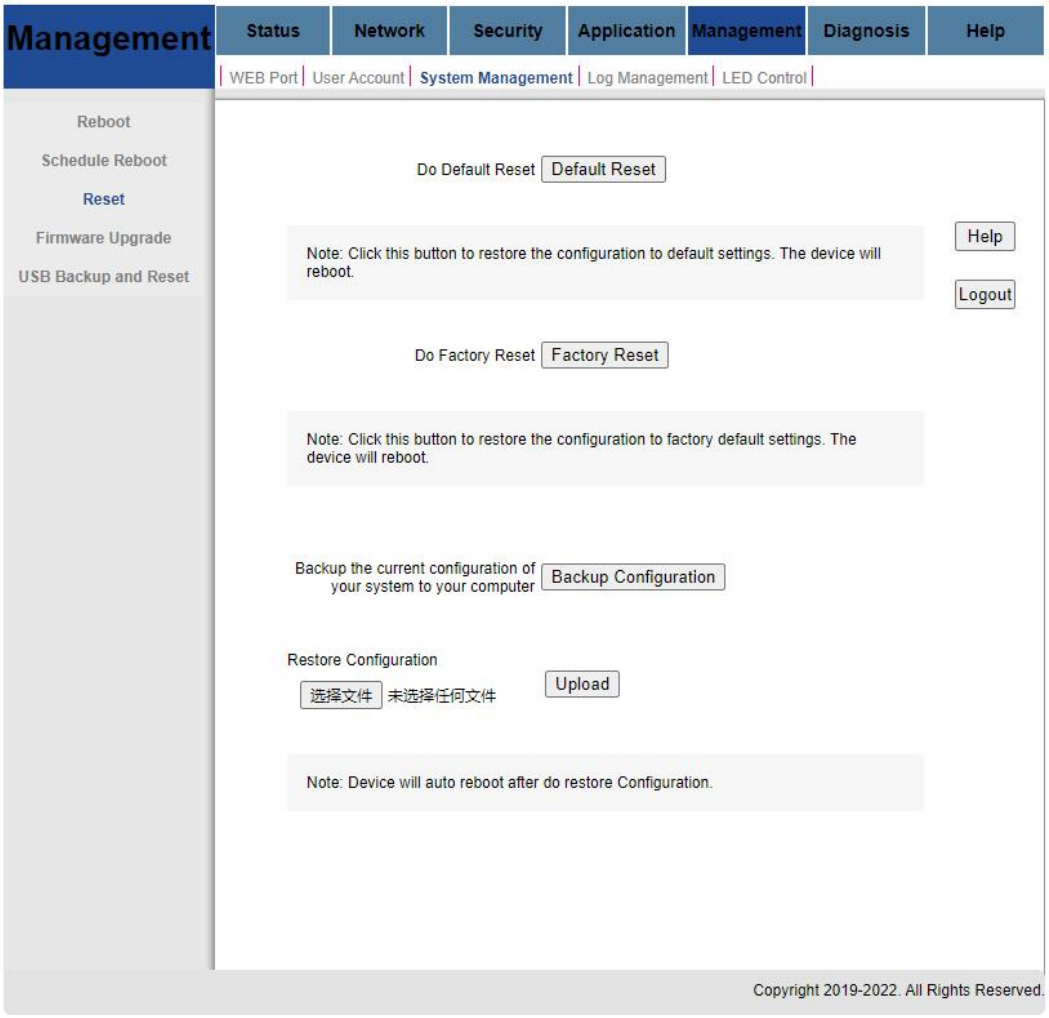


2.7.2 System Management

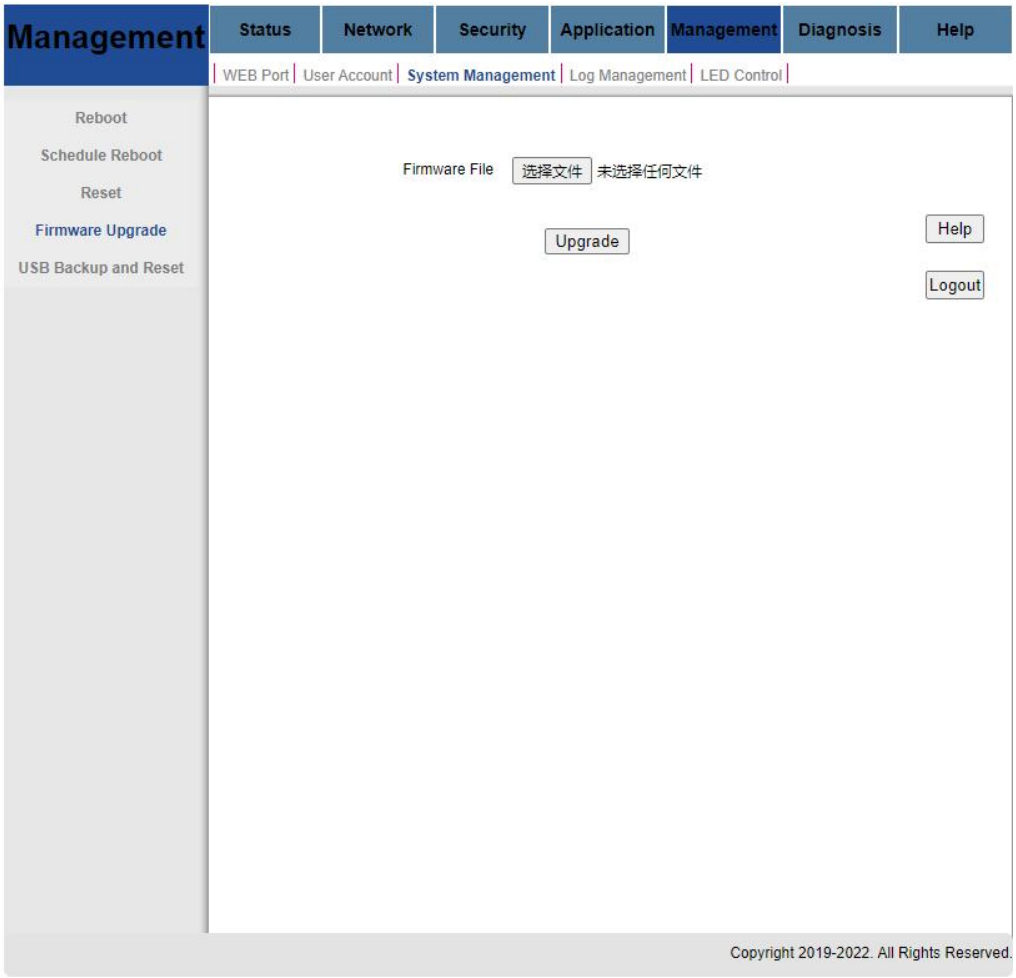
2.6.2.1 Reboot


Management
Status
Network
Security
Application
Management
Diagnosis
Help
WEB Port
User Account
System Management
Log Management
LED Control
Reboot
Schedule Reboot
Reset
Firmware Upgrade
USB Backup and Reset
Note: Click this button to reboot the device.
Reboot
Help
Logout
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2.6.2.2 Reset



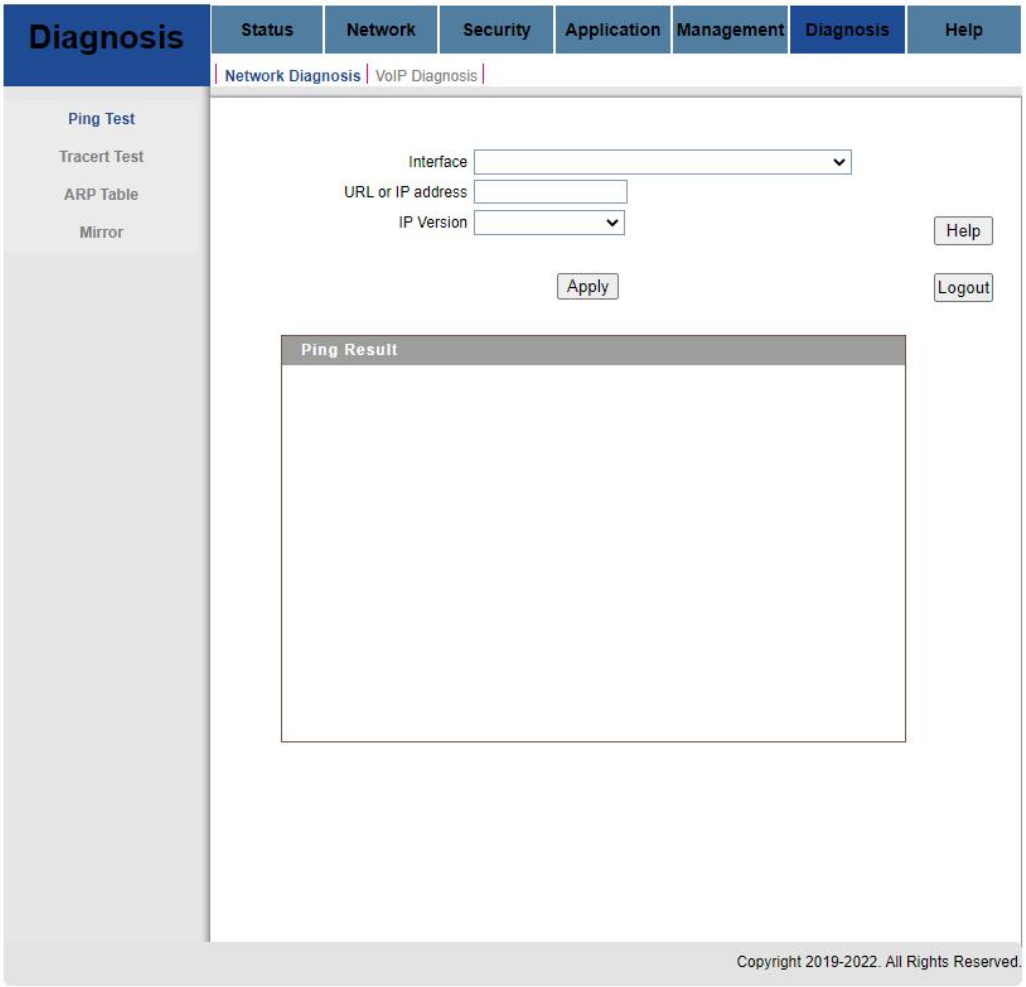
2.6.2.3 Firmware Upgrade



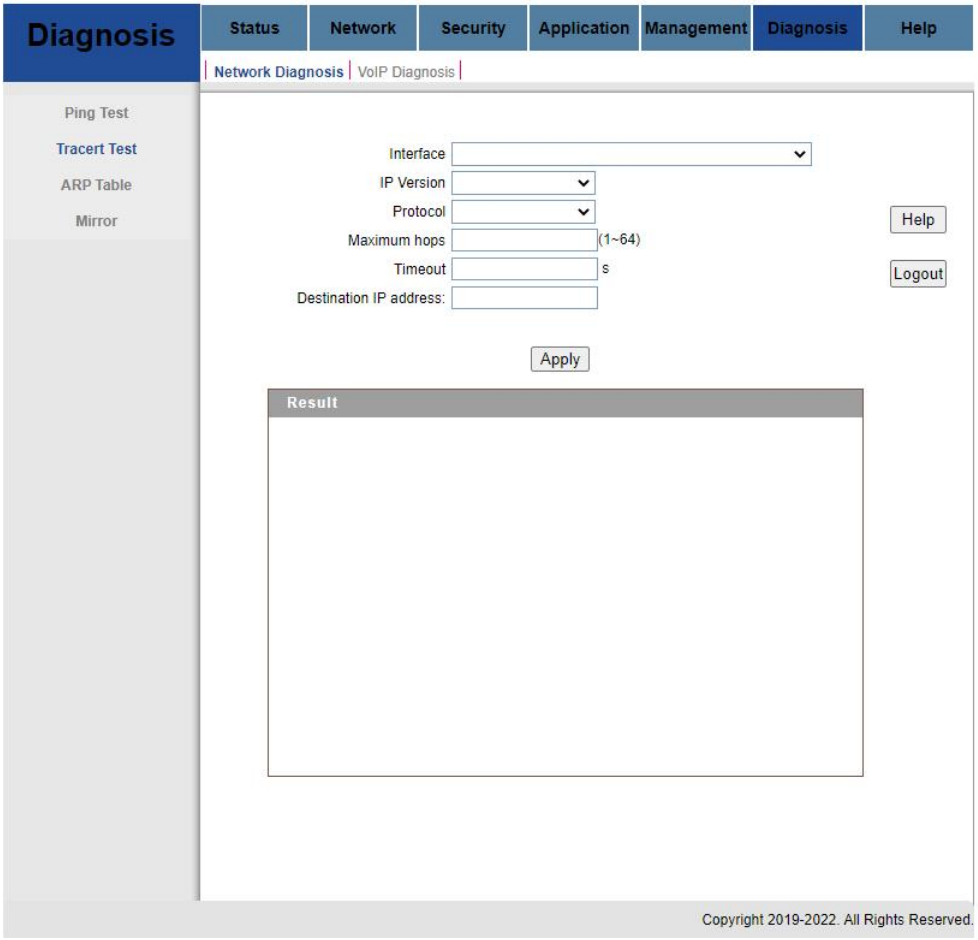
2.7.3 Diagnosis

This page is diagnostic maintenance .

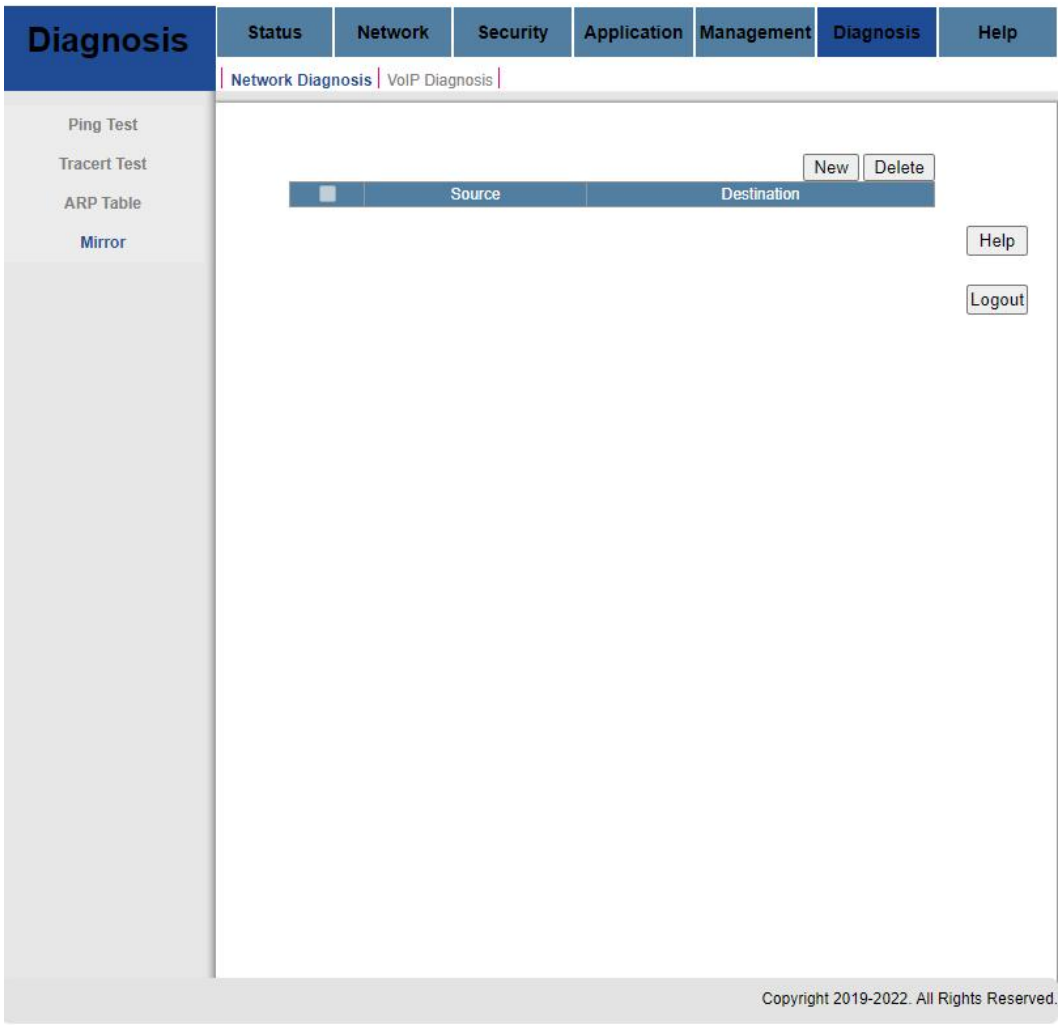
2.6.3.1 Ping


Diagnosis
Status
Network
Security
Application
Management
Diagnosis
Help
Network Diagnosis
VoIP Diagnosis
Ping Test
Tracert Test
ARP Table
Mirror
Interface
URL or IP address
IP Version
Help
Apply
Logout
Ping Result
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2.6.3.1 Tracert Tets



2.6.3.1 Mirror


Diagnosis
Status
Network
Security
Application
Management
Diagnosis
Help
Network Diagnosis
VoIP Diagnosis
Ping Test
Tracert Test
ARP Table
Mirror
New
Delete
Source
Destination
Help
Logout
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3 Frequent Asked Questions

Q: Why are all the LED Indicators off?

A: Please check the connection between power adapter and the ONU. Please make sure power switch is turned on.

Q: Why are the LAN LED Indicators off?

A: Please check the cable connections between ONT and PC, or hub/switch. Please check the status of PC or hub/switch, make sure they are running properly. Please check whether the network cable is broken.

Q: Why is the PON LED Indicator off?

A: Please check the connection between PON port and the fiber.

Q: Why the ONU can not be connected?

A: Please follow below procedures to check the connection between PC and ONU:

Select “Start > Run”, input Ping command: Ping 192.168.1.1 (ONU IP address).

If ONU can not be ping, please check following configuration:

1, Make sure network cable is not broken.

2, Check cable connection between ONU and PC.

3, Check the TCP/IP configuration of your PC.

Q: How to restore to factory defaults?

A: Insert a long pin to “Reset” hole, press and hold it for 5 seconds. ONU will reset automatically. After the reset, ONU will be back to factory default, or login to the box and select restore to factory default.

The default IP address/subnet mask is: 192.168.1.1/255.255.255.0.

Default user name/Password is: admin/system

Abbreviation

DDNS	Dynamic Domain Name Server
DHCP	Dynamic Host Configuration Protocol
DMZ	Demilitarized Zone
DNS	Domain Name Server
DoS	Denial of Service
FTP	File Transfer Protocol
FTTH	Fiber To The Home
GUI	Graphical User Interface
HTTP	Hyper Text Transfer Protocol
ICMP	Internet Control Message Protocol
IGMP	Internet Group Management Protocol
ISP	Internet Service Provider
IPTV	Internet Television
CATV	Cable Television
LAN	Local Area Network
RF	Radio Frequency
POE	Power over Ethernet
MAC	Media Access Control
NAT	Network Address Translation
ONU	Optical Network Unit
OLT	Optical Line Terminal
PON	Passive Optical Network
PPPoE	Point to Point Protocol over Ethernet

QoS	Quality of Service
RIP	Routing Information Protocol
SIP	Session Initiation Protocol
SOHO	Small Office Home Office
SID	Service Set Identifier
STB	Set Top Box
UDP	User Datagram Protocol
UPNP	Universal Plug and Play
URL	Uniform Resource Locator
TCP	Transmission Control Protocol
VLAN	Virtual Local Area Network
VoIP	Voice over IP
WLAN	Wireless Local Area Network