ASCENT
Communication Technology

AP201CW GPON WiFi ONT

Quick Reference Guide

Revision A

ACT AP201CW GPON 1 GE + WiFi ONT

Quick Reference Guide

ACT Document Number: ACT AP201CW Quick Reference Guide

User Guide Revision A

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This document is produced to assist professional and properly trained personnel with installation and maintenance issues for the product. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

For more information, contact ACT: support@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
A	08/02/2016	Initial Release

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1 Notes

1.1 Installation Precautions

- Do not place the equipment near flammable or conductive items, high temperatures (such as direct sunlight) or in wet conditions, or on a PC chassis, and check that the surrounding appliances are stable.
- Check the cable for aging. Check and verify that the AC or DC input voltage is within the permissible range of the device and that the polarity of the DC is correct.
- Unless the manufacturer permit, use the type of power indicated on the label and the adapter supplied with the product.
- To prevent damage to the product from lightning, make sure that the ground of the power outlet and the power adapter is securely grounded. In the thunderstorm, be sure to unplug the power and all the connections.
- Equipment input voltage fluctuation should be less than 10%, the power plug, refrigerators, hair dryer and iron should not use the same socket.
- To avoid electric shock or fire due to overload of the power outlet, damage to the cord or damage to the plug, check the power cord regularly. If damage is found, replace it immediately.
- Please place the device on a flat surface and cannot place items on the device.
- Equipment is easy to produce heat when working, should maintain the appropriate cooling space to avoid damage caused by overheating products. The elongated hole on the shell is designed for heat dissipation. Keep the ventilation clean and avoid falling from the heat sink into the equipment. Otherwise, the equipment may be damaged or damaged. Do not spill liquid onto the surface of the equipment.

1.2 Precautions for Use

- Please read the user manual carefully before using the equipment and follow all the precautions on the user manual and the product.
- Avoid eye looked at the optical interface directly, so as to avoid the laser beam emitted by the interface damage the eyes. Please try to wear safety glasses to effectively protect your eyes from damage. It is best to plug in the fiber optic interface jacket when the optical interface is not in use.
- Turn off the power when the device is not in use
- Before plugging the power supply, make sure that the power switch is turned off to avoid surge. Be careful when unplugging the power supply and the transformer temperature may be high.
- To ensure safety, do not open the enclosure of the device, especially when the device is powered up.
- Unplug the power supply before cleaning the equipment. Use a soft dry cloth to clean the equipment to avoid the use of liquids or sprays.
- Do not connect this product to any electronic product unless it is instructed by our customer engineer or your broadband supplier, as any incorrect connection may cause power or fire hazard.

2 Overview

Ascent's AP201C GPON ONU series is fiber to the home multi-service access GPON ONT. It's based on the mature, stable, high cost performance GPON technology and has gigabit Ethernet switching and HFC technology. Ascent GPON ONU series has a higher bandwidth, higher reliability, easy management and good quality of service (QoS) guarantee with technical performance of equipment meet the ITU-T G. 984 requirements and have good compatibility with third party manufacturers OLT.

GPON is the latest generations of access network technology. ITU-T G.984 is the standard protocol of GPON. The GPON standard differs from other PON standards in that it achieves higher bandwidth and higher efficiency using larger, variable-length packets. GPON offers efficient packaging of user traffic, with frame segmentation allowing higher quality of service (QOS) for delay-sensitive voice and video communications traffic. GPON network provides the reliability and performance expected for business services and provides an attractive way to deliver residential services. GPON enables fiber to the home (FTTH) deployments economically resulting to accelerated growth worldwide.

It adopts dual fiber WDM technology with downlink wavelength 1490 nm, uplink wavelength 1310 nm. It only needs one-core fiber to transmit data service. It also have a HFC optical port, received the CATV optical signals and convert into electric CATV signals.

Ascent GPON ONU series can integration wireless function with meet 802.11 b/g/n technical standards, the wireless transmission rate up to 300 Mbps. It has the characteristics of strong penetrating power and wide coverage. It can provide users with more efficient data transmission security.

2.1 Product Features

- Supports port-based rate limitation and bandwidth control
- In compliant with ITU-T G. 984 standard
- Wi-Fi series meet 802.11 b/g/n technical standards
- Supports data encryption, group broadcasting, port VLAN separation, etc.
- Supports Dynamic Bandwidth Allocation (DBA)
- Supports ONU auto-discovery/Link detection/remote upgrade of software
- Supports port mode of VLAN configuration
- Supports power-off alarm function, easy for link problem detection
- Supports broadcasting storm resistance function
- Supports port isolation between different ports
- Supports port flow control
- Supports ACL and SNMP to configure data packet filter flexibly
- Specialized design for system breakdown prevention to maintain stable system
- Supports software online upgrading
- EMS network management based on SNMP, convenient for maintenance
- Supports CATV service remote shutdown function
- Operating wavelength: 1100 nm to 1600 nm

- Light reflection loss: >45 dB
- Input optical power: -18 dBm to 0 dBm

2.2 Product Specifications

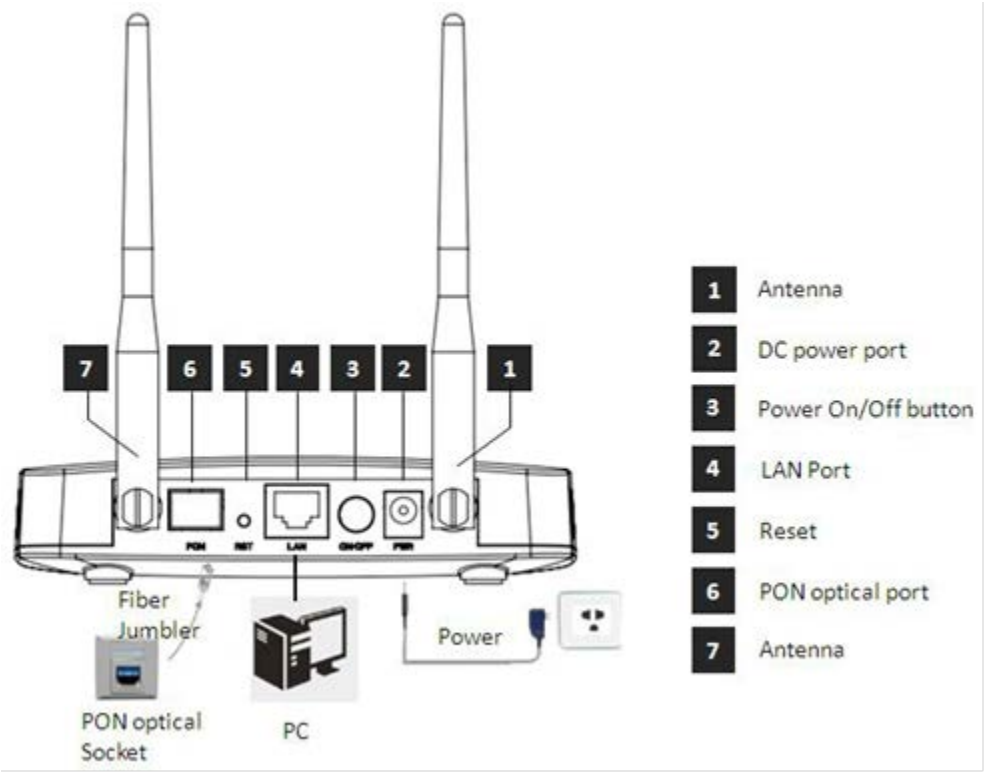
PON Port	1 × GPON port, FSAN G.984.2 standard, class B+
	Downstream data rate: 2.488 Gbps
	Upstream data rate: 1.244 Gbps
	SC/PC single mode fiber
	28 dB link loss and 30 km distance with 1:128
Ethernet Port (LAN)	1 × 10/100/1000M auto-negotiation RJ45 ports
	Full duplex / half-duplex
	RJ45, auto-MDI/MDI-X (transmission distance 100 m)
PON Optical Parameters	
Wavelength	Tx 1310 nm, Rx1490 nm
Tx Optical Power	0 to 5 dBm
Rx Sensitivity	-27 dBm
Saturation Optical Power	-8 dBm
Connector Type	SC
Optical Fiber	9/125 µm single-mode fiber
Data Transmission Parameters	
PON Throughput	Downstream: 2.488 Gbit/s
	Upstream: 1.244 Gbit/s
Ethernet	1000 Mbps
Packet Loss Ratio	<1*10E-12
Latency	<1.5 ms
Business Capability	Layer 2 wire speed switching
	Supports VLAN TAG/UNTAG, VLAN conversion
	Supports port-based speed limitation
	Supports priority classification
	Supports broadcast storm control
	Supports loop detection
Management	
Network Management	Supports IEEE802.3 QAM, ONU can be remotely managed by OLT
	Standard compliant OMCI interface as defined by ITU-T G.984.4
	Supports WEB management
Management Function	Status monitor, configuration management, alarm management, log management
Environmental Specifications	
Shell	Plastic casing
Power Supply	12 V DC / 0.5 A power supply adapter
Power Consumption	<4 W
Dimensions (L × W × H)	135 mm × 90 mm × 30mm
Weight	0.2 kg
Operating Temperature	0 °C to +50 °C

Storage Temperature	-40 °C to +85 °C
Operating Humidity	10 % to 90 % RH (non-condensing)
Storage Humidity	10 % to 90 % RH (non-condensing)

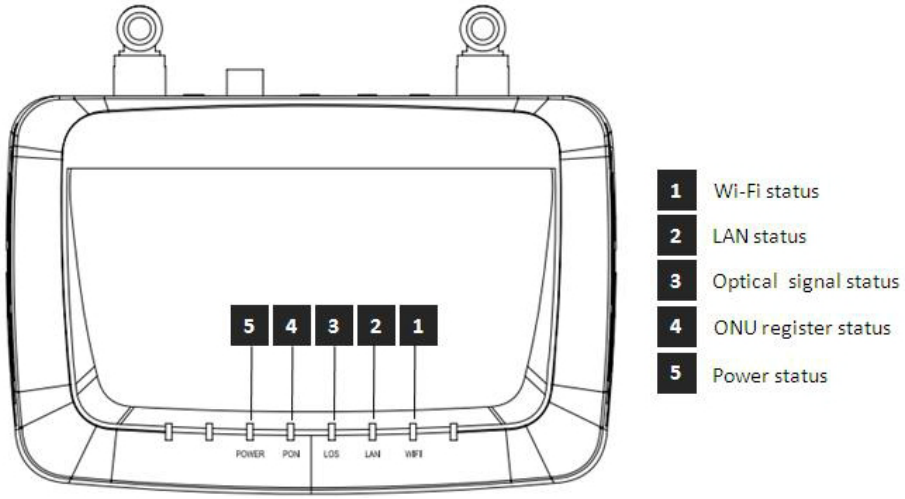
2.3 WiFi Specifications

Operating Mode	Router or bridge
Throughput	IEEE 802.11b: 11Mbps
	IEEE 802.11g: 54 Mbps
	IEEE 802.11n: 300 Mbps
Frequency	2.412 GHz to 2.472 GHz
Channels	13 × channels, configurable to meet the standards of USA, Canada, Japan, and China
Modulation	DSSS , CCK and OFDM
Coding	BPSK, QPSK, 16QAM and 64QAM
RF Receiver Sensitivity	
802.11b	-83 dBm @ 1 Mbps; -80 dBm @ 2 Mbps
	-79 dBm @ 5.5 Mbps; -76 dBm @ 11 Mbps
802.11g	-85 dBm @ 6 Mbps; -84 dBm @ 9 Mbps
	-82 dBm @ 12 Mbps; -80 dBm @ 18 Mbps
	-77 dBm @ 24 Mbps; -73 dBm @ 36 Mbps
	-69 dBm @ 48 Mbps; -68 dBm @ 54 Mbps
802.11n 20MHz	-74 dBm @ 65 Mbps
	-70 dBm @ 130 Mbps
802.11n 40MHz	-70 dBm @ 135 Mbps
	-67 dBm @ 300 Mbps
RF Output Level	
802.11b	17 dBm ± 0.5 dBm @ 11 Mbps
802.11g	15 dBm ± 0.5 dBm @ 54 Mbps
	16 dBm ± 0.5 dBm @ 48 Mbps
	17 dBm ± 1 dBm @ 6 Mbsp to 36 Mbps
802.11n 20 MHz	14 dBm ± 0.5 dBm @ 130 Mbps
	15 dBm ± 0.5 dBm @ 78 Mbps
	18 dBm ± 0.5 dBm @ 6.5 Mbps
802.11n 40 MHz	14 dBm ± 0.5 dBm @ 300 Mbps
	15 dBm ± 0.5 dBm @ 162 Mbps
	18 dBm ± 0.5 dBm @ 13.5 Mbps
Encryption Mode	802.11i security: WEP-64/128, TKIP (WPA-PSK) and AES (WPA2-PSK)

2.4 Device Interface Definition



2.5 LED Description



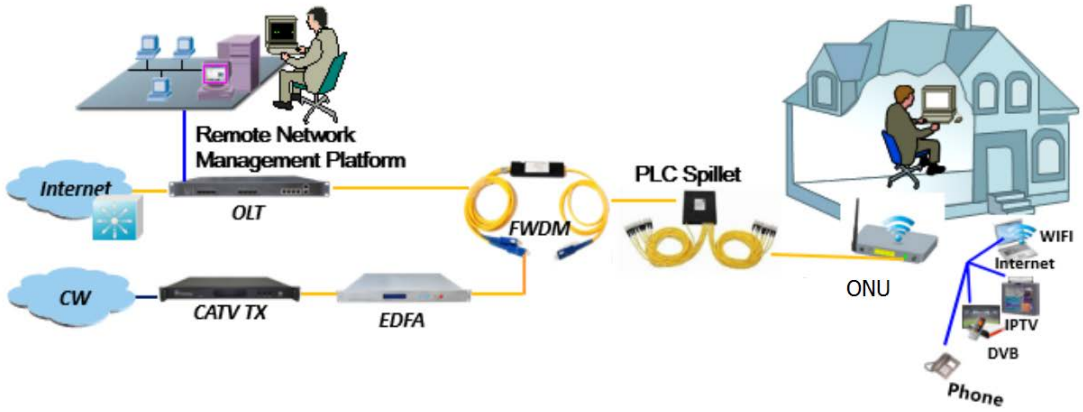
Indicator			Description
1	WIFI	WIFI	Blinking: Data is being transmitted On: Wi-Fi function Open Off: Wi-Fi function Close
2	LAN	LAN port status	On: Ethernet connection is normal

			Blinking: Data is being transmitted through the Ethernet port Off: Ethernet connection is not set up
3	LOS	GPON optical signals	On: Optical power lower than receiver sensitivity Off: Optical in normal
4	PON	ONT Register	On: Success to register to OLT Blinking: In process of registering to OLT Off: In process of registering to OLT
5	PWR	Power Status	On: The ONU is power on Off: The ONU is Power off

2.6 Device Connection

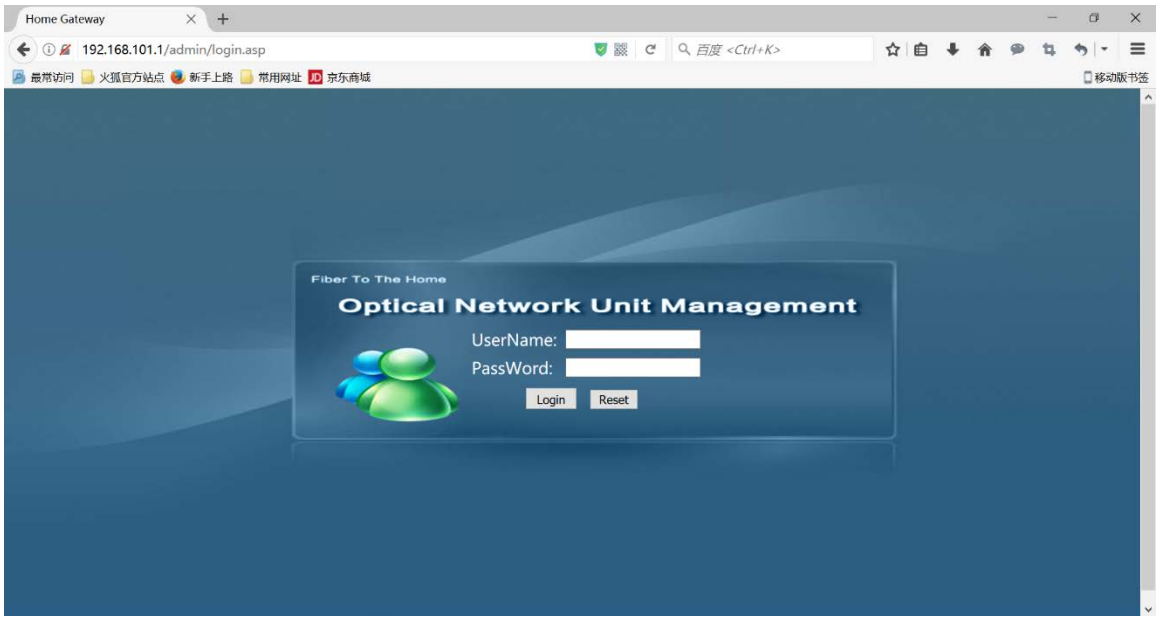
- Connect the fiber: Insert the SC fiber connector into the PON connector on the rear panel of the ONU.
- Connect the Ethernet cable: Connect the RJ-45 Ethernet cable to any LAN (LAN1-LAN4) port and each home device, that is, the computer, IPTV set-top box, and so on.
- Connect coaxial cable: Connect the coaxial cable to the RF connector of the ONU.
- Connect the AC adapter: Plug the AC / DC adapter into the AC wall jack and the ONU 12V DC power jack.

2.7 Applications



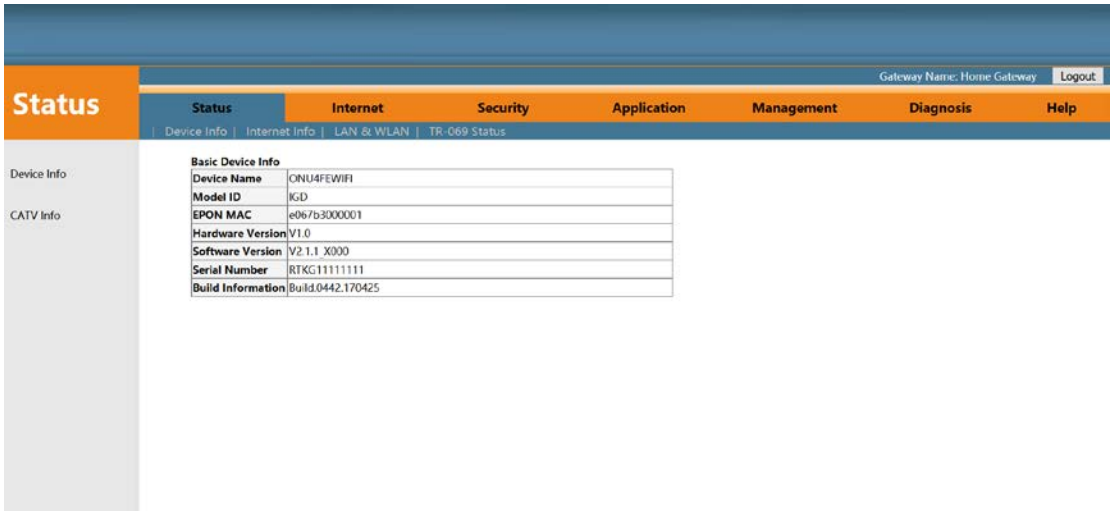
3 Login Web Management

The computer's local network port IP address manually set to 192.168.101.100, use the network cable, connect the computer and any one of the Ethernet port of EPON home gateway ONU, open the IE Web browser, copy and paste URL: http: //192.168.101.1, the following pop-up Prompt landing page:



Input UserName: **admin** PassWord: **admin**

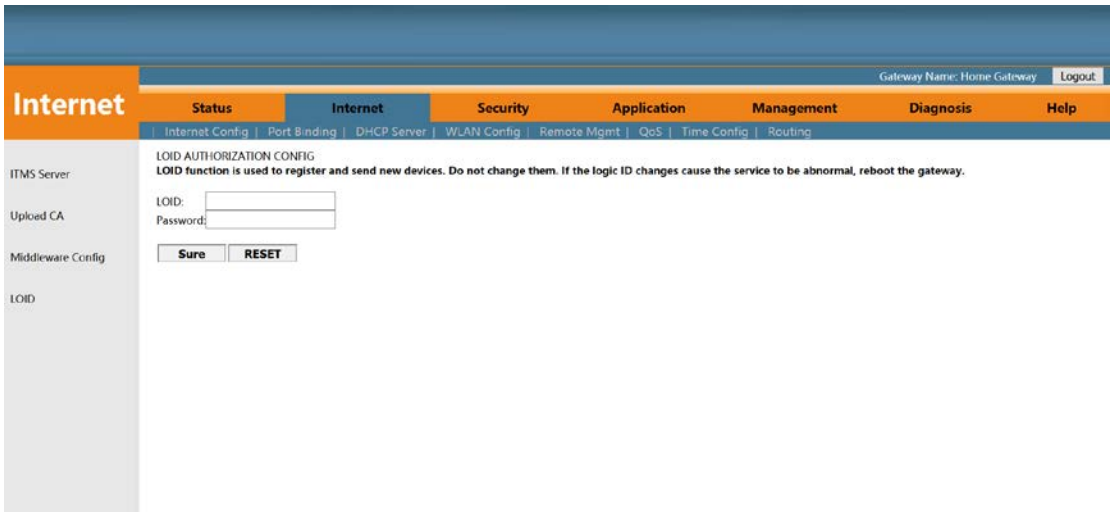
Click "**Login**" button, the product basics page appears, as follows:



You can start further configuration

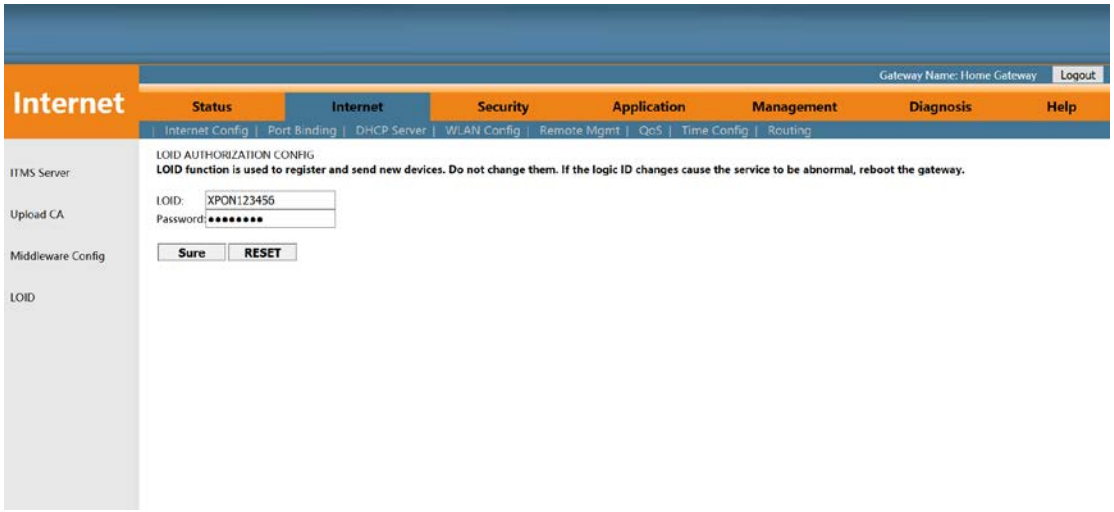
4 ONT Authentication Settings

Select **Internet → Remote Mgmt → LOID**, Enter the following interface:



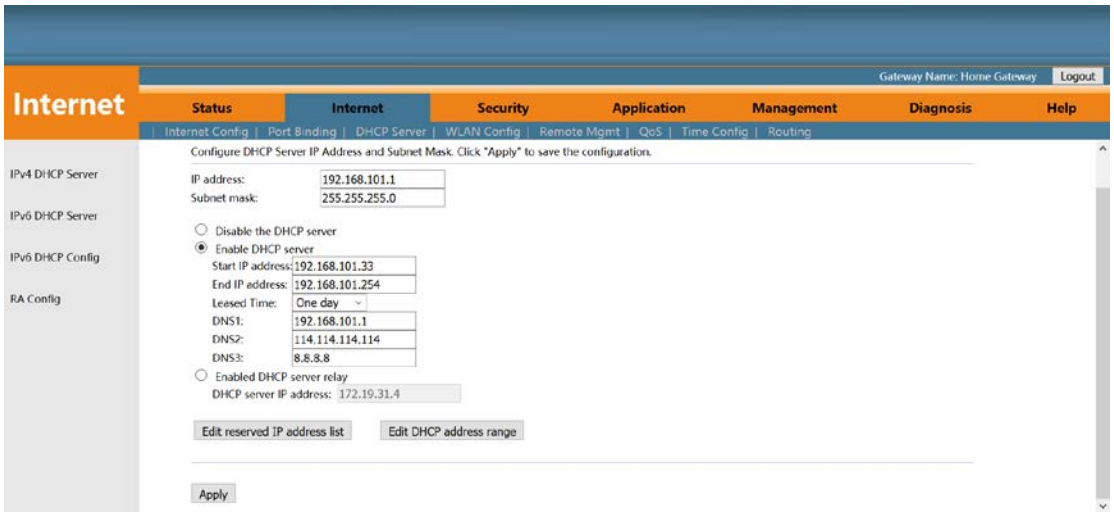
4.1 LOID Authentication Mode

Fill in the following attribute fields with the pre-assigned LOID and the password (which can be empty), click **Sure**.



5 DHCP Configuration

Select **Internet → DHCP Server → configure IP address → enable DHCP server →** set the DNS address, click **Apply**.



6 WAN Configuration

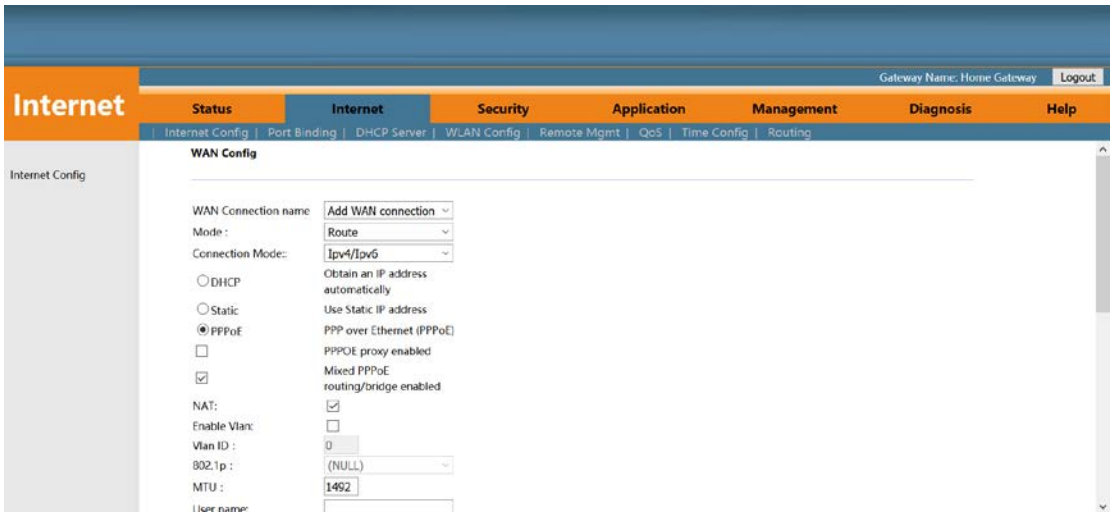
Route mode: ONT as a home gateway equipment, ONT IP address can be obtained in three ways, which include DHCP, Static and PPPoE. The IP address of the device on the user side is obtained through the DHCP address pool of the ONT, or by manually setting;

Bridge mode: The ONT does not obtain the IP address assigned by the upper device or cannot manually set the static IP address. It is used as a relay device and does not process the data. There are three ways to obtain the IP address of the user side device, namely DHCP, PPPoE, manual setting.

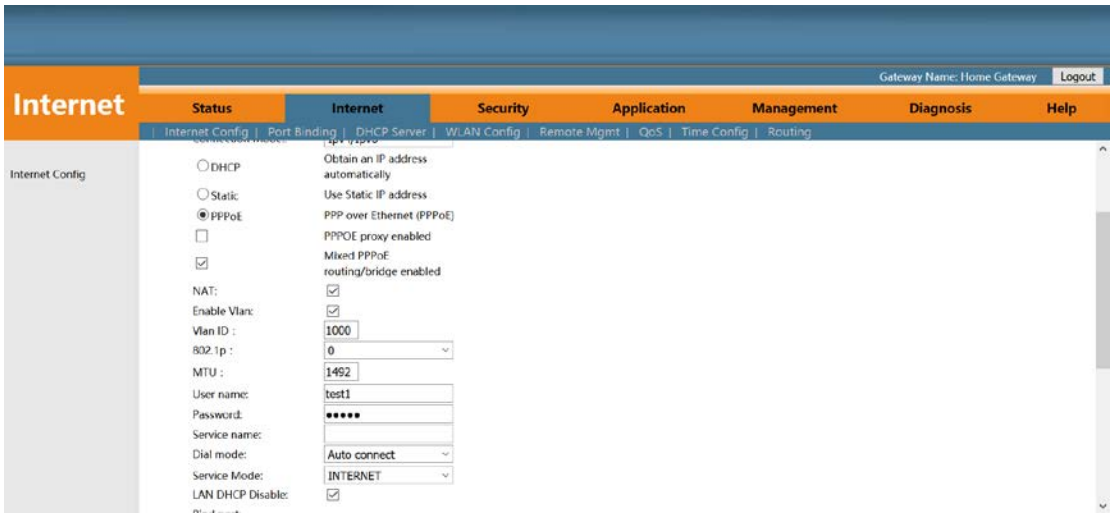
6.1 Route Mode

6.1.1 PPPoE

1. Select **Internet → Internet config, "WAN Connection name"** select **"Add WAN connection", "Mode"** select **"Route".**



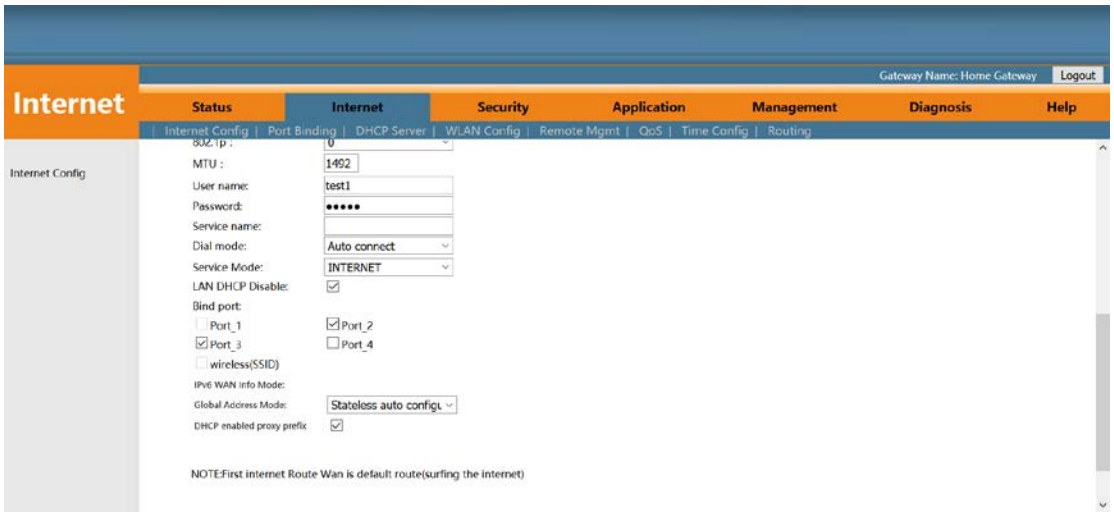
2. Select **PPPoE**, **Enable vlan**, configure VLAN ID and priority;Configure PPPoE user name and password and so on, “Service Mode” select “**INTERNET**”.



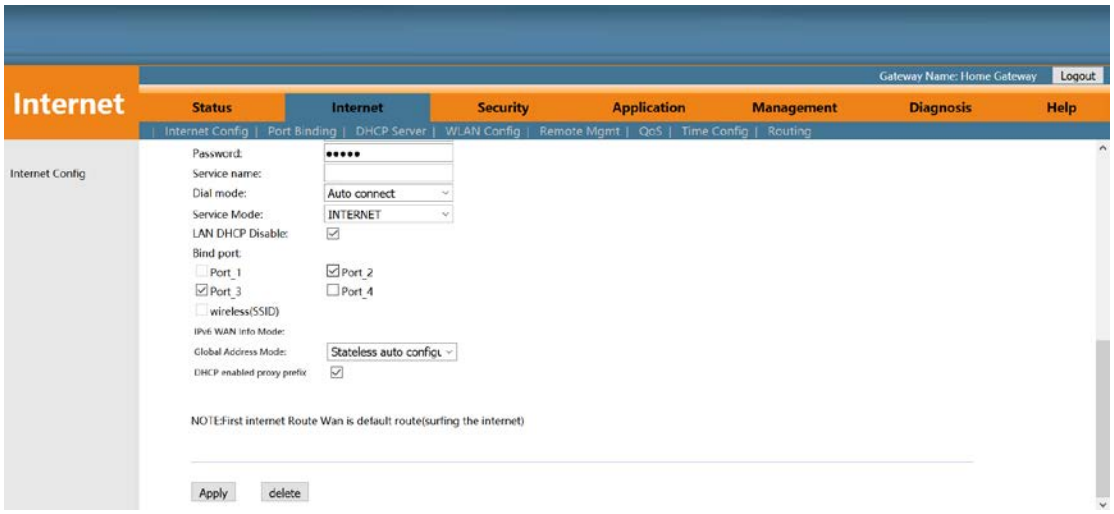
3. Optional binding LAN port and WiFi SSID to **PPPoE** wan.

Note

By default, all LAN ports and WiFi data are not bound by this WAN (a LAN and WiFi SSID can only be bound to a WAN at the same time).



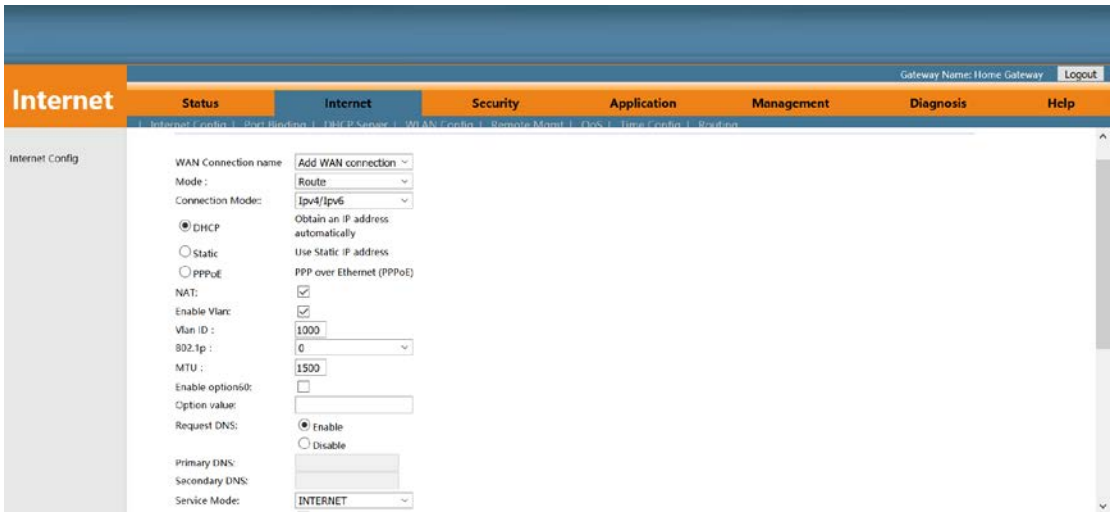
4. Click **"Apply"** to apply WAN configuration



6.1.2 DHCP(Dynamic IP)

1. The first step is the same as PPPoE mode.

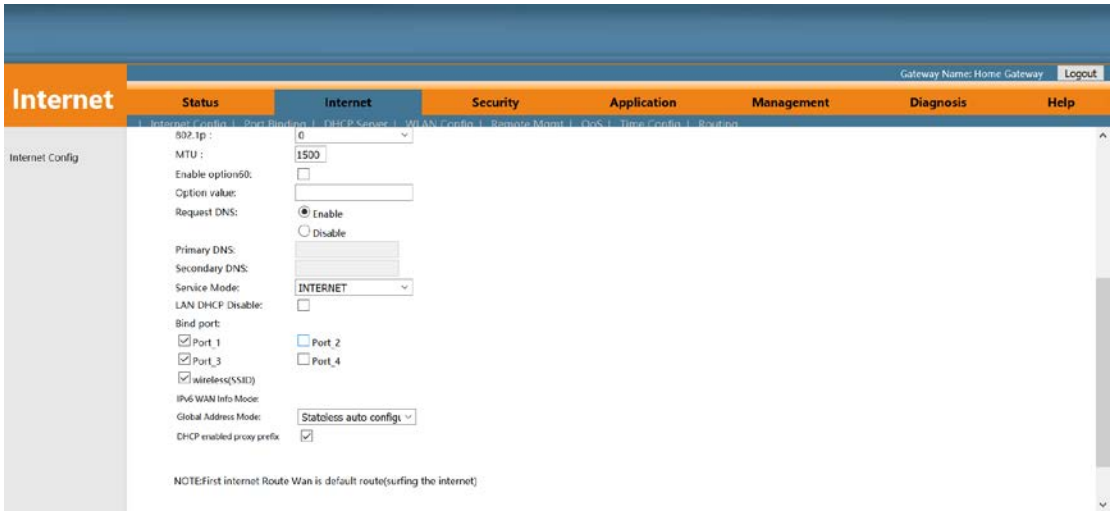
2. Select WAN type as DHCP, enable vlan, configure VLAN and priority, "Service Mode" select "**INTERNET**".



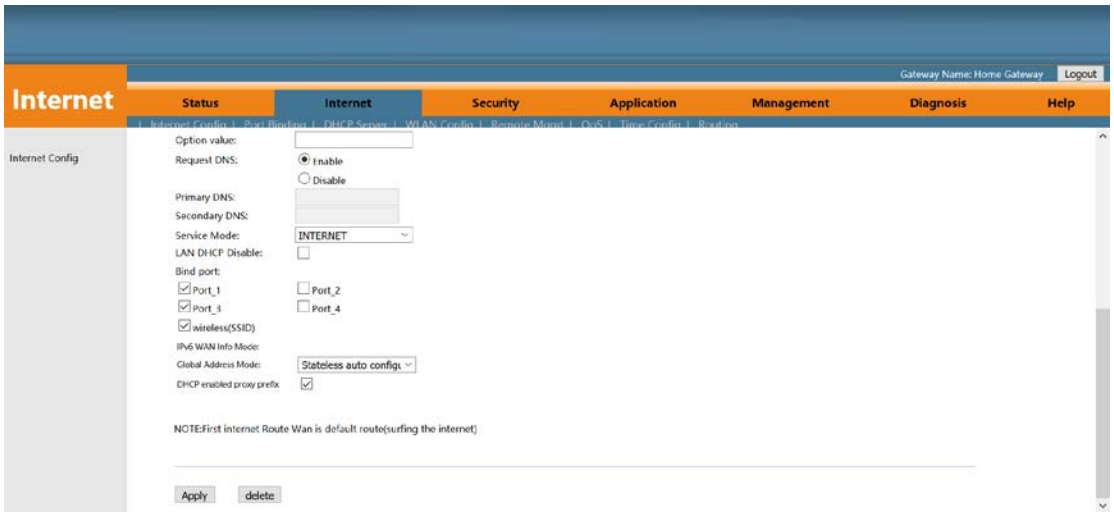
3. Optional binding LAN port and WiFi SSID to **DHCP** wan.

Note

By default, all LAN ports and WiFi data are not bound by this WAN (a LAN and WiFi SSID can only be bound to a WAN at the same time).



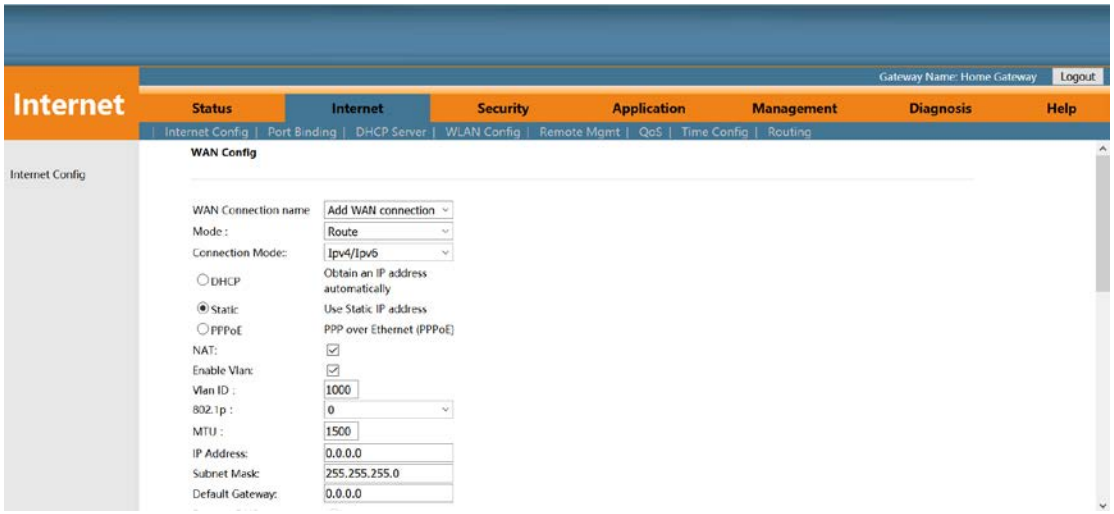
4. Click "**Apply**" to apply WAN configuration



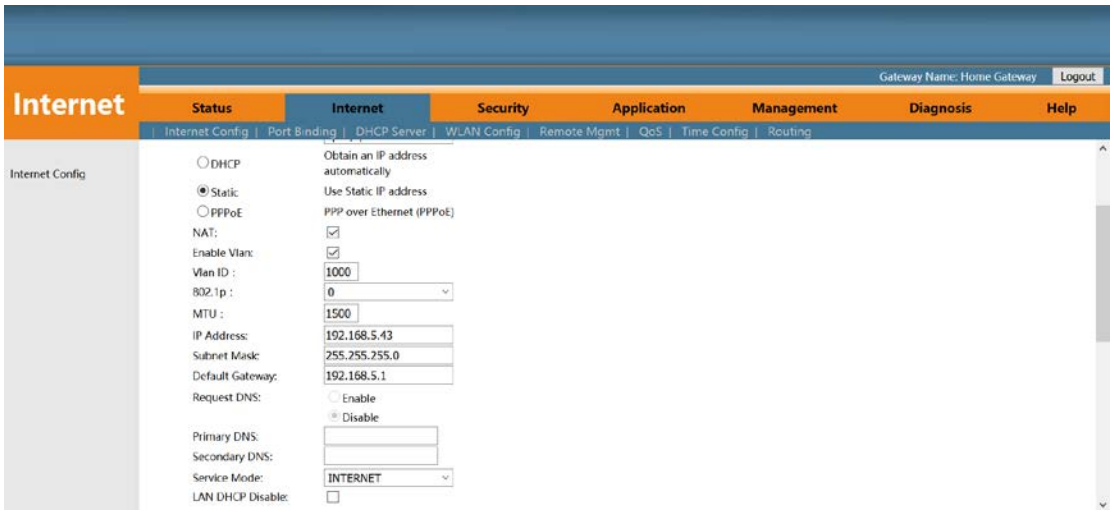
6.1.3 Static IP

1. The first step is the same as PPPoE mode.

2. Select WAN type as static, enable vlan, configure VLAN and priority.



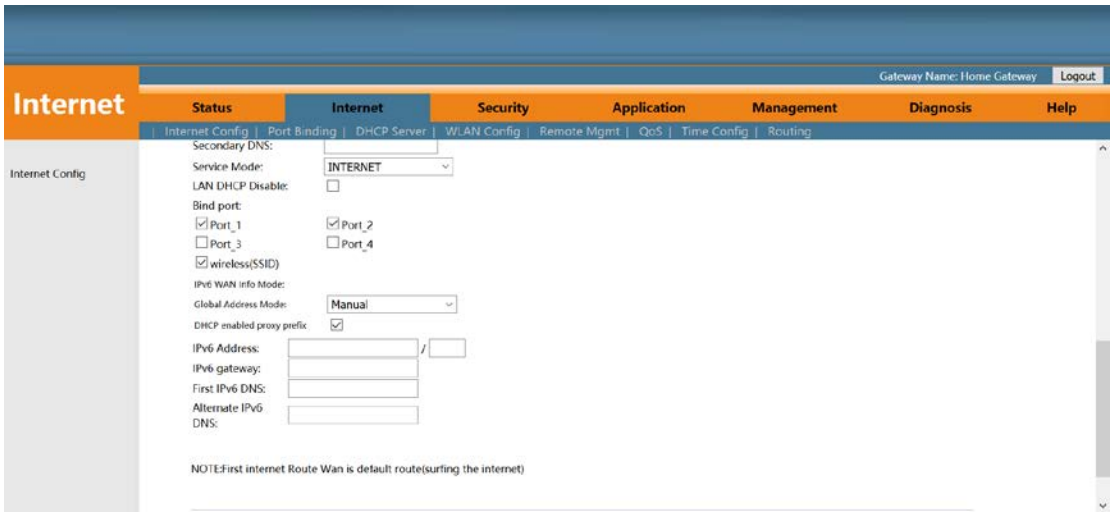
3.Configure static IP address, mask, gateway and DNS for internet, “Service Mode” select “**INTERNET**”.



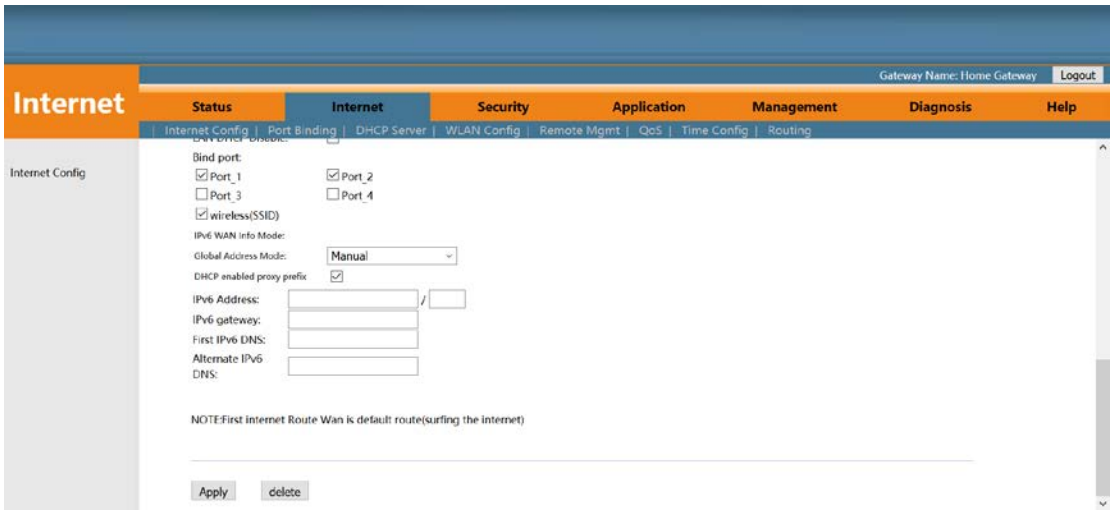
4. Optional binding LAN port and WiFi SSID to **Static** wan.

Note

By default, all LAN ports and WiFi data are not bound by this WAN (a LAN and WiFi SSID can only be bound to a WAN at the same time).

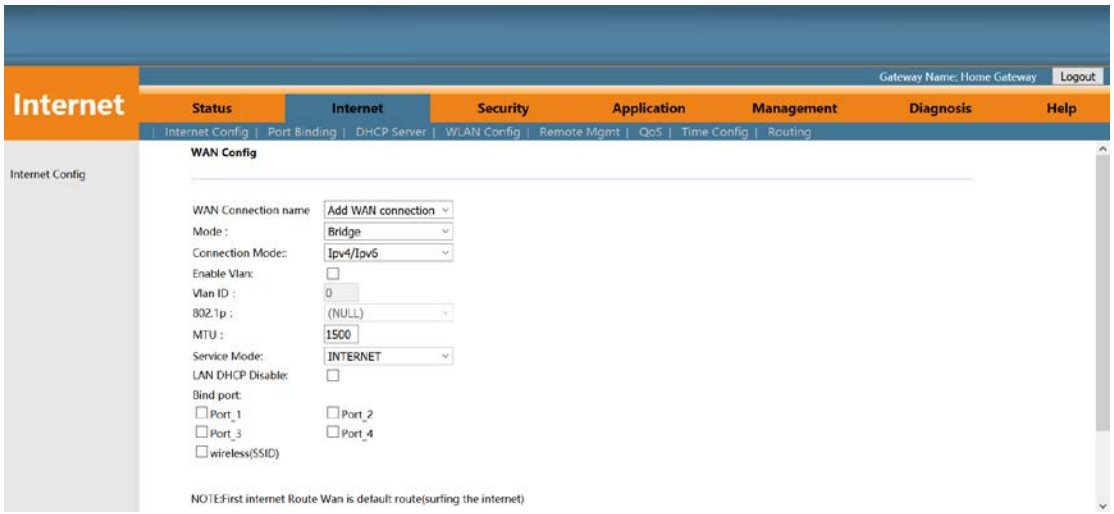


5. Click **“Apply”** to apply WAN configuration

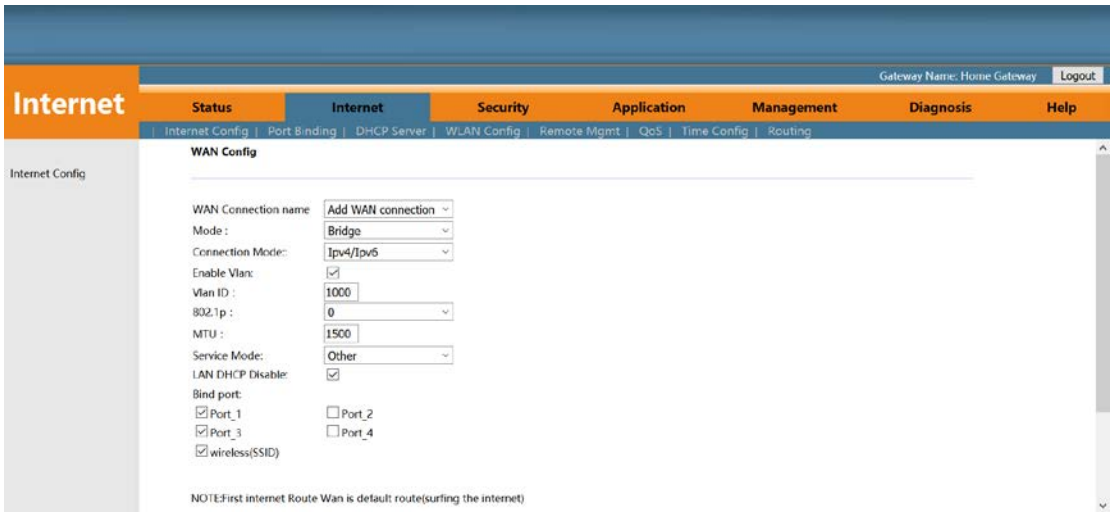


6.2 Bridge Mode

1. Select **Internet → Internet config**, **"WAN Connection name"** select **"Add WAN connection"**, **"Mode"** select **"Bridge"**



2. Enable VLAN, configure VLAN and priority. "Service Mode" select "**Other**".



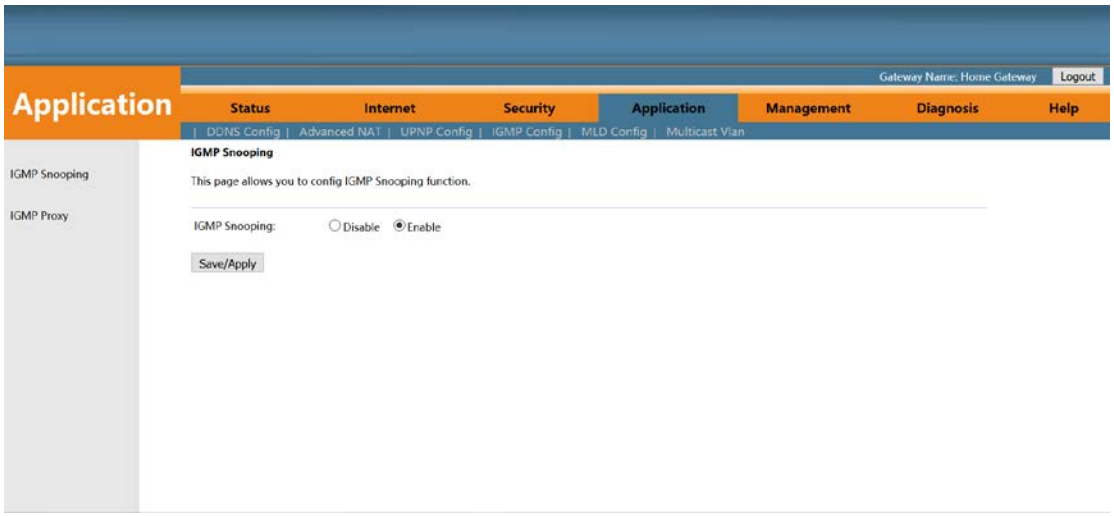
3-4 steps are the same as the last two step of PPPoE mode

7 IPTV Configuration

First, create a bridge WAN for IPTV according to the bridging mode of 6.2.

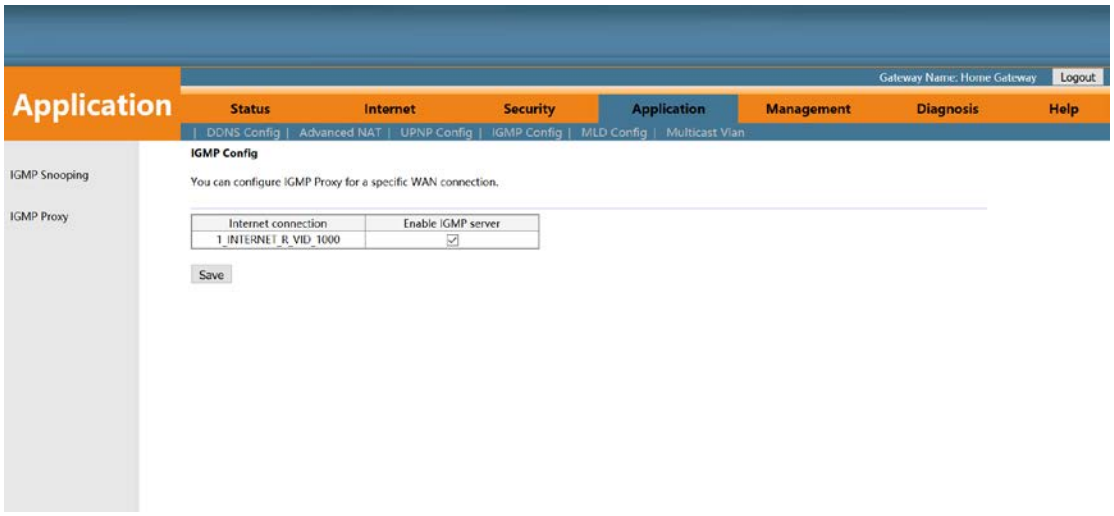
7.1 IGMP Snooping

Select **Application → IGMP Config → IGMP Snooping**, select **"Enable"**, click **Save/Apply**.



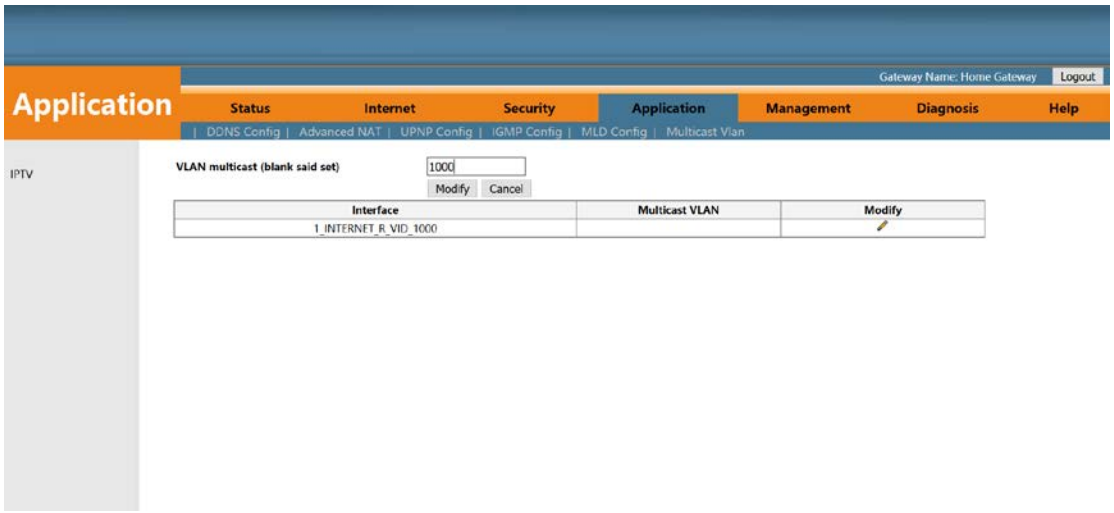
7.2 IGMP Proxy

Select **Application → IGMP Config → IGMP Proxy**, select "Enable IGMP server", click **Save.**



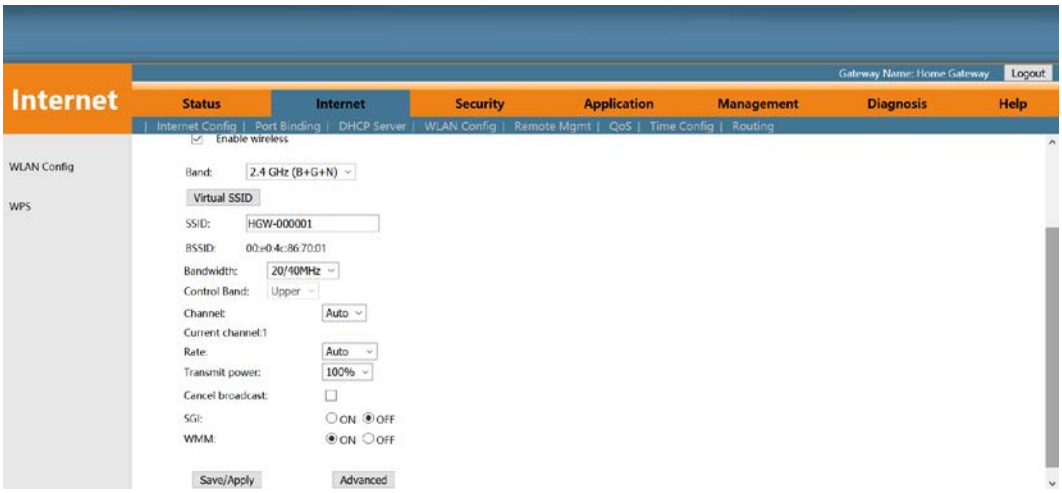
7.3 IGMP VLAN Configuration

Select **Application → Multicast Vlan**, select the corresponding **WAN**, click **"Modify"**, configure **multicast VLAN**, click **Modify**. The default is not configured multicast vlan

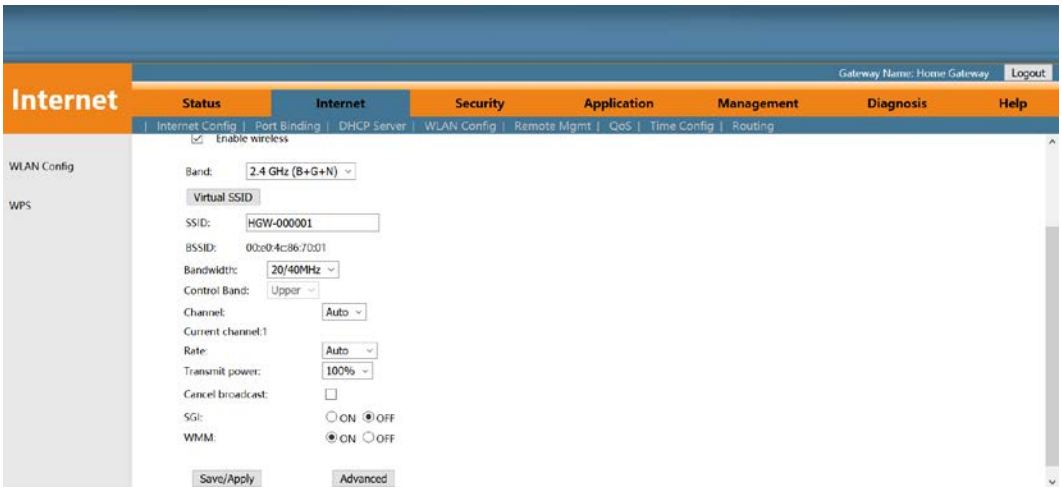


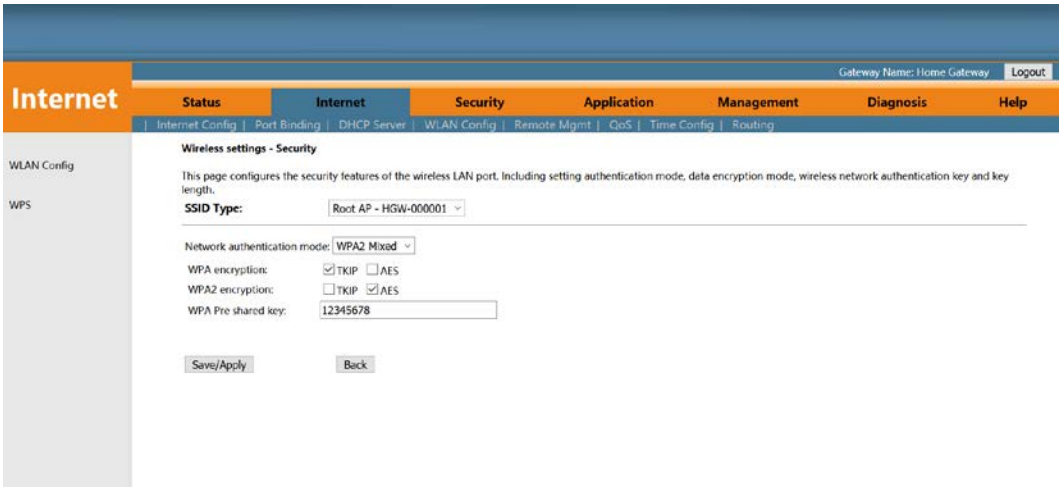
8 WLAN Configuration

1. Select **Internet → WLAN Config**, configure WiFi SSID, click **Save/Apply**



2. Select **Advanced → SSID Type**, "Network authentication mode" select "WPA2 Mixed", input "WPA Pre shared key"(WiFi password)

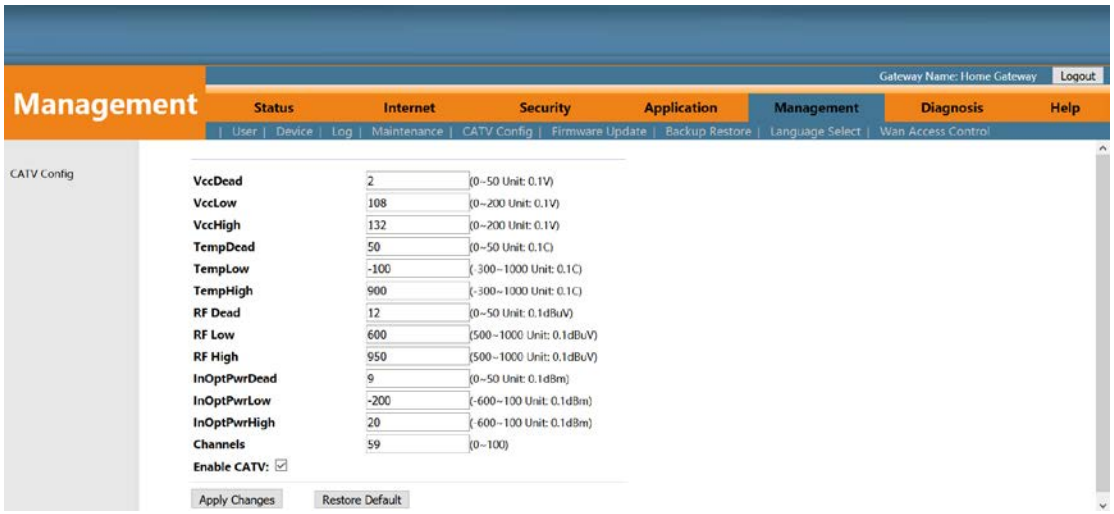




9 CATV Configuration

9.1 Configure CATV port parameter

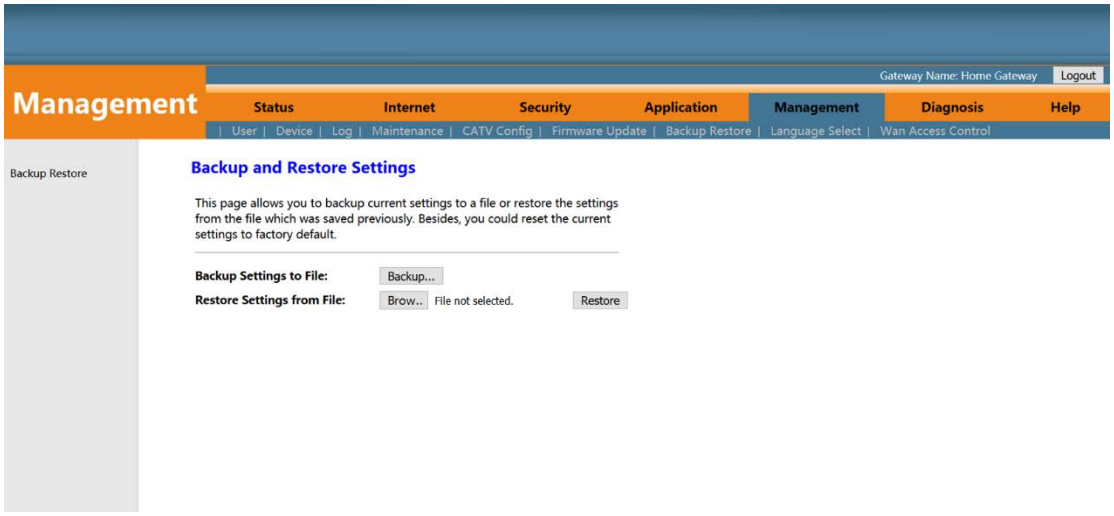
Select **Management → CATV config →** configure the parameter accoding to your requirement → **Apply Changes**



10 Device Management

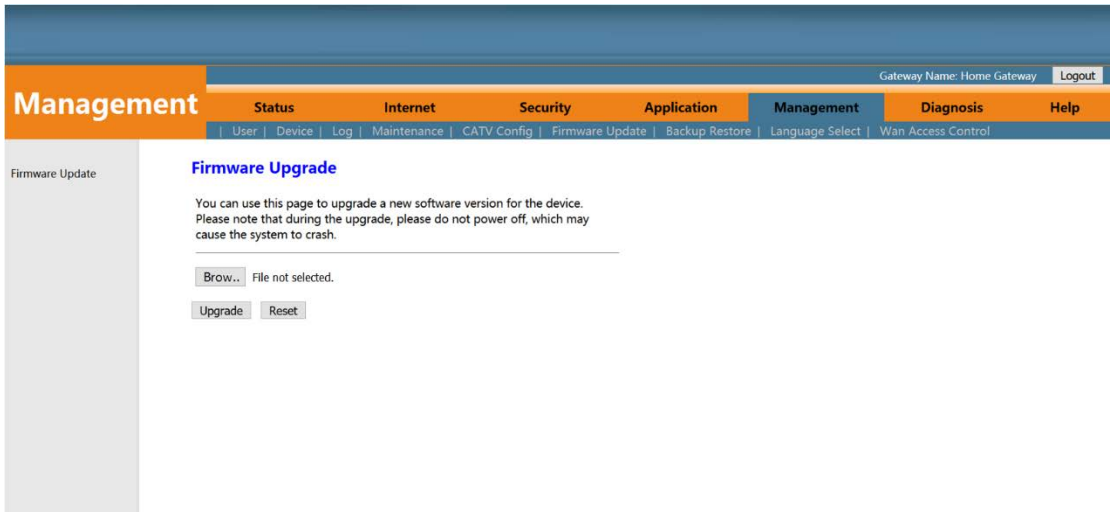
10.1 Restore Default Setting

Select **Management → Backup Restore → Restore**. The device will restore the factory defaults after the application.



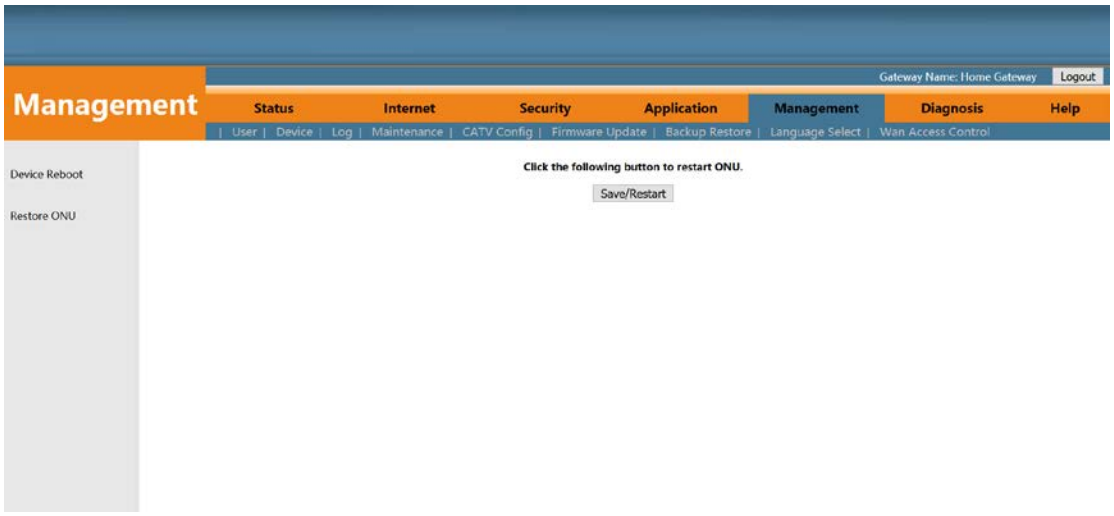
10.2 Firmware Upgrade

Select **Management → Firmware Upgrade →** Select firmware file, after the application, the device is upgraded to the latest software version.



10.3 Device Reboot

Select **Management → Device → Save/Restart**. Restart the device immediately after application


Management
Gateway Name: Home Gateway
Logout
Status
Internet
Security
Application
Management
Diagnosis
Help
| User | Device | Log | Maintenance | CATV Config | Firmware Update | Backup Restore | Language Select | Wan Access Control
Device Reboot
Restore ONU
Click the following button to restart ONU.
Save/Restart

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