

FD702XW HGU Products

1GE+1FE+WIFI+CATV

User Manual

Version: V1.1

FCC compliance statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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1 Note

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 can not 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 fire. 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 Brief

Realtek series XPON ONU is satisfying with Telecom, Radio and Television, and Fiber To The Home (FTTH) multi service access. It's based on the mature, stable, high cost performance EPON/GPON technology and has Gigabit and Fast Ethernet switching HFC technology, WLAN technology and powerful routing forwarding technology. Realtek series XPON ONU 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.

Realtek series XPON ONU can integrate wireless function with meet 802.11 n/b/g technical standards and built-in high gain directional antenna, the wireless transmission rate up to 300Mbps. 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

- Single-fiber access, providing broadband, CATV, Wi-Fi, IPTV service access, and so on.
- Exact match GPON ITU-T G.984 standar, using GPON uplink 1.25G, downlink 2.5G standard
- WIFI-type equipment exact match 802.11 n/b/g wireless standard protocol, support 20Mhz / 40Mhz
- Support PPPoE, DHCP, static IP broadband service access
- Support NAT, static routing, port forwarding
- Support data encryption, VLAN transparent transmission, vlan tag and other functions
- Support up and down bandwidth limit function
- Support upgrade through the OLT remote / local ONU WEB
- Support broadcast storm suppression
- Different data ports are isolated from each other
- Support port flow control
- Support OLT as SNMP-agent way of the unified management of the network management, easy to install and maintain
- Provide a variety of fault alarm function, easy to fault diagnosis
- Support AES-128 decryption, support key generation and switching
- Support DBA technology and priority based on the dual management model to ensure that the user's minimum specified bandwidth requirements
- Support CATV service remote shutdown function
- Operating wavelength: 1100 - 1600nm

- Light reflection loss: >45dB

2.2 Product Operation Introduction

The dual-mode ONU is a "combination" of GPON and EPON ONU. Compared with the single-mode EPON/GPON ONU, the main difference lies in the registration process. The dual-mode ONU adds a pre-judgment to the current application system (EPON/GPON). That is, the dual-mode ONU first switches mode, and then starts and completes registration process in the corresponding mode. When the ONU runs normally in the current system, its configuration and processing of various messages are basically the same as single-mode EPON/GPON ONU.

This product mode switch depends on the packet sent by the front-end OLT device to the ONU. When ONU receives OAM message sent by the EPON OLT, the ONU automatically switches to the EPON mode after detecting it. In this case, the ONU can be regarded as the EPON ONU. When the ONU receives OMCI message sent by the GPON OLT, the ONU automatically switches to the GPON mode after detecting it. In this case, the ONU can be used as the GPON ONU.

2.3 Product Specifications

Ambient temperature: 0°C~40°C

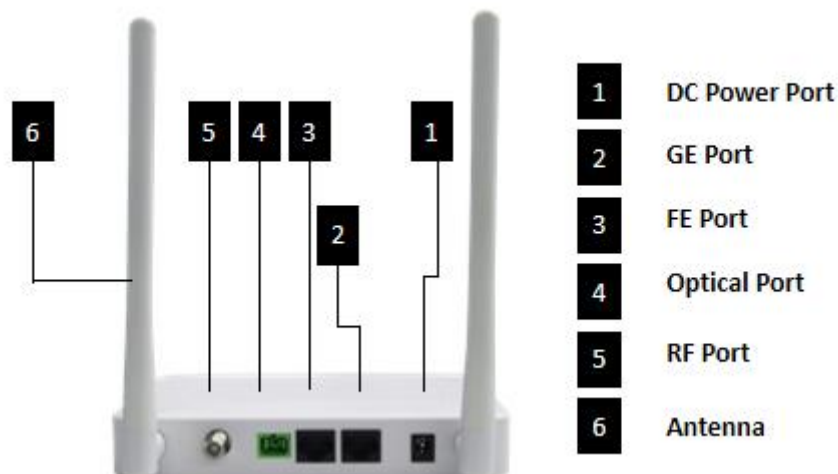
Relative humidity: 10% to 90% (non-condensing)

Power adapter input: 12 V/1A

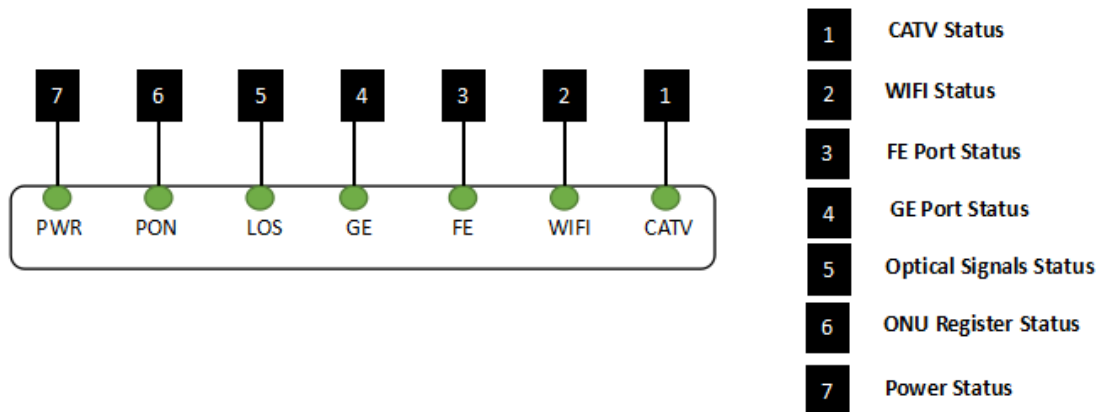
TX Optical Power: 0.5~5dBm

RX Optical Power: -8~-28dBm

2.4 Device Interface Definition



2.5 LED Description

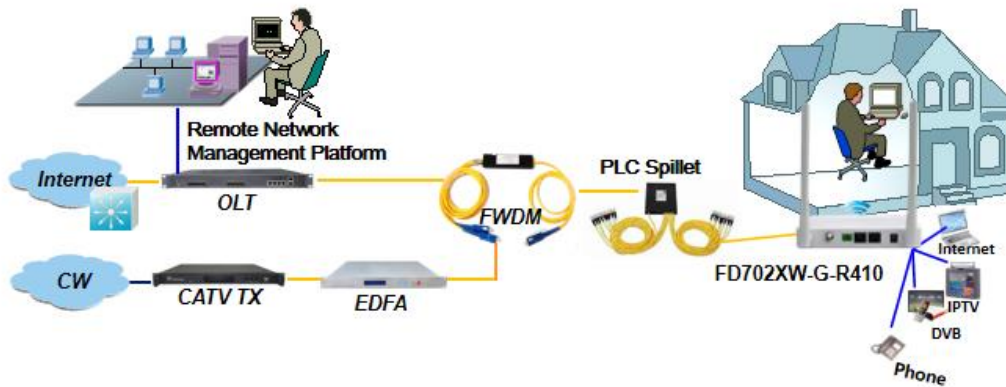


Indicator			Description
1	CATV	CATV status	On: CATV optical normal Off: The CATV signals are not received
2	WIFI	WIFI	Blinking: Data is being transmitted On: Wi-Fi function Opens
3	FE	FE port status	On: Ethernet connection is normal Blinking: Data is being transmitted through the Ethernet port Off: Ethernet connection is not set up
4	GE	GE port status	On: Ethernet connection is normal Blinking: Data is being transmitted through the Ethernet port Off: Ethernet connection is not set up
5	LOS	GPON optical signals	On: Optical power lower than receiver sensitivity ; Off: Optical in normal
6	PON	ONU Register	On: Success to register to OLT Blinking: In process of registering to OLT Off: Failed to register to OLT;
7	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 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.

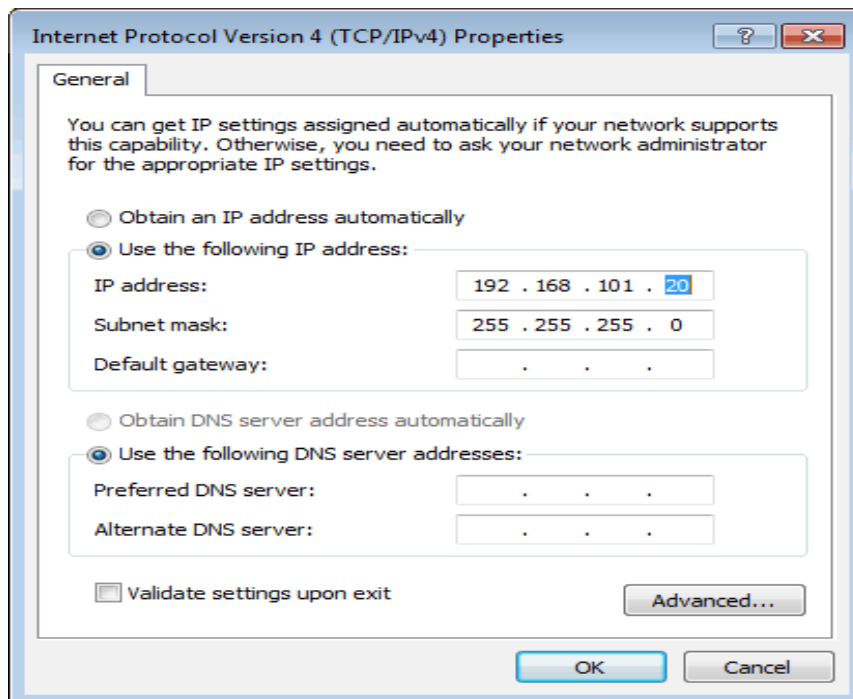
2.7 Applications



3 Login Web Management Locally

3.1 Physical Connection of ONU and PC

- Local NIC of PC connects to LAN port or ETH port of ONU via wires.
- Set the IP address of PC's local NIC as **192.168.101.X (X: 2-254)**.



- Open cmd windows and make sure that PC can ping the management IP (**192.168.101.1**) of ONU.

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\tcll>ping 192.168.101.1

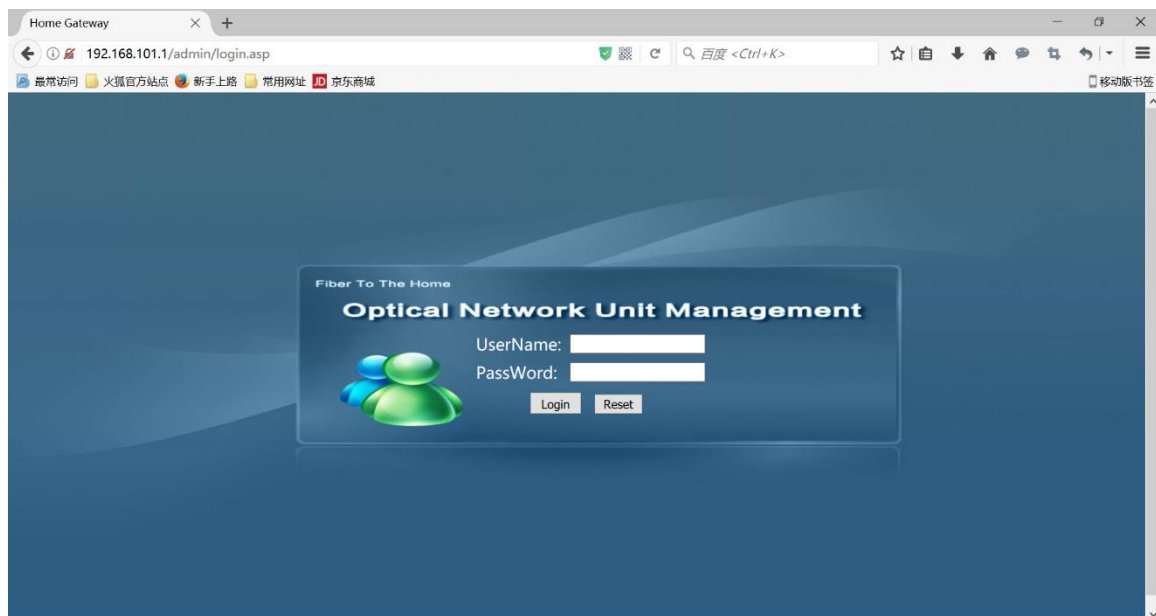
Pinging 192.168.101.1 with 32 bytes of data:
Reply from 192.168.101.1: bytes=32 time=2ms TTL=64
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64
Reply from 192.168.101.1: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.101.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\Users\tcll>
```

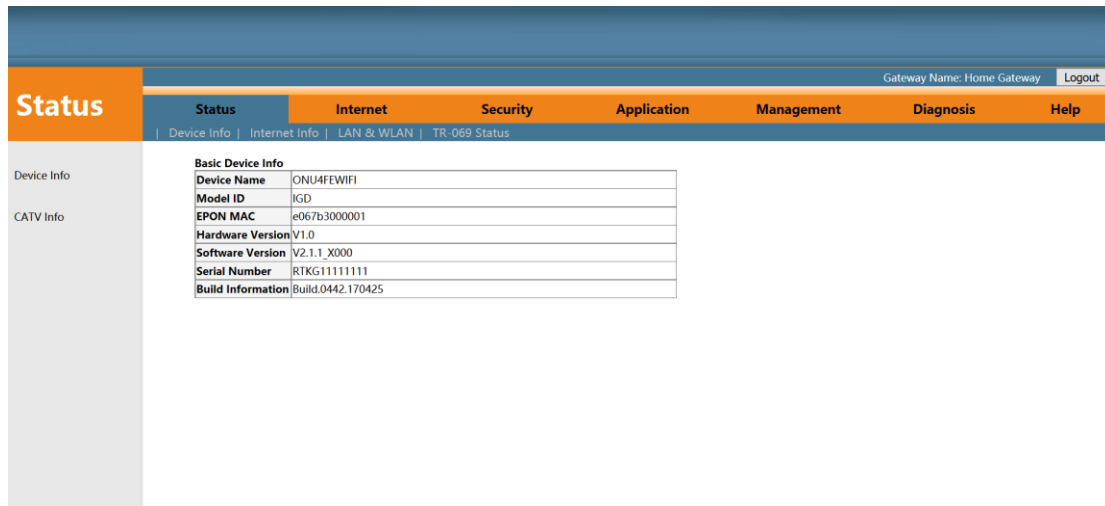
3.2 PC Access the WEB of ONU

Make sure you can ping the ONU like #3.1. Open the **IE Web browser (IE, Firefox, Google)**, copy and paste URL: <http://192.168.101.1>, the following pop-up Prompt landing page:



Input UserName: **adminisp** PassWord: **adminisp**

Click “**Login**” button. The product basics page appears, as follows:



You can start further configuration.

4 ONU Register Information Config(When adaptive to GPON mode)

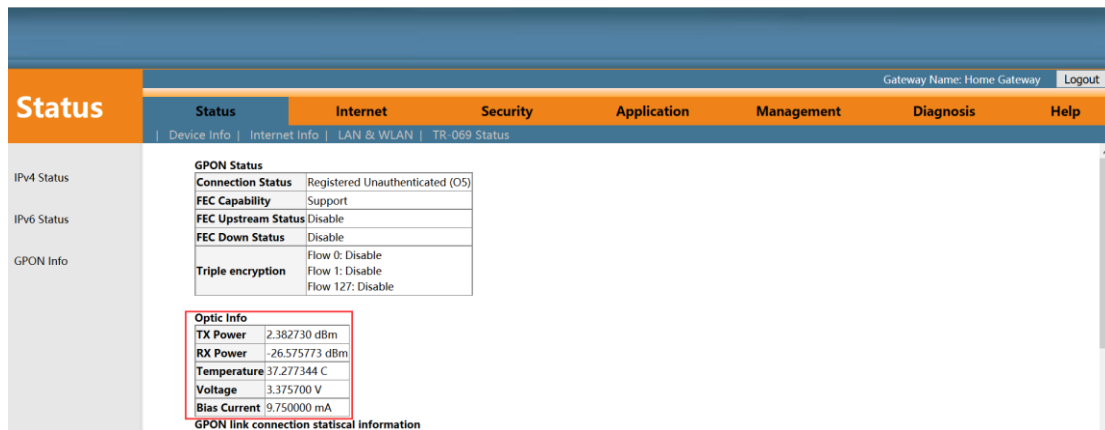
4.1 View ONU Register Status

1. Login ONU WEB, select **Status** -> **Internet Info** -> **GPON Info**, view the ONU register status:



4.2 View ONU Optical Power Information

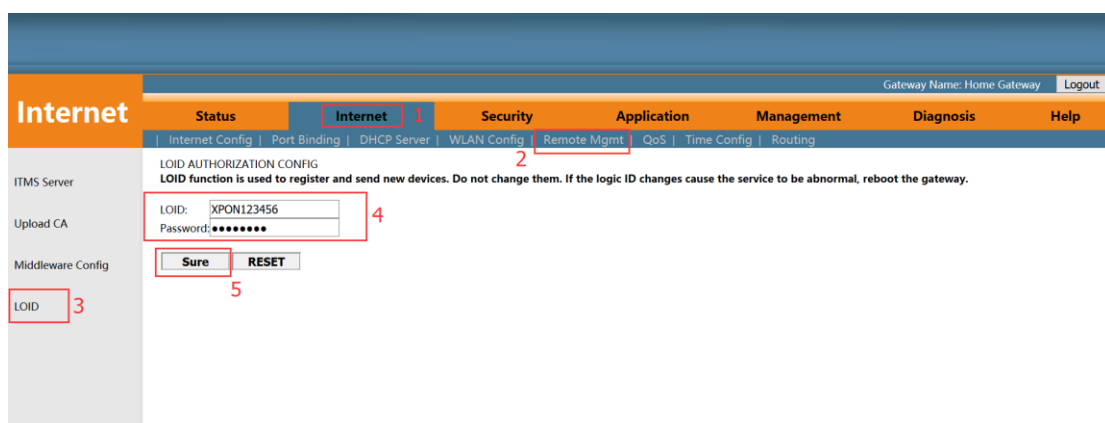
1. Login ONU WEB, select **Status** -> **Internet Info** -> **GPON Info**, view Rx power and Tx power of ONU:



4.3 LOID Authentication Config

LOID of ONU is mainly applicable of the authentication mode of LOID and LOID + Password for ONU. By default, ONU registers for the OLT by SN and rarely uses LOID for register. Normally, we needn't to configure LOID. But the configuration as follows:

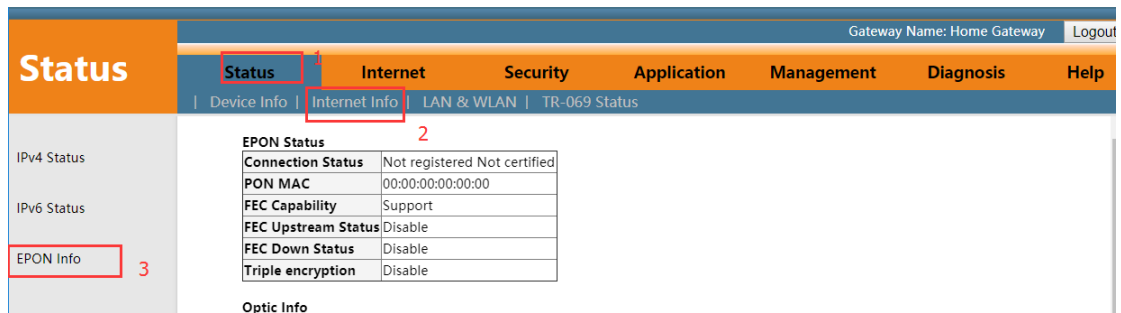
1. Login ONU WEB, select **Internet** -> **Remote Mgmt** -> **LOID**, view or configure LOID and password of ONU:



5 ONU Register Information Config(When adaptive to EPON mode)

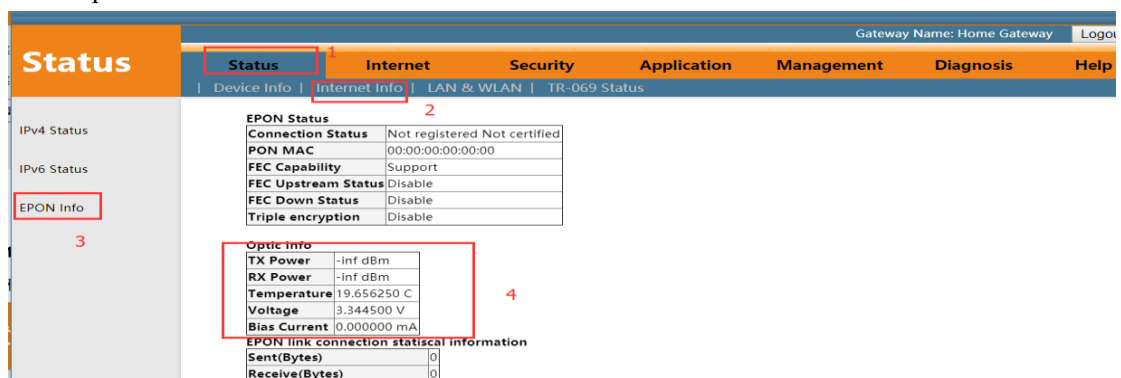
5.1 View ONU Register Status

1. Login ONU WEB, select **Status** -> **Internet Info** -> **GPON Info**, view the ONU register status:



5.2 View ONU Optical Power Information

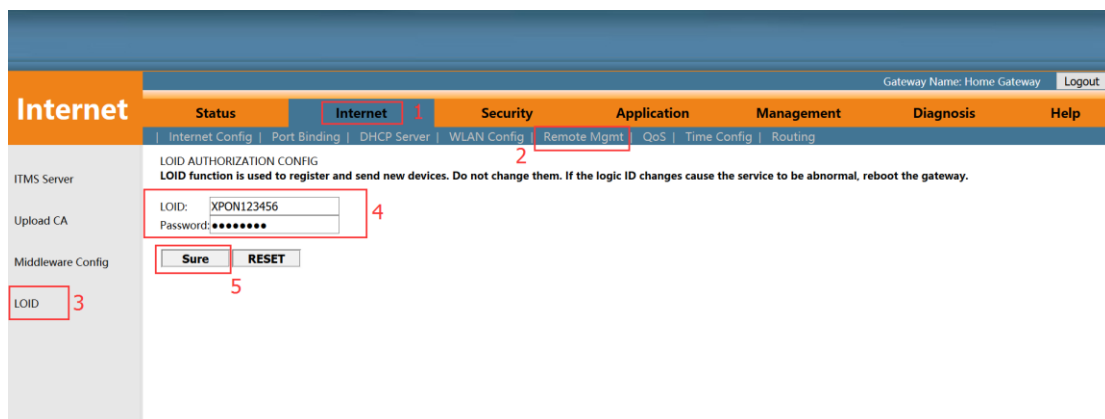
1. Login ONU WEB, select **Status** -> **Internet Info** -> **GPON Info**, view Rx power and Tx power of ONU:



5.3 LOID Authentication Config

LOID of ONU is mainly applicable of the authentication mode of LOID and LOID + Password for ONU. By default, EPON ONU registers for the OLT by MAC and rarely uses LOID for register. Normally, we needn't to configure LOID. But the configuration as follows:

1. Login ONU WEB, select **Internet** -> **Remote Mgmt** -> **LOID**, view or configure LOID and password of ONU:



6 Basic Configuration for Internet

Home Gateway Unit (HGU) ONU supports route function, so that there are route mode and bridge mode for internet. The difference between route mode and bridge mode as follows :

Route mode: ONT as a home gateway equipment, ONT IP address can be obtained in three ways, which includes **DHCP**, **Static IP Address** 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 can not 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**, **Static IP Address**.

6.1 Route Mode Configuration

6.1.1 Configure PPPoE WAN Connection for Internet in Route Mode

1. Login ONU WEB, select **Internet -> Internet Config -> Internet Config**, and then there are some parameters for us to configure as follows:

【WAN Connection name】 Select ‘Add WAN Connection’

【Mode】 Select ‘Route’

【Connection Mode】 Select ‘Ipv4’; If there is Ipv6 in the network, we can select ‘Ipv4/Ipv6’.

【Internet way】 Select ‘PPPoE’

【NAT】 Check ‘NAT’ feature; NAT is mainly used for address translation function of local network and external network. The default is checked enable status. If you do not check this option, maybe you can’t surf the internet.

【Enable Vlan】 We can set this option according to your network plan. If there is vlan in the network for internet, we have to check ‘Enable VLAN’ option. If not, we needn’t check this option, which will be VLAN transparent mode.

【Vlan ID】 Configure this option according to our network plan.

【MTU】 The default is 1492; we have to change to lower MTU, **such as 1400**, if we can ping the DNS but not access the website via WEB browser.

【User Name】 Type PPPoE account, normally offered by ISP, for Internet;

【Password】 Type PPPoE password, normally offered by ISP, for Internet;

【Service Mode】 Select Internet; Normally, select ‘Internet’ in the route mode.

【LAN DHCP Disable】 Don’t check this option; Normally, Terminal , connected to the HGU ONU, will get an IP address from the ONU’s IP pool. Therefore, we needn’t check this option to get the IP address.

【Bind port】Bundel the physical ports (Lan port 1-4 and wireless) with PPPoE WAN connection.

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

The first screenshot shows the 'WAN Config' section of the router's Internet configuration interface. The 'WAN Connection name' is set to 'Add WAN connection'. The 'Mode' is set to 'Route'. The 'Connection Mode' is set to 'IPv4'. The 'PPPoE' option is selected under 'Obtain an IP address automatically'. The 'NAT' option is checked. The 'Enable Vlan' option is checked. The 'Vlan ID' is set to '200'. The '802.1p' is set to '0'. The 'Multicast VLAN' is set to '0'. The 'Enable IGMPproxy server' option is checked. The 'MTU' is set to '1492'.

The second screenshot shows the 'Bind port' section of the router's Internet configuration interface. The '802.1p' is set to '0'. The 'Multicast VLAN' is set to '0'. The 'Enable IGMPproxy server' option is checked. The 'MTU' is set to '1492'. The 'User name' is set to 'test'. The 'Password' is set to '****'. The 'Service name' is set to 'Auto connect'. The 'Dial mode' is set to 'Auto connect'. The 'Service Mode' is set to 'INTERNET'. The 'LAN DHCP Disable' option is checked. The 'Bind port' section shows 'Port_1' and 'Port_2' checked. The 'wireless(SSID1)' option is checked. The 'NOTE: First internet Route Wan is default route(surfing the internet)' is displayed. The 'Apply' button is highlighted.

2. After configuring the parameters of PPPoE WAN connection as above, click ‘**Apply**’ to finish the setting:

This screenshot shows the 'Bind port' section of the router's Internet configuration interface. The '802.1p' is set to '0'. The 'Multicast VLAN' is set to '0'. The 'Enable IGMPproxy server' option is checked. The 'MTU' is set to '1492'. The 'User name' is set to 'test'. The 'Password' is set to '****'. The 'Service name' is set to 'Auto connect'. The 'Dial mode' is set to 'Auto connect'. The 'Service Mode' is set to 'INTERNET'. The 'LAN DHCP Disable' option is checked. The 'Bind port' section shows 'Port_1' and 'Port_2' checked. The 'wireless(SSID1)' option is checked. The 'NOTE: First internet Route Wan is default route(surfing the internet)' is displayed. The 'Apply' button is highlighted.

6.1.2 Configure DHCP WAN Connection for Internet in Route Mode

1. Login ONU WEB, select **Internet -> Internet Config -> Internet Config**, and then there are some parameters for us to configure as follows:

【WAN Connection name】 Select ‘Add WAN Connection’

【Mode】 Select ‘Route’

【Connection Mode】 Select ‘Ipv4’; If there is Ipv6 in the network, we can select ‘Ipv4/Ipv6’.

【Internet way】 Select ‘DHCP’

【NAT】 Check ‘NAT’ feature; NAT is mainly used for address translation function of local network and external network. The default is checked enable status. If you do not check this option, maybe you can’t surf the internet.

【Enable Vlan】 We can set this option according to your network plan. If there is vlan in the network for internet, we have to check ‘Enable VLAN’ option. If not, we needn’t check this option, which will be VLAN transparent mode.

【Vlan ID】 Configure this option according to our network plan.

【MTU】 The default is 1500; we have to change to lower MTU, **such as 1400**, if we can ping the DNS but not access the website via WEB browser.

【Request DNS】 Selected ‘enable’, the ONU will get DNS from upper DNS server automatically; Selected ‘Disable’, we have to configure an static DNS for the ONU by manual. We can configure one of them according to network plan.

【Primary DNS / Secondary DNS】 After disable ‘Request DNS’ function, we have to set a static DNS in here.

【Service Mode】 Select Internet; Normally, select ‘Internet’ in the route mode.

【LAN DHCP Disable】 Don’t check this option; Normally, Terminal, connected to the HGU ONU, will get an IP address from the ONU’s IP pool. Therefore, we needn’t check this option to get the IP address.

【Bind port】 Bundel the physical ports (Lan port 1-4 and wireless) with DHCP WAN connection.

Note: By default, all LAN ports and WIFI data are not bound by this WAN connection (a

LAN and WIFI SSID can only be bound to a WAN connection at the same time).

The screenshot shows the 'Internet Config' page. The 'WAN Connection name' is set to 'Add WAN connection'. The 'Mode' is 'Route' and the 'Connection Mode' is 'IPv4'. Under the 'DHCP' section, 'Obtain an IP address automatically' is selected. Other settings include 'NAT' (checked), 'Enable Vlan' (checked), 'Vlan ID' (200), '802.1p' (0), 'Multicast VLAN' (0), 'Enable IGMP proxy server' (checked), and 'MTU' (1500).

This screenshot shows the lower part of the 'Internet Config' page. It includes 'Enable IGMP proxy server' (checked), 'MTU' (1500), 'Enable option60' (unchecked), 'Option value' (empty), 'Request DNS' (checked), 'Primary DNS' (empty), 'Secondary DNS' (empty), 'Service Mode' (INTERNET), 'LAN DHCP Disable' (unchecked), 'Bind port' (checked for Port_1 and Port_2), and 'Wireless (SSID)' (checked). A note at the bottom states: 'NOTE: First Internet Route Wan is default route (surfing the internet)'.

2. After configuring the parameters of DHCP WAN connection as belows, click ‘**Apply**’ to finish the setting:

This screenshot is identical to the previous one, but the 'Apply' button at the bottom left is highlighted with a red box, indicating the final step to save the configuration.

6.1.3 Configure Static IP Address WAN Connection for Internet in Route Mode

1. Login ONU WEB, select **Internet -> Internet Config -> Internet Config**, and then there are some parameters for us to configure as follows:

【WAN Connection name】 Select ‘Add WAN Connection’

【Mode】 Select ‘Route’

【Connection Mode】 Select ‘Ipv4’; If there is Ipv6 in the network, we can select ‘Ipv4/Ipv6’.

【Internet way】 Select ‘Static’

【NAT】 Check ‘NAT’ feature; NAT is mainly used for address translation function of local network and external network. The default is checked enable status. If you do not check this option, maybe you can’t surf the internet.

【Enable Vlan】 We can set this option according to your network plan. If there is vlan in the network for internet, we have to check ‘Enable VLAN’ option. If not, we needn’t check this option, which will be VLAN transparent mode.

【Vlan ID】 Configure this option according to our network plan.

【MTU】 The default is 1500; we have to change to lower MTU, such as 1400, if we can ping the DNS but not access the website via WEB browser.

【IP Address】 Set static IP address

【Subnet Mask】 Set the mask of static IP address

【Default Gateway】 Set the default gateway of static IP address

【Primary DNS / Secondary DNS】 Set static primary DNS address and secondary DNS address

【Service Mode】 Select Internet; Normally, select ‘Internet’ in the route mode.

【LAN DHCP Disable】 Don’t check this option; Normally, Terminal, connected to the HGU ONU, will get an IP address from the ONU’s IP pool. Therefore, we needn’t check this option to get the IP address.

【Bind port】 Bundel the physical ports (Lan port 1-4 and wireless) with Static IP WAN connection.

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

Internet

Gateway Name: Home Gateway Logout

Status Internet Security Application Management Diagnosis Help

Internet Config

WAN Config

WAN Connection name: Add WAN connection

Mode: Route

Connection Mode: IPv4

☐ DHCP Obtain an IP address automatically

☒ Static Use Static IP address

☐ PPPoE PPP over Ethernet (PPPoE)

NAT: ☒

Enable Vlan: ☒

Vlan ID: 200

SO2 Ip: 0

Multicast VLAN: 0

Enable IGMP proxy server: ☒

MTU: 1500

IP Address: 192.168.5.155

Subnet Mask: 255.255.255.0

Internet

Gateway Name: Home Gateway Logout

Status Internet Security Application Management Diagnosis Help

Internet Config

MTU: 1500

IP Address: 192.168.5.155

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.5.1

Request DNS: ☐ Enable ☒ Disable

Primary DNS: 192.168.5.1

Secondary DNS: 114.114.114.114

Service Mode: INTERNET

LAN DHCP Disable: ☒

Bind port: ☒ Port_1 ☒ Port_2

☒ wireless(SSID1)

NOTE: First internet Route Wan is default route(surfing the internet)

Apply delete

2. After configuring the parameters of Static IP WAN connection as belows, click ‘**Apply**’ to finish the setting:

Internet

Gateway Name: Home Gateway Logout

Status Internet Security Application Management Diagnosis Help

Internet Config

MTU: 1500

IP Address: 192.168.5.155

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.5.1

Request DNS: ☐ Enable ☒ Disable

Primary DNS: 192.168.5.1

Secondary DNS: 114.114.114.114

Service Mode: INTERNET

LAN DHCP Disable: ☒

Bind port: ☒ Port_1 ☒ Port_2

☒ wireless(SSID1)

NOTE: First internet Route Wan is default route(surfing the internet)

Apply delete

6.2 Configure Bridge WAN Connection for Internet

1. Login ONU WEB, select **Internet** -> **Internet Config** -> **Internet Config**, and then there are some parameter for us to configure as follows:

【WAN Connection name】 Select ‘Add WAN Connection’

【Mode】 Select ‘Bridge’

【Connection Mode】 Select ‘Ipv4’; If there is Ipv6 in the network, we can select ‘Ipv4/Ipv6’.

【NAT】 Don’t check ‘NAT’ feature; NAT is mainly used for address translation function of local network and external network. HGU ONU doesn’t deal with the packets from the terminal, so we needn’t enable the NAT function.

【Enable Vlan】 We can set this option according to your network plan. If there is vlan in the network for Internet, we have to check ‘Enable VLAN’ option. If not, we needn’t check this option, which will be VLAN transparent mode.

【Vlan ID】 Configure this option according to our network plan.

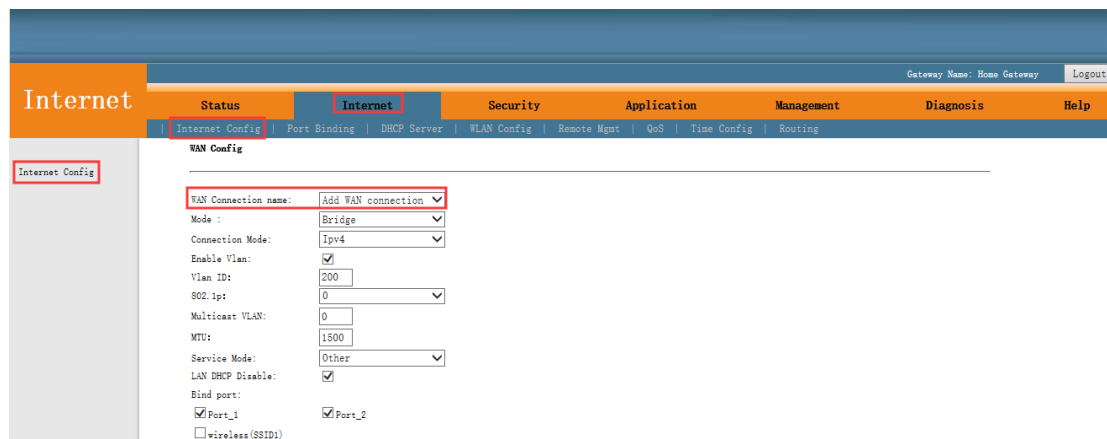
【MTU】 The default is 1500; we have to change to lower MTU, **such as 1400**, if we can ping the DNS but not access the website via WEB browser.

【Service Mode】 Select ‘Other’ or ‘Internet’; Normally, select ‘Internet’ for Internet or flow testing; Select ‘Other’ for IPTV service.

【LAN DHCP Disable】 Check this option; Normally, Terminal, connected to the HGU ONU, will get an IP address from the upper DHCP server. Therefore, we need check this option to avoid the terminal get an IP from the ONU.

【Bind port】 Bundel the physical ports (Lan port 1-4 and wireless) with Bridge WAN connection.

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



The screenshot shows the 'Internet Config' page in a web management interface. The 'Internet' tab is selected, and the 'WAN Config' section is active. The settings are as follows:

- WAN Connection name: Add WAN connection (dropdown)
- Mode: Bridge (dropdown)
- Connection Mode: Ipv4 (dropdown)
- Enable Vlan: ☒
- Vlan ID: 200 (text input)
- 802.1p: 0 (dropdown)
- Multicast VLAN: 0 (text input)
- MTU: 1500 (text input)
- Service Mode: Other (dropdown)
- LAN DHCP Disable: ☒
- Bind port: ☒ Port_1, ☒ Port_2, ☐ Wireless (SSID1)

NOTE: First internet Route Wan is default route(surfing the internet)
When the Bridge mode is set to Other, the PC on the port does not dynamically obtain the IP address through the gateway. When the service mode is Other, please be careful not to bind all LAN ports for such a situation!

2. After configuring the parameter of Bridge WAN connection as above, click ‘**Apply**’ to finish the setting:

6.3 View the WAN Connection Status

1. Login ONU WEB, select **Status -> Internet Info -> IPv4 Status**. In here, we can view WAN connection status, check the route WAN connection if it gets an IP address and Bridge WAN connection if it is **UP**. As follows:

Gateway Name: Home Gateway

Status | **Internet** | **Security** | **Application** | **Management** | **Diagnosis** | **Help**

Device Info | **Internet Info** | LAN & WLAN | TR: 069 Status

IPv4 Status 3

IPv6 Status

GPON Info

WAN Info 2

Interface	VLAN ID	Protocol	IGMP	Status	IP address	Subnet Mask
1_INTERNET_B_VID_200	200	br1483	Disable	up		
2_INTERNET_R_VID_100	100	IPoE	Enable	up	192.168.5.164	255.255.255.0

Network Information

Interface	Default Gateway	Primary DNS	Secondary DNS
1_INTERNET_B_VID_200			
2_INTERNET_R_VID_100	192.168.5.1	192.168.5.1	

6.4 Delete the WAN Connection

1. Login ONU WEB, select **Internet -> Internet Config -> Internet Config**. Select a WAN connection from ‘**WAN Connection name**’ and click ‘**Delete**’ button at the bottom of the page. As follows:

Gateway Name: Home Gateway

Internet | **Status** | **Internet** | **Security** | **Application** | **Management** | **Diagnosis** | **Help**

Internet Config | Port Binding | DHCP Server | VLAN Config | Remote Mgmt | QoS | Time Config | Routing

Internet Config

WAN Config

WAN Connection name: 1_Other_B_VID_200

Mode: Bridge

Connection Mode: Ipv4

Enable Vlan: ☒

Vlan ID: 200

802.1p: 0

Multicast VLAN: 0

MTU: 1492

Service Mode: Other

LAN DHCP Disable: ☒

Bind port: ☒ Port_1 ☒ Port_2

☐ wireless (SSID)

NOTE: First internet Route Wan is default route(surfing the internet)
When the Bridge mode is set to Other, the PC on the port does not dynamically obtain the IP address through the gateway. When the service mode is Other, please be careful not to bind all LAN ports for such a situation!

7 ONU LAN Configuration

7.1 LAN IP Address Configuration

1. Login ONU WEB, select **Internet** -> **DHCP Server** -> **IPv4 DHCP Server**, and then there are some parameters for us to configure as follows:

【IP address】Set local management IP address of ONU. The default IP address is 192.168.101.1

【Subnet mask】Set the mask of local management IP address of ONU

【Disable DHCP Server/Enable DHCP Server】Enable or disable ONU DHCP Server function.

【Start IP address / End IP address】Configure the IP address interval that allocated to the terminal. The address interval must be on the same network segment as the management IP address of the ONU.

【DNS1/DNS2/DNS3】Configure DNS address that allocated to the terminal. By default, 192.168.101.1 of DNS agent address is used to default DNS address. We can design this according to network plan.

【Edit DHCP address range】By default, the ONU will allocate 10 IP addresses for every kinds of terminal. If it is not enough, we can edit DHCP address range to increase the designed address range.

The screenshot shows the 'Internet' configuration page in the ONU web interface. The 'DHCP Server' tab is active, and the 'IPv4 DHCP Server' sub-tab is selected. The configuration fields are as follows:

- IP address: 192.168.101.1
- Subnet mask: 255.255.255.0
- ☐ Disable the DHCP server
- ☒ Enable DHCP server
- Start IP address: 192.168.101.33
- End IP address: 192.168.101.254
- Leased Time: One day
- DNS1: 192.168.101.1
- DNS2: 114.114.114.114
- DNS3: 8.8.8.8
- ☐ Enabled DHCP server relay
- DHCP server IP address: 172.19.31.4
- Buttons: Edit reserved IP address list, Edit DHCP address range, Apply

2. After configuring the parameters of LAN address as above, click 'Apply' to finish the setting:

7.2 View LAN Client

1. Login ONU WEB, select **Status** -> **LAN & WLAN** -> **WLAN Status**. View client that access via wireless (WIFI). As follows:

WLAN Status

WLAN Connection Status	Enabled
SSID-1Name	HGW-51038F
Rate	Auto
Hidden attribute	Visual
Band	2.4 GHz (B+G+N)
SSID-1Encryption state	Enabled
BSSID	e067b3510390

Access Device

MAC address	sent packets	received packets	Transmission rate (Mbps)	Power saving	Due time (sec)
b8:81:98:78:36:10	1303	1762	39	no	300

Packets Through LAN

Interface	Received			Sent		
	Packets	Bytes	Errors/Dropped	Packets	Bytes	Errors/Dropped
HGW-51038F	4697	1037879	73	0	1638	652477

2. Login ONU WEB, select **Status** -> **LAN & WLAN** -> **LAN Status**. View client that access via LAN ports . As follows:

ONU IP Address

IP Address	192.168.101.1
MAC Address	e067b3510390

LAN Statistics

Interface	Receive			Sent		
	Packets	Bytes	Errors/Dropped	Packets	Bytes	Errors/Dropped
Port 1	22414	3074984	0	0	28400	8242638
Port 2	0	0	0	0	0	0
Port 3	0	0	0	0	0	0
Port 4	0	0	0	0	0	0

LAN Clients (By DHCP Distribution)

Device Type	MAC Address	IP Address	Residual loan period
Computer	74:a5:28:3d:7e:6c	192.168.101.40	75013
Computer	3c:fa:43:9d:d5:71	192.168.101.43	78020
Phone	5c:03:39:27:26:92	192.168.101.70	78916
Computer	18:74:2e:1e:88:35	192.168.101.41	81881
Computer	e0:67:b3:0d:0e:01	192.168.101.42	86183
Computer	b8:81:98:78:36:10	192.168.101.44	86216

8 Multicast/IPTV Configuration

8.1 Multicast/IPTV Service Setting

Firstly, configure a bridge WAN connection to carry IGMP/IPTV service according to #6.2 and select 'Other' in service mode. After configuring the bridge WAN connection, The configuration, related to other multicast protocols and multicast vlan, can refer to the following # 7.2- # 7.3 configuration.

8.2 IGMP Snooping Setting

1. Login ONU WEB, select **Application -> IGMP Config -> IGMP Snooping**. Enable or disable IGMP Snooping function and click 'Save/Apply' button to finish the setting as follows:

Gateway Name: Home Gateway Logout

Application Status Internet Security Application Management Diagnosis Help

DDNS Config | Advanced NAT | UPNP Config | IGMP Config | MLD Config | Multicast Vlan

IGMP Snooping

This page allows you to config IGMP Snooping function.

IGMP Snooping: ☐ Disable ☒ Enable

Save/Apply

8.3 IGMP Proxy

1. Login ONU WEB, select **Application -> IGMP Config -> IGMP Proxy**. Enable or disable IGMP Proxy function and click 'Save' button to finish the setting as follows:

Note: Normally, IGMP Proxy would be used in route mode and carrying Multicast/IPTV service, because the ONU would be acted as multicast agent. There isn't IGMP Proxy concept in the bridge mode.

Gateway Name: Home Gateway Logout

Application Status Internet Security Application Management Diagnosis Help

DDNS Config | Advanced NAT | UPNP Config | IGMP Config | MLD Config | Multicast Vlan

IGMP Proxy

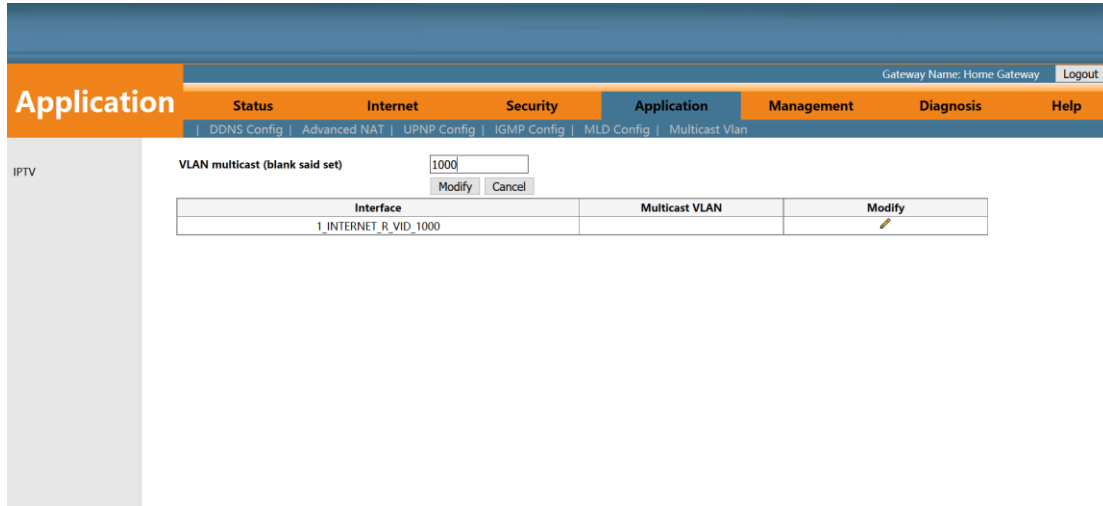
You can configure IGMP Proxy for a specific WAN connection.

Internet connection	Enable IGMP server
1_INTERNET_R_VID_1000	<input checked="" type="checkbox"/>

Save

8.4 IGMP VLAN Configuration

1. Login ONU WEB, select **Application -> Multicast Vlan**, select the corresponding WAN, click 'Modify', configure multicast vlan, click 'Modify' button.



9 WLAN Configuration

9.1 WLAN Basic Configuration

1. Login ONU WEB, select **Internet->WLAN Config->WLAN Config**, and then there are some parameters for us to configure as follows:

【Enable wireless】 Enable or disable the wireless function;

【Virtual SSID】 Click ‘**Virtual SSID**’ button to enter the virtual SSID config page;

【Band】 The default is 2.4GHz (B+G+N) ;

【SSID】 Set wireless SSID name. Nowadays, it doesn’t support to set as Chinese SSID name.

【Bandwidth】 It is best to select 20MHz, because many PC don’t support 40MHz;
Sometimes, PCs can’t connect to the WIFI if we select 40MHz or 20MHz/40MHz;

【Channel】 The default is Auto; We can select a channel without glitches by manual according to the surrounding environment;

【Advanced】 Click ‘**Advanced**’ button and enter wirelees password config page;

2. After setting wireless configuration, click 'Save/Apply' button to finish setting.

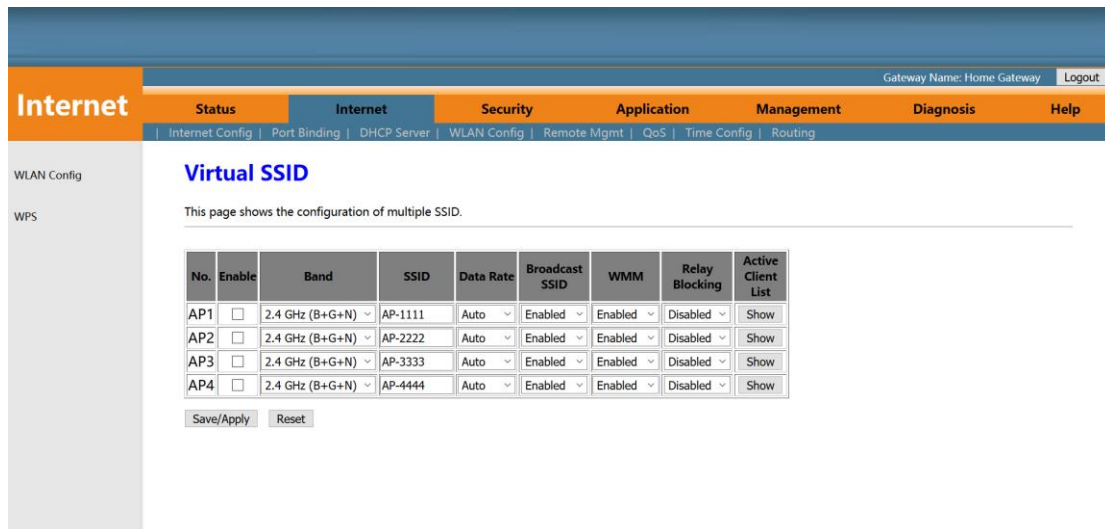
9.2 WLAN Password Configuration

1. According to #8.1, click 'Advanced' button to enter 'Wireless settings-Security' page, we can set 'Network authentication mode', 'encryption' and WIFI password.

2. After setting wireless password configuration, click 'Save/Apply' button to finish setting.

9.3 WLAN Virtual SSID

1. Login ONU WEB, select **Internet->WLAN Config->WLAN Config**, and then click 'Virtual SSID' button to enter 'Virtual SSID' page. We can enable some of virtual SSID, set band and name them:



2. After setting wireless password configuration, click ‘**Save/Apply**’ button to finish setting.

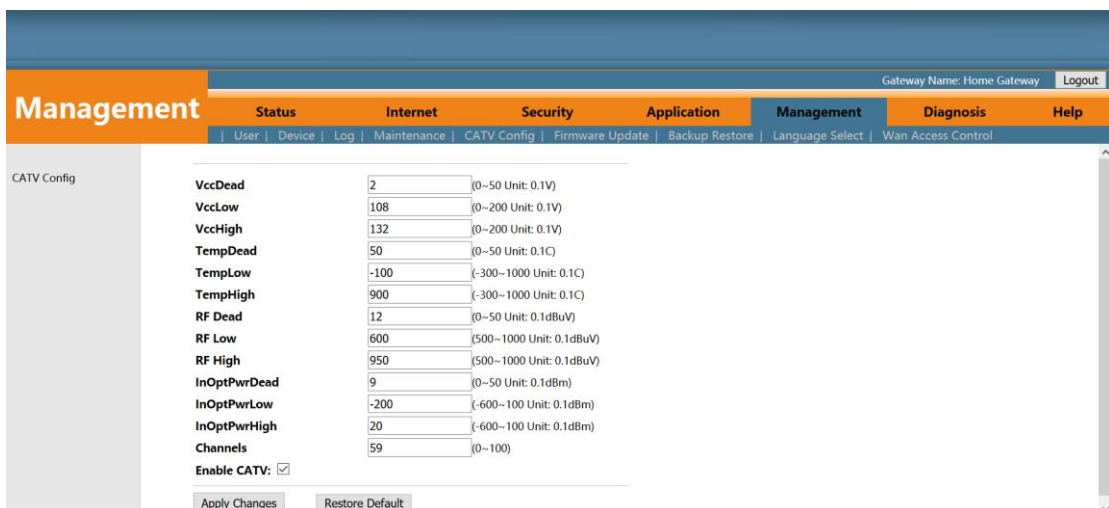
Note: we can refer to #8.2 about setting the password of virtual SSID.

10 CATV Configuration

CATV management is mainly applied to ONU with light machine, we need to configure the ONU optical machine parameters through the ONU’s WEB.

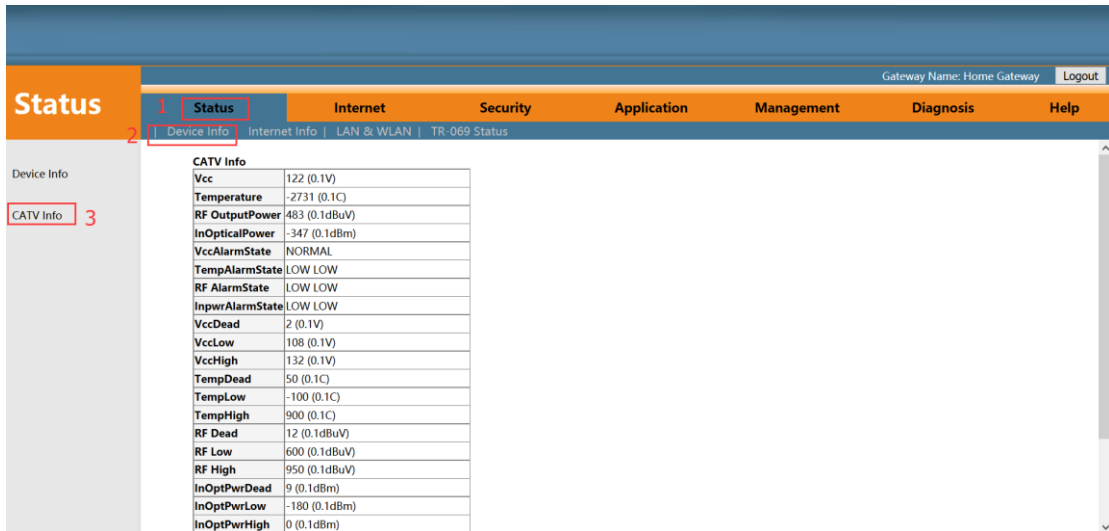
10.1 Configure CATV Port Parameter

Select **Management**→**CATV config**→**CATV config**. In this page, we can enable or disable CATV port and configure the parameters according to your requirement. After setting the parameters, click ‘**Apply Changes**’ button to finish the setting.



10.2 View CATV Information

1. Login ONU WEB, select **Status**→**Device Info**→**CATV Info**. In this page, we can view the CATV port status and related parameters:

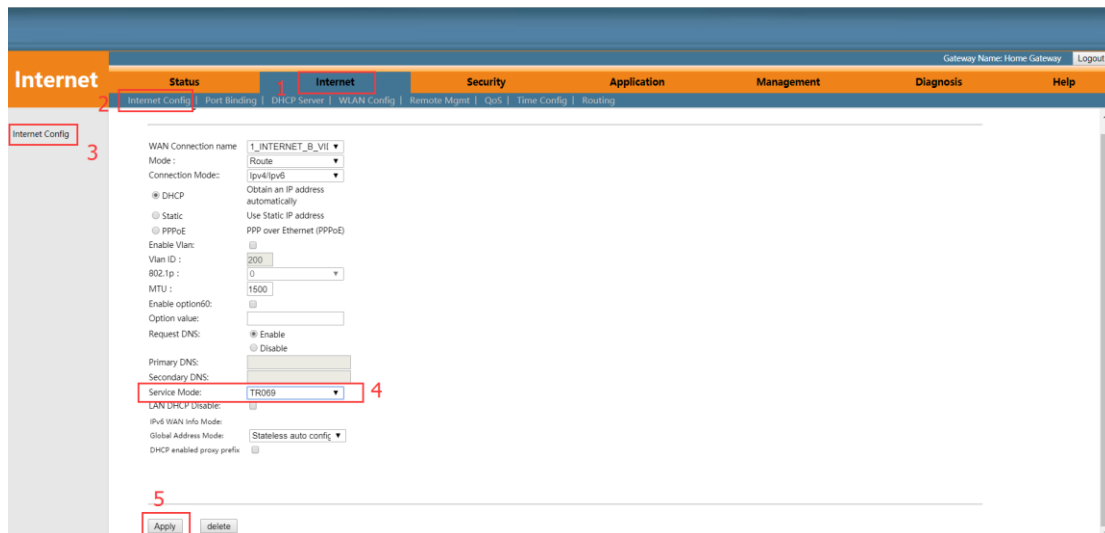


11 TR069 Remote Management

ONU TR069 remote management is mainly used for some network that support TR069 server centralized remote management, the current management is mainly used in many large networks, ONU as TR069 remote management of the client need to do the following settings.

11.1 Configure Channel for TR069 Remote Management

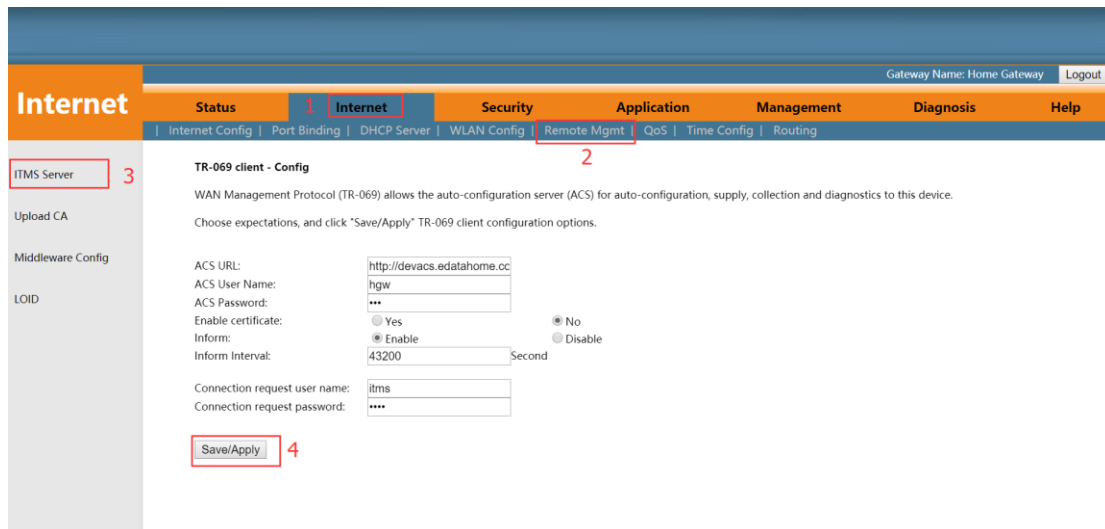
Firstly, referred to #5.1, set a Route WAN connection with 'Service mode' as TR069, which is used to act as a channel for TR069 server.



11.2 TR069 Client Configuration

Login ONU WEB, select **Internet-> Remote Mgmt -> ITMS Server**. In this page, we can set ONU's parameter of TR069 client (User Name, Password, URL address, Connection request user name and Connection request password).

Note: All of parameters of TR069 are offered by ISP.



12 Device Management

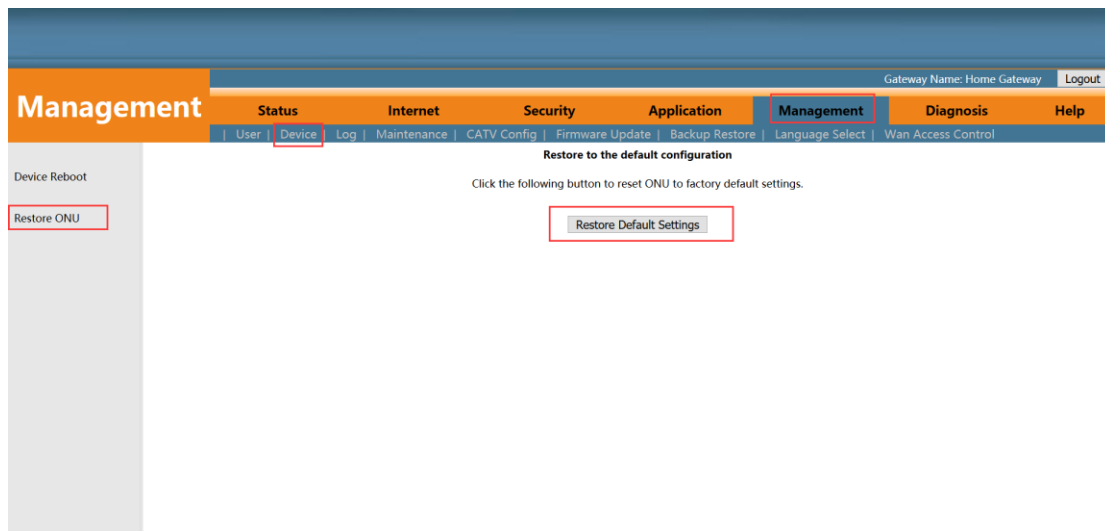
12.1 ONU Remote Access Configuration

Login the ONU WEB, select **Management -> Wan Access Control -> Wan Access Control**. In this page, we can enable or disable the ping remote access and WEB remote access of ONU.



12.2 Restore Default Setting

Login the ONU WEB. Select **Management -> Device -> Restore ONU**. Click 'Restore Default Setting' button. The device will restore the factory defaults after the application.



Note: Restore Setting on the ONU WEB is take effect to WIFI information of ONU and LAN port configuration only. It doesn't take any effect to WAN connection.

12.3 Firmware Upgrade

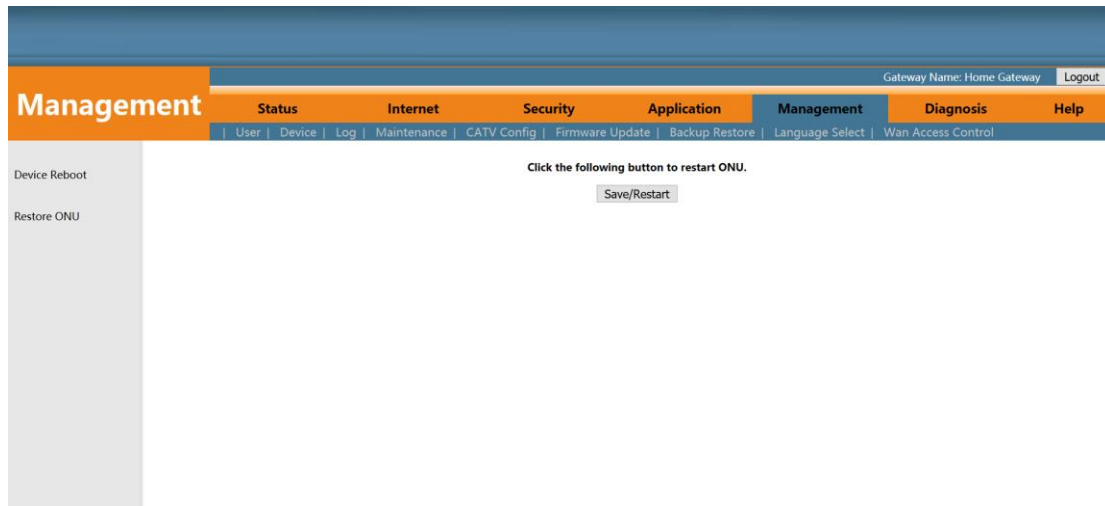
Login the ONU WEB. Select **Management** -> **Firmware Upgrade** -> **Firmware Update**. Click '选择文件' to select firmware file, click 'upgrade' button to upgrade the ONU. After the application, the device is upgraded to the latest software version.

Note: We needn't extract Realtek project production's firmware, just upgrade the .tar file. It will take 4 minutes to upgrade. After upgrading, the ONU will reboot automatically. We needn't reboot it by manual.



12.4 Device Reboot

Login the ONU WEB. Select **Management** -> **Device** -> **Device Reboot**. Click 'Save/Restart'. Restart the device immediately after application.



Concluding Remarks

Thanks for using products of Shenzhen C-Data Technology Co. Ltd.

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