



**ACT AP224S
GPON HGU**

User Manual

Revision A

ACT AP224S GPON HGU User Manual

ACT Document Number: ACT AP224S User Manual 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.

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Revision History

| Revision | Date | Reason for Change |
|----------|-----------|-------------------|
| A | 8/03/2016 | Initial Release |

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Chapter 1. Product Introduction

1.1 Product Description

AP224S GPON HGU ONT is a GPON optical network unit designed to meet the requirements of broadband access networks. It is ideal for FTTH/FTTO applications to provide data, voice, and video services based on a GPON network.

AP224S GPON ONT meets the ITU-T G.984 GPON standard and delivers higher bandwidth and higher efficiency using larger variable-length packets. It provides two POTS ports, four GE auto-adapting Ethernet ports, one CATV output, and one 802.11 n/b/g Wi-Fi port. It features high-performance forwarding capabilities to ensure excellent experience with VoIP, internet, and HD video services. AP224S provides a perfect terminal solution and future-oriented service supporting capabilities for FTTH deployment.

AP224S offers efficient packaging of user traffic, with frame segmentation allowing higher quality of service (QoS) for delay-sensitive voice and video communications traffic. AP200C series GPON ONT provides the reliability and performance expected for business services and are an attractive way to deliver residential services. GPON enables Fiber to The Home (FTTH) deployments economically resulting to accelerated growth worldwide.

AP224S Home Gateway with 4GE + 2POTS + WiFi + CATV HGU terminal devices are designed to fulfill the FTTH and triple play service demands of fixed network operators and cable operators. AP224S features 802.11n WiFi (2T2R), Layer 2/3, and high-quality VoIP technology. AP224S units are highly reliable and easy to maintain, with guaranteed QoS for different services. They are also fully compliant with technical regulations such as ITU-T G.984.x and GPON equipment (V2.0) technical requirements as specified by China Telecom.



Figure 1-1: 4GE + 2POTS + WiFi GPON HGU

1.2 Special Features

- Plug and play, integrated auto detecting, auto configuration, and auto firmware upgrade technology.
- Integrated TR069 remote configuration and maintenance function.
- Support VLAN, DHCP Server/Relay and IGMP/MLD snooping multicast feature.
- Fully compatibility with OLT based on Broadcom/PMC/Cortina chipset.
- Support 802.11n WiFi (2T2R) function.
- Support NAT, Firewall function.
- Support IPv4 and IPv6 dual stack.
- Integrated line testing compliant with GR-909 on POTS.
- The WAN port supports bridge, router and bridge/router mixed mode.

1.3 Technical Parameters

| Item | Description |
|------------------------|---|
| PON Interface | 1 × GPON connector SC single-mode/single-fiber Upstream 1.25 Gbps Downstream 2.5 Gbps |
| Wavelength | Tx 1310 nm Rx 1490 nm CATV 1550 nm |
| Optical Interface | SC/APC connector |
| Interface | 4 × 10/100 or 10/100/1000 Mbps auto adaptive Ethernet interfaces 10/100M Full/Half Duplex, 1000M Full Duplex. RJ45 connectors 2 × POTS, RJ11 connectors 1 × SCTE F connector |
| Wireless | Compliant with IEEE802.11b/g/n, 300 Mbps, 2T2R two internal antennas |
| LED | 13, for SYS, POWER, PON, LOS, WPS, WiFi, POTS, LAN, CATV |
| Operating Temperature | -5 °C to 55 °C |
| Storage Temperature | -30 °C to 60 °C |
| Operating Humidity | 10 % to 90 % (non-condensing) |
| Storage Humidity | 10 % to 90 % (non-condensing) |
| Power Supply | DC 12 V, 1/1.5A |
| Power Consumption | ≤10 W |
| Dimensions (L × W × H) | 247 mm × 147 mm × 37 mm |
| Net Weight | 0.5 kg |

1.4 Application Chart

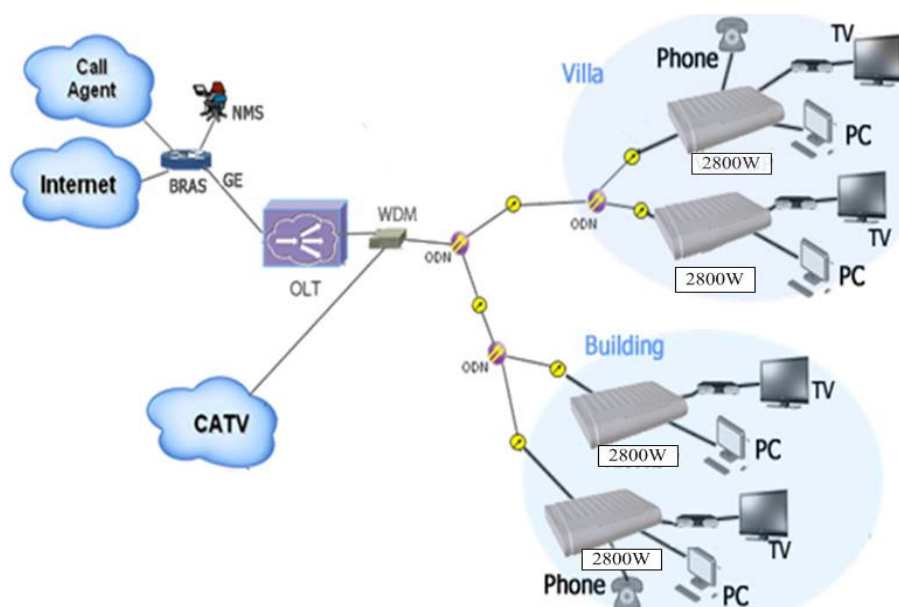


Figure 1-2: Application Chart

1.5 Panel Description

Interface Panel



Figure 1-3: Interface panel

| Name | Function |
|-------------|--|
| PON | Connect PON port to the internet using an SC type single-mode optical fiber cable |
| Phone 1/2 | Connect a telephone with the FXS port using a telephone wire. If you only have one telephone, you should use the FXS1 port |
| LAN 1/2/3/4 | Connect the LAN ports to your devices using RJ45 Ethernet cables |
| WPS | Press down Wi-Fi turn on/off for 3 seconds to enable/disable Wi-Fi |
| WiFi | Hold down the reset button for 1 to 5 seconds to make the device restart and recover from the factory default settings |
| Reset | Press down the WPS button for 0.1 to 3 seconds to activate the WPS function |
| DC12V | Connect with power adapter |
| PWR | Turn power on/off |
| CATV | SCTE type F TV antenna |

Indicator Panel

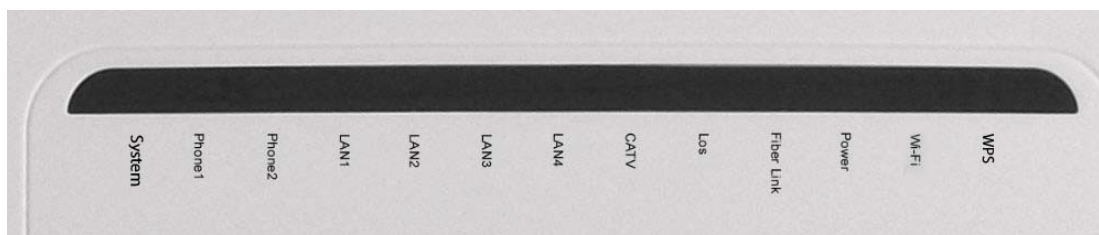


Figure 1-4: Indication panel

| Name | Color | Status | Function |
|------------|--------|--------|--|
| PWR | Green | OFF | Power is not supplied |
| | | ON | Power is supplied |
| Fiber Link | Green | OFF | Device is not registered to GPON OLT |
| | | ON | Device has been registered to GPON OLT |
| | | Flash | Device is registering |
| LOS | Red | OFF | Rx optical power is normal |
| | | Flash | Rx optical power is lower than the sensitivity of the optical receiver |
| CATV | Yellow | ON | CATV optical RX power <-8 dbm |
| | Green | ON | CATV optical RX power <-8 dbm |
| | Red | ON | CATV optical RX power >2 dbm |
| WPS | Green | OFF | Does not use WPS or WPS client is connected (LED automatically turns off after 5 minutes of successful connection) |
| | | ON | WPS client is connected. (LED automatically turns off after 5 minutes of successful connection) |
| | | Flash | WPS client is connecting |
| WiFi | Green | OFF | Device is powered off or WiFi is turned off |
| | | ON | WiFi is turned on |
| | | Flash | WiFi is turned on and currently transmitting data |
| PHONE 1/2 | Green | OFF | Device is powered off or not registered to the soft-switch |
| | | ON | Device has registered to the soft-switch |
| | | Flash | The port is working |
| System | Green | | |
| LAN1/2/3/4 | Green | OFF | Device is powered off or Ethernet link is not established |
| | | ON | Ethernet link is established but not currently transmitting data |
| | | Flash | The port is currently transmitting data |

Chapter 2. Quick Installation

2.1 Standard Packing Contents

When you receive our products, please check carefully to make sure that all of the products arrived in a good condition without defects. If something went wrong during shipping, please contact the carrier; for other damage or missing parts, please contact the dealer.

| Contents | Description |
|--|-------------|
| 4 GE + 2 POTS + WiFi + CATV Home Gateway | 1 pc |
| Power Adapter | 1 pc |
| User Manual | 1 pc |

2.2 Quick Installation

1. Connecting the optical fiber cable to the unit.
 - a. Remove the protective cap of the optical fiber.
 - b. Clean the end of the optical fiber with an optical fiber end cleaner.
 - c. Remove the protective cap of the HGU optical interface (PON interface). Connect the fiber to the PON port on the unit.



Note

When measuring the optical power before connecting to the HGU, it is recommended to use a PON inline power meter.

While connecting, please note:

- Keep the optical connector and the optical fiber clean.
 - Make sure there are no tight bends in the fiber and that the bending diameter is greater than 6 cm. Otherwise, the optical signal loss may be increased, to the extent that signal may be unavailable.
 - Cover all optic ports and connectors with protective cap to guard against dust and moisture when the fiber is not used.
2. Apply power to the unit. Push the power button.
 3. After the HGU is power ON, Indicators should light up as for normal operation. Check whether the PON interface status LED (PON) is on continuously. If it is, the connection is normal; otherwise there is either problem of the physical connection or the optical level at either end. This may be caused by either too much or too little attenuation over the optical fiber. Please refer to the Layout Description section of this installation manual for normal LED activity.
 4. Check all signal levels and services on all the HGU communication ports.

Unit Installation Adjustment

Installing the HGU on a horizontal surface (bench top):

Put the HGU on a clean, flat, sturdy bench top. Keep a minimum 10 cm clearance on all sides of the unit for heat dissipation.

Installing the HGU on a vertical surface (Hanging on a wall):

You can install the HGU on a vertical surface by using the mounting holes on the bottom of the ONU chassis (refer to Figure 1-5) and two flat-head wood screws.

- a. Insert the screws into the wall. The screw positions must be on the same horizontal line and the distance between them must be 165 mm. Reserve at least 6 mm between the screw caps and the wall.
- b. Hang the HGU on the screws through the mounting holes.

2.3 Set up Connection

Set up Wired Connection

Connect PC with GPON HGU Ethernet port using an RJ45 Cat 5 cable.

Set up Wireless Connection

Choose the wireless network name (SSID) "Broadcom1", there is no password by default.

Chapter 3. Configuration

After finishing the basic connection configuration, basic functions are available for use. In order to satisfy individuation service requirements, this chapter provides you with parameter modifications and individual configuration descriptions.

3.1 Login

The device is configured through the web interface. The following steps will enable you to login:

1. Look at section “2.2 Quick Installation” to install
2. The device default IP is 192.168.1.1
3. Open your web browser, type the device IP into the address bar
4. Entry of the username and password will be prompted. Enter the default login User Name and Password:

**Note**

The default administrator login User Name “admin”, and the default login Password is “vsONU101”.

WEB Login

[中文](#) [English](#)

Username admin

Password

Submit Cancel

Figure 3-1: Login

3.2 Status

This tab displays basic product information.

3.2.1 Device Info

This page shows basic information for the device such as model, mark no., hardware version, software version, and CFE version.

| Status | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------------|-------------|---------------------|-----------|-------------|--------------|----------|------|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | |
| Device Basic Info | | | | | | | |
| Device Basic Info | | | | | | | |
| Device model: | | VS-HGU | | | | | |
| Device Mark No.: | | 001d2b-001d2bf88440 | | | | | |
| Hardware Version: | | STDHGU-1.0 | | | | | |
| Software Version: | | HGW003-STD-001 | | | | | |
| CFE Version: | | CFE=1.0.38-117.80 | | | | | |

Figure 3-2: Device Info

3.2.2 Network Info

3.2.2.1 WAN Info

This page shows the WAN connection information you have configured. The WAN connection's protocol can be configured to IPv4, IPv6, or both of them.

Status

WAN Info

xPON Info

Status

Device Info

Network

Network Info

Security

User Info

Application

VoIP Info

Management

TR069 Status

Diagnose

Help

WAN Info

| Interface | Description | Type | VlanMuxId | Vlan8021p | IGMP | NAT | IPv6 | MLD | Status |
|-----------|---------------------------------|--------|-----------|-----------|---------|---------|---------|---------|--------------|
| veip0.2 | 2_TR069_VOIP_INTERNET_R_VID_100 | Router | 100 | Disable | Enable | Enable | Disable | Disable | Unconfigured |
| veip0.1 | 1_INTERNET_B_VID_ | Bridge | NaN | Disable | Disable | Disable | Disable | Disable | Unconfigured |

Network Info

| Interface | Default Gateway | Subnet Mask | DNS Server | IPv6 Default GW | IPv6 DNS Server |
|-----------|-----------------|-----------------|------------|-----------------|-----------------|
| veip0.2 | 0.0.0.0 | 0.0.0.0 | | | |
| veip0.1 | | 255.255.255.255 | | | |

Figure 3-3: WAN Info

3.2.2.2 xPON Info

This page shows the PON information, such as temperature, voltage, current, power, and packet traffic statistics.

| Status | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | | | | | |
|--|---|--------------|-----------|-------------|--------------|----------|------|------------------|----------|-------------|----------|--------------|-----------|------------------|----------|---------------------|-----|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | | | | | | | | | | | |
| <div>WAN Info</div> <div>xPON Info</div> | <div>GPON Info</div> <table><tr><td>Temperature(°C):</td><td>0.199219</td></tr><tr><td>Voltage(V):</td><td>3.187300</td></tr><tr><td>Current(mA):</td><td>34.077999</td></tr><tr><td>Send Power(dBm):</td><td>2.502248</td></tr><tr><td>Receive Power(dBm):</td><td>LOW</td></tr></table> | | | | | | | Temperature(°C): | 0.199219 | Voltage(V): | 3.187300 | Current(mA): | 34.077999 | Send Power(dBm): | 2.502248 | Receive Power(dBm): | LOW |
| | Temperature(°C): | 0.199219 | | | | | | | | | | | | | | | |
| | Voltage(V): | 3.187300 | | | | | | | | | | | | | | | |
| | Current(mA): | 34.077999 | | | | | | | | | | | | | | | |
| | Send Power(dBm): | 2.502248 | | | | | | | | | | | | | | | |
| | Receive Power(dBm): | LOW | | | | | | | | | | | | | | | |

Figure 3-4: xPON Info

3.2.3 User Info

3.2.3.1 WLAN Interface

This page shows WLAN information such as SSID name, whether security is enabled, and packet traffic statistics.

| Status | Status | Network | Security | Application | Management | Diagnose | Help |
|--------|-------------|--------------|-----------|-------------|--------------|----------|------|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | |

WLAN Interface

LAN Interface

USB Interface

WLAN Interface Info

| | |
|-------------------------|-----------|
| WLAN Connection Status: | Enable |
| Channel: | 5 |
| SSID-1 Name: | Broadcom1 |
| SSID-1 Security Status: | Enable |

Receive/Send Info

| Interface | Receive | | | | Send | | | |
|-----------|---------|------|------|-------|-------|------|------|-------|
| | Bytes | Pkts | Errs | Drops | Bytes | Pkts | Errs | Drops |
| Wireless | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Figure 3-5: WLAN Interface

3.2.3.2 LAN Interface

This page shows LAN information such as LAN gateway information, LAN interface packet traffic statistics, and a list of connected clients.

| Status | Status | Network | Security | Application | Management | Diagnose | Help |
|----------------|-------------|--------------|-----------|-------------|--------------|----------|------|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | |
| WLAN Interface | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| LAN Interface | | | | | | | |
| USB Interface | | | | | | | |

Gateway Info

| | | |
|--------------|-------------------|--------------|
| IP Address: | LAN IPv4 Address: | 192.168.10.1 |
| | LAN IPv6 Address: | |
| MAC Address: | 00:1D:2B:F9:06:D0 | |

Receive/Send Info

| Interface | Receive | | | | Send | | | |
|-----------|---------|------|------|-------|--------|------|------|-------|
| | Bytes | Pkts | Errs | Drops | Bytes | Pkts | Errs | Drops |
| LAN1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LAN2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LAN3 | 338077 | 3674 | 0 | 0 | 647924 | 1901 | 0 | 0 |
| LAN4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

LAN Device Info

| | | |
|----------------|-------------------|-------------|
| IP Address | MAC Address | Device Type |
| 192.168.10.228 | 74:d4:35:15:41:82 | Computer |

Figure 3-6: Ethernet Interface

3.2.4 VoIP Info

This page shows VoIP information which includes registration status, user status, and phone number.

| Status | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | | | | | | | |
|-----------|--|-----------------|-----------------|-------------|--------------|----------|------|------|-------|-------|--------------------|-----------------|-----------------|-------------|------|------|-----------|--|--|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | | | | | | | | | | | | | |
| VoIP Info | VoIP Info | | | | | | | | | | | | | | | | | | |
| | <table><tr><th>Name</th><th>Line1</th><th>Line2</th></tr><tr><td>Registering status</td><td>Register failed</td><td>Register failed</td></tr><tr><td>User status</td><td>Idel</td><td>Idel</td></tr><tr><td>Phone No.</td><td colspan="2"></td></tr></table> | | | | | | | Name | Line1 | Line2 | Registering status | Register failed | Register failed | User status | Idel | Idel | Phone No. | | |
| | Name | Line1 | Line2 | | | | | | | | | | | | | | | | |
| | Registering status | Register failed | Register failed | | | | | | | | | | | | | | | | |
| | User status | Idel | Idel | | | | | | | | | | | | | | | | |
| Phone No. | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

Figure 3-7: VoIP Info

3.2.5 TR069 Status

This page shows the request status of ITMS connections.

| Status | Status | Network | Security | Application | Management | Diagnose | Help |
|-----------------------------|---|--------------|-----------|-------------|--------------|----------|------|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | |
| TR069 Connect Configuration | <p>Inform sending status:</p> <p>Inform data is fail to be verified</p> <p>Accept ITMS connection request status:</p> <p>Remote connection procedure initiated by ITMS is interrupted</p> | | | | | | |

Figure 3-8: TR069 Status

3.3 Network

3.3.1 Internet

This page allows you to configure WAN connections. You can't add a WAN connection if you have eight connections configured because the maximum number of WAN connections is eight.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---|---|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| Internet LAN VLAN Multicast LAN VLAN | <p>Uplink Mode: <input type="text" value="GPON"/></p> <p>Connection Name: <input type="text" value="1_INTERNET_B_VID_"/></p> <p>Mode: <input type="text" value="Route"/></p> <p>Protocol Mode: <input type="text" value="IPv4"/></p> <p> <input checked="" type="radio"/> DHCP Automatically obtain an IP address from your ISP <input type="radio"/> Static Configure a static IP address supplied by your ISP <input type="radio"/> PPPoE Select this option if your ISP uses PPPoE </p> <p>MTU: <input type="text" value="1492"/></p> <p>NAT: <input checked="" type="checkbox"/></p> <p>Enable Vlan: <input checked="" type="checkbox"/></p> <p>Vlan ID: <input type="text"/></p> <p>802.1p: <input type="text"/></p> <p>VLAN Mode: <input type="text" value="Tag"/></p> <p>Service Mode: <input type="text" value="TR069_VOIP_INTERNET"/></p> <p>Port Binding:</p> <p> <input type="checkbox"/> Port_1 <input type="checkbox"/> Port_2 <input type="checkbox"/> Port_3 <input type="checkbox"/> Port_4 </p> | | | | | | |

Figure 3-9: Internet

Parameters

Uplink Mode

Description

The uplink mode is set to GPON for this product. It cannot be changed.

| | |
|-------------------------|---|
| Connection Name | This is the list table of WAN connection names. If you want to create a new WAN connection, please select “Add WAN Connection” and input other parameters and then click the “Save/Apply” button. If you want to edit a WAN connection, please select the WAN connection name you want to edit and change the parameters and then click the “Save/Apply” button. If you want to delete a connection, please select the WAN connection you want to delete and then click the “Del” button. |
| Mode | Bridge: The LAN ports you have selected in this WAN connection and PON port are in bridge mode. Route: The LAN ports you have selected in this WAN connection and PON port are in route mode. |
| Protocol Mode | IPv4: WAN connections use IPv4 protocol. IPv6: WAN connections use IPv6 protocol. IPv4 & IPv6: WAN connections use both IPv4 and IPv6 protocol. |
| IP Mode | DHCP: Automatically obtain an IP address from your ISP. Static: Set the IP address manually. PPPoE: Select this option if your ISP uses PPPoE. |
| MTU | MTU: Max transfer unit. Default Value: 1500 in bridge mode, 1492 in route mode. |
| NAT | Enable: Open NAT function. Disable: Close NAT function. |
| Enable VLAN | Disable: In this WAN connection, the packets transmitted by the PON port aren’t given a VLAN tag. Enable: In this WAN connection, the packets transmitted by the PON port are given a VLAN tag. VLAN ID: Input the VLAN ID you want to set. 802.1p: Select the port priority you want to set. VLAN Mode: Tag or Transparent. If you select route mode, the VLAN mode is set to tag mode and it can’t be changed. |
| IPv4 Static IP Settings | IP Address: Please input WAN IP address. Subnet Mask: Please input WAN IP address mask. Default Gateway: Please input gateway. Primary DNS: Please input primary DNS. Secondary DNS: Please input secondary DNS. |
| IPv6 Static IP Settings | WAN IPv6 gateway address: Please input WAN IP gateway. WAN IPv6 address: Please input WAN IP address. Primary IPv6 DNS server: Please input primary DNS. Secondary IPv6 DNS server: Please input secondary DNS. |
| Service Mode | Service mode indicates what the WAN connection is used for. E.g.: If this WAN connection is used for VoIP, you should select a service mode which includes VoIP such as TR069_VoIP_INTERNET, TR069_VoIP, VoIP, or VoIP_INTERNET. |
| Port Binding | Shows which LAN port or SSID the WAN connection has included. |

Port binding is only effective to OTHER mode WAN connections.



Note

If a port isn't bound to an OTHER mode WAN, it will give preference to OTHER mode WAN connections for upstream when there is no LAN VLAN rule and give preference to INTERNET mode WAN connections for upstream when there is a LAN VLAN rule.

DHCP HGU servers will not affect the LAN port which is bound to OTHER mode WAN for upstream. You can't visit webpages from this port.

3.3.2 LAN VLAN

This page allows you to configure LAN interface VLAN.

3.3.2.1 Basic Mode Settings

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | VLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

Advanced Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.

When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.

When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port: eth0/eth0

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Notice: When Received/Translation VLAN ID is 0, it means that received/translation packet without VLAN.

When Received VLAN ID is same as Translation VLAN ID, it means there is a VLAN trunk rule.

When Received VLAN ID is different with Translation VLAN ID, it means there is a VLAN translate rule.

Apply/Save

Figure 3-10: LAN VLAN basic mode settings

| Parameter | Description |
|---------------------|---|
| Enable VLAN Mode | VLAN mode toggle. |
| Received VLAN ID | LAN port received VLAN. |
| Translation VLAN ID | LAN port translated VLAN. LAN port sends messages to PON port with this VLAN. |

For example,

1. Received VLAN ID is 0, translation VLAN ID is 99.

The port is in tag mode, VLAN ID is 99.

2. Received VLAN ID is 99, translation VLAN ID is 99.

The port is in trunk mode, VLAN ID is 99.

3. Received VLAN ID is 77, translation VLAN ID is 99.

The port is in translation mode. The port receives messages with VLAN 77, then translates to VLAN 99 and sends to PON port.

4. Received VLAN ID is 0, translation VLAN ID is 0.

The port is in transparent mode.

Advanced Mode Settings

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|----------|--------------|----------|-------------|------------|-------------|-------|
| Internet | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| LAN VLAN | | | | | | | |
| Multicast LAN | | | | | | | |
| VLAN | | | | | | | |

Local Area Network (LAN) VLAN Advanced Settings

Basic Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.

When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.

When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☒ Enable VLAN Mode

| Received VLAN ID | Translation S-VLAN ID | Translation C-VLAN ID |
|------------------|-----------------------|-----------------------|
| 65535 | 65535 | 0 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Notice: When Received/Translation VLAN ID is 0, it's mean that received/translation packet without VLAN.

When Received VLAN ID is same as Translation S-VLAN ID, it's mean there is a VLAN trunk rule.

When Received VLAN ID is difference with Translation VLAN ID, it's mean there is a VLAN translate rule.

Apply/Save

Figure 3-11: LAN VLAN advanced mode settings

Parameters

Enable VLAN mode

Received VLAN ID

Description

VLAN mode toggle.

LAN port received VLAN.

Translation S-VLAN ID LAN port translated service VLAN.
Translation C-VLAN ID LAN port translated custom VLAN.

For example,

1. Received VLAN ID is 0, translation S-VLAN ID is 99.

The port is in tag mode, VLAN is 99.

2. Received VLAN ID is 99, translation S-VLAN ID is 99.

The port is in trunk mode, VLAN is 99.

3. Received VLAN ID is 77, translation S-VLAN ID is 99.

The port is in translation mode. The port receives messages with VLAN 77, then translates to VLAN 99 and sends to PON port.

4. Received VLAN ID is 65535, translation S-VLAN ID is 65535.

The port is in transparent mode.

5. Received VLAN ID is 22, translation S-VLAN ID is 33 and translation C-VLAN ID is 44.

The port is in QinQ mode. The port receives messages with VLAN 22, sends to PON port with double VLAN where the inner VLAN is 44 and outer VLAN is 33.

3.3.3 Multicast LAN VLAN

This page allows you to configure multicast VLAN of LAN ports.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) Multicast VLAN Basic Settings

Select a LAN port:

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 4000 | 4000 |
| | |
| | |
| | |

☐ Enable VLAN Cross

Notice: When Received/Translation VLAN ID is 0, it's mean that received/translation packet without VLAN.
When Received VLAN ID is same as Translation VLAN ID, it's mean there is a VLAN trunk rule.
When Received VLAN ID is difference with Translation VLAN ID, it's mean there is a VLAN translate rule.

Figure 3-12: LAN multicast VLAN

| Parameter | Description |
|---------------------|---|
| Enable VLAN Mode | Multicast VLAN mode switch. |
| Received VLAN ID | LAN port received VLAN. |
| Translation VLAN ID | LAN port translated VLAN. |
| Enable VLAN Cross | Multicast VLAN cross switch. Join or leave messages do not need to carry the same VLAN as the multicast VLAN when VLAN cross is enabled; but it must be the same as the multicast VLAN when it is disabled. |

For example,

1. Received VLAN ID is 0, translation VLAN ID is 10.

The multicast VLAN of the port is in tag mode, VLAN is 10.

2. Received VLAN ID is 10, translation VLAN ID is 10.

The multicast VLAN of the port is in trunk mode, VLAN is 10.

3. Received VLAN ID is 10, translation VLAN ID is 20.

The multicast VLAN mode of the port is in translation mode. The LAN port translates multicast VLAN 20 to VLAN 10 before sending multicast streams to customers.

3.3.4 LAN Settings

3.3.4.1 IPv4

This page allows you to set LAN settings such as LAN IP settings and DHCP server settings.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

IPv4

IPv6

Rate Limited

Loop Test

LAN Settings

Configure the IP address and subnet mask of the LAN access ports of the CPE. Click "Save/Apply" button to save the LAN configuration.

IP Address:

Subnet Mask:

☐ Disable DHCP server
☒ Enable DHCP server

Beginning IP Address:

Ending IP Address:

Subnet Mask:

Lease Time:

Reserved IP address

Select "Add" or "Del" to configure reserved IP allocations in the DHCP server.
 Note: A maximum of 10 reserved IP address are allowed. (Local IP and MAC will not occupy the quota)

| MAC Address | IP Address | Del |
|-------------------|---------------|-----|
| 80:14:a8:00:fc:51 | 192.168.15.66 | |

Figure 3-13: IPv4 Settings

| Parameters | Description |
|---------------------|---|
| IP Address | LAN IP address. |
| Subnet Mask | LAN IP mask. |
| Disable DHCP Server | DHCP server is disabled. |
| Enable DHCP Server | Enable HGU DHCP server. |
| | Beginning IP Address: The first IP address of the IP pool. |
| | Ending IP Address: The last IP address of the IP pool. |
| | Subnet Mask: The subnet mask of the IP pool. |
| | Lease Time: The lease time of an IP address. |
| Reserved IP Address | Click the "Add" button to configure IP addresses you want to reserve. If you want to delete a reserved IP configuration, select the "Del" checkbox and then click the "Del" button. |

3.3.4.2 IPv6

This page allows you to configure the IPv6 DHCP server.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|--------------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| IPv4 | | | | | | | |
| IPv6 | | | | | | | |
| Rate Limited | | | | | | | |
| Loop Test | | | | | | | |

IPv6 LAN address distribution

Attention: When DHCP status mode = ON; if the prefix length is less than 64 and address compression "::" is not supported, please input the complete address. Such as "0:0:0:2", do NOT abbreviate the address. Example "::2".

LAN static IPv6 address setting

IPv6 static address(Prefix should be set, such as fd00::1/64):

IPv6 LAN Applications

☒ Enable DHCPv6 Server

☒ Stateless

☐ Stateful

Starting Interface ID:

Ending Interface ID:

Lease Time(Hours):

☒ Enabling Radvd

☐ Enable ULA Prefix Advertisement

Static ULA Prefix:(fd00::/64)

Preferred Life Time (hour):

Valid Life Time (hour):

Figure 3-14: IPv6 Settings

| Parameter | Description |
|---------------------------------|--|
| LAN Static IPv6 Address setting | LAN IPv6 address. |
| Enable DHCPv6 Server | Enable or disable DHCPv6 server. |
| Stateless | In this mode, the terminal host gets a gatherable unicast IP address according to the global address prefix which the router declared, and its interface ID. |

| | |
|---------------------------------|--|
| Stateful | In this mode, DHCP is used to configure the host. You should set up a DHCP server according to your requirements. |
| Enable RADVD | Enable RADVD to monitor automatic configuration requests from the IPv6 host and responses in the local area network. |
| Enable ULA Prefix Advertisement | Enable or disable ULA prefix advertisement. |
| Static ULA Prefix | Input static ULA prefix. |
| Preferred Lift Time | Used to restrain lease time and re-bind time. By default, lease time is 50% of preferred life time and re-bind time is 80% of preferred life time. |
| Valid Life Time | Lease period of IPv6 addresses. After a valid life time expires, the server will take back the IPv6 address |

3.3.4.3 Rate Limited

This page allows you to configure LAN port rate limiting.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

LAN Rate Limited

LAN1: kb/s

LAN2: kb/s

LAN3: kb/s

LAN4: kb/s

[Save/Apply](#)

Figure 3-15: Rate Limited

| Parameter | Description |
|------------------|--|
| LAN Rate Limited | Input the value you want to limit and then click “Save/Apply” button to save. 0 means no limit. This is only effective for downstream data rates. |

3.3.4.4 Loop Test

This page allows you to enable the loop test function.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---|--|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| IPv4 | Loop Test | | | | | | |
| IPv6 | | | | | | | |
| Rate Limited | | | | | | | |
| Loop Test | <input checked="" type="checkbox"/> Enable Loop Test | | | | | | |
| <input type="button" value="Save/Apply"/> | | | | | | | |

Figure 3-16: Enable Loop Test

3.3.5 WLAN

This tab is used to configure WIFI parameters. Click the “Save/Apply” button to save any changes you make.

3.3.5.1 WLAN Basic

This page allows you to configure basic wireless settings. Basic settings include wireless switch settings, SSID name, country, max clients, and so on for each SSID. You can enable each AP and decide whether you want the SSID hidden or not.

| Network | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|-------|---------|------|--------|-----------------|-----------------------|------------|-------------|-------|--------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|-----|--------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|-----|--------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|-----|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WLAN Basic | <p>Wireless -- Basic</p> <p>This page is used to configure basic features of wireless LAN port. Including enable or disable wireless LAN port, hide SSID from being scanned by AP, set wireless network name (SSID), set channel frequency according to different country standards and so on. Click on "Save/Apply" to take effect the basic configuration of wireless.</p> <p> <input checked="" type="checkbox"/> Enable Wireless <input type="checkbox"/> Hide Access Point <input type="checkbox"/> Clients Isolation <input type="checkbox"/> Disable WMM Advertise <input type="checkbox"/> Enable Wireless Multicast Forwarding (WMF) </p> <p>SSID: <input type="text" value="Broadcom1"/></p> <p>BSSID: <input type="text" value="00:1D:2B:F8:84:42"/></p> <p>Country: <input type="text" value="UNITED STATES"/></p> <p>Max Clients: <input type="text" value="16"/></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Security | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WLAN Advanced | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Station Info | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Wireless - Virtual Interface:</p> <table border="1"> <thead> <tr> <th>Enabled</th> <th>SSID</th> <th>Hidden</th> <th>Isolate Clients</th> <th>Disable WMM Advertise</th> <th>Enable WMF</th> <th>Max Clients</th> <th>BSSID</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td><input type="text" value="Broadcom2"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="text" value="16"/></td> <td>N/A</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="text" value="Broadcom3"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="text" value="16"/></td> <td>N/A</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="text" value="Broadcom4"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="text" value="16"/></td> <td>N/A</td> </tr> </tbody> </table> | | | | | | | | Enabled | SSID | Hidden | Isolate Clients | Disable WMM Advertise | Enable WMF | Max Clients | BSSID | <input type="checkbox"/> | <input type="text" value="Broadcom2"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="text" value="16"/> | N/A | <input type="checkbox"/> | <input type="text" value="Broadcom3"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="text" value="16"/> | N/A | <input type="checkbox"/> | <input type="text" value="Broadcom4"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="text" value="16"/> | N/A |
| Enabled | SSID | Hidden | Isolate Clients | Disable WMM Advertise | Enable WMF | Max Clients | BSSID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="text" value="Broadcom2"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="text" value="16"/> | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="text" value="Broadcom3"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="text" value="16"/> | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | <input type="text" value="Broadcom4"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="text" value="16"/> | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 3-17: WLAN Basic

| Parameter | Description |
|--------------------------------------|--|
| Enable Wireless | Enable or disable WLAN. |
| Hide Access Point | Select it to hide SSID. |
| Clients Isolation | Isolate each WIFI clients. |
| Disable WMM Advertise | Disable wireless QoS. |
| Enable Wireless Multicast Forwarding | Whether to enable wireless multicast or not. |
| SSID | SSID name. |
| Country | Country or region. |
| Max Clients | Max. clients for this SSID. |

3.3.5.2 Security

This page is used to configure wireless security.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

WLAN Basic

Security

WLAN Advanced

Station Info

WLAN Config -- Security

This page is used to configure the security of wireless LAN interface. Including WPS on/off, authentication methods, data encryption, Wi-Fi authentication key, key length and so on.

WPS Setup

Enable WPS Disabled

Manual Setup AP

You can set the network authentication method, selecting data encryption, specify whether a network key is required to authenticate to this wireless network and specify the encryption strength. Click "Apply/Save" when done.

Select SSID: Broadcom1

Network Authentication: Mixed WPA2/WPA -PSK

WPA/WAPI passphrase: ***** [Click here to display](#)

WPA Group Rekey Interval: 0

WPA/WAPI Encryption: TKIP+AES

WEP Encryption: Disabled

Figure 3-18: WLAN Security

In "WPS Setup" you can select whether to enable the WPS (Wi-Fi Protected Setup) function and add WPS client method: by Push Button or PIN.

In "Manual Setup AP", select your SSID name. Take WPA-PSK for example, select "Mixed WPA2/WPA-PSK" in **Network Authentication**, and set up a WPA-PSK password in **WPA/WAPI passphrase**.

3.3.5.3 WLAN Advanced

This page shows more detailed settings for your wireless network.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

WLAN Basic
Security
WLAN Advanced
Station Info

Wireless -- Advanced

This page is used to configure advanced features of wireless LAN port. Including speed, TRS, power-saving mode, access point beacons, XPress mode and so on.
Click "Save/Apply" to take effect advanced configurations of wireless.

Band: 2.4GHz
Channel: 1
Auto Channel Timer(min): 0
802.11n/EWC: Auto
Bandwidth: 20MHz in 2.4G Band and 40MHz in 5G Band
Control Sideband: Lower
802.11n Rate: Auto
802.11n Protection: Auto
Support 802.11n Client Only: Off
RIFS Advertisement: Off
OBSS Coexistence: Disable
RX Chain Power Save: Disable
RX Chain Power Save Quiet Time: 10
RX Chain Power Save PPS: 10
54g™ Rate: 1 Mbps
Multicast Rate: Auto
Basic Rate: Default
Fragmentation Threshold: 2346
RTS Threshold: 2347
DTIM Interval: 1
Beacon Interval: 100
Global Max Clients: 16
XPress™ Technology: Disabled
Transmit Power: 100%
WMM(Wi-Fi Multimedia): Enabled
WMM No Acknowledgement: Disabled
WMM APSD: Enabled

Current: 1 (interference: acceptable)
Current: 20MHz
Current: N/A
Power Save status: Full Power

Figure 3-19: WLAN Advanced

| Parameter | Description |
|-------------------------|--|
| Band | 2.4 GHz or 5.8 GHz |
| Channel | Wireless channel, different bandwidths have different channel ranges. |
| 802.11n/EWC | 802.11n/EWC switch. There are other parameters for 802.11n/EWC when it is enabled. |
| 54g™ Rate | 54g™ rate |
| Multicast Rate | Wireless multicast rate |
| Basic Rate | Wireless basic rate |
| Fragmentation Threshold | Messages will be segmented if their length is higher than the threshold. When a fragmented transmission is interrupted, only the part that failed needs to be re-sent. |
| RTS Threshold | The range is 256 ~ 2346 bytes, default is 2346 bytes. RTS (Request To Send) threshold is used to avoid transmission conflicts in the WLAN. |

| | |
|------------------------|---|
| | The smaller the value is, the faster the frequency of sending RTS messages and the less time it takes for the system to recover from interruptions or conflicts. This also costs more bandwidth and affects throughput. |
| | The range is 1 ~ 2347 bytes, default is 2347 bytes. |
| DTIM Interval | DTIM (Delivery Traffic Indication Map) interval. The range is 1 ~ 125, default is 1. |
| Beacon Interval | Beacon interval, default is 100. |
| Global Max Clients | The maximum number of clients for the equipment. |
| XPress™ Technology | Xpress technology is based on IEEE802.11e wireless multimedia extension standards. In a single network, using Xpress technology can improve the total rate of AP by 27%. |
| Transmit Power | Wireless transmit power. Value is 20%, 40%, 60%, 80% or 100%. The bigger the value is, the better the coverage area is. |
| WMM(Wi-Fi Multimedia) | Enable or disable wireless QoS function. This will improve video and voice quality of wireless terminal. |
| WMM No Acknowledgement | WMM No Acknowledgement switch |
| WMM APSD | WMM APSD switch |

3.3.5.4 Station Info

This page shows the information of clients connected to your wireless network.

| Network | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | | | | | |
|-------------------|---|--------------|----------|-------------|------------|-------------|-------|------------|------------|------------|-----------|-----------|-------------------|-----|--|-------|-----|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | | | | | | | | | | |
| WLAN Basic | <div>Wireless -- Authenticated Stations</div> <p>This page shows authenticated wireless stations and their status.</p> <table><thead><tr><th>MAC</th><th>Associated</th><th>Authorized</th><th>SSID</th><th>Interface</th></tr></thead><tbody><tr><td>00:08:CA:51:63:FE</td><td>Yes</td><td></td><td>xyyyz</td><td>wl0</td></tr></tbody></table> <div>Refresh</div> | | | | | | | MAC | Associated | Authorized | SSID | Interface | 00:08:CA:51:63:FE | Yes | | xyyyz | wl0 |
| MAC | | | | | | | | Associated | Authorized | SSID | Interface | | | | | | |
| 00:08:CA:51:63:FE | | | | | | | | Yes | | xyyyz | wl0 | | | | | | |
| Security | | | | | | | | | | | | | | | | | |
| WLAN Advanced | | | | | | | | | | | | | | | | | |
| Station Info | | | | | | | | | | | | | | | | | |

Figure 3-20: Station Info

3.3.6 TR069

3.3.6.1 ITMS server

This page allows you to configure ITMS server parameters.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|---------|----------|-------------|------------|-------------|-------|
| | Internet | LAN | WLAN | TR069 | QoS | Time Server | Route |

ITMS Server

TR-069 client configuration

WAN Management Protocol (TR-069) allows the auto-configuration server (ACS) to do automatic configuration and diagnostics of this device.

Set values as you need, and click "apply" to configure the TR-069 client options.

Inform ☒ Disable ☐ Enable

Secure Link:

Inform Interval:

ACS URL:

ACS Username:

ACS Password:

WAN Interface used by TR-069 client:

Display SOAP messages on serial console ☒ Disable ☐ Enable

☒ Connection Request Authentication

Connection request username:

Connection request password:

Connection Request URL:

Figure 3-21: ITMS server parameters

| Parameter | Description |
|-----------------------------|--|
| Inform | Enable or disable HGU sending information to the server. |
| Inform Interval | Reconnection interval. HGU will verify connection with ITMS server at inform interval times. |
| ACS URL | Server provider's network management server. |
| ACS Username | Authentication username for HGU connecting to ITMS server. |
| ACS Password | Authentication password for HGU connecting to ITMS server. |
| WAN interface | Choose a WAN interface for TR069. |
| Connection request username | Authentication username for ITMS connecting to HGU. |
| Connection request password | Authentication password for ITMS connecting to HGU. |

3.3.6.2 LOID

This page shows the LOID settings. After inputting the LOID and password you can click the "save/effect" button to save them.

| | | | | | | | |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| Network | Status | Network | Security | Application | Management | Diagnose | Help |
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

ITMS Server
LOID

LOID:
LOID: FHTTH326UG
Password:

save/effect

Figure 3-22: LOID settings

3.3.7 QoS

This page shows the QoS settings. Once the data stream is matched to the rule and the rule has bound to a specific queue, the data stream's rate will be in schedule depending on the queue settings.

| | | | | | | | |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| Network | Status | Network | Security | Application | Management | Diagnose | Help |
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

QoS

Mode Row: OTHER
Enable QoS: ☒
Upstream bandwidth(kbps): 0
Queue Precedence: ☒ Priority ☐ WRR ☐ CAR
Enable DSCP: ☐
Enable 802.1P: ☒ Disable ☐ Unchange ☐ Replace

| Queue | Priority | Enable |
|-------|----------|-------------------------------------|
| 1 | Highest | <input type="checkbox"/> |
| 2 | High | <input type="checkbox"/> |
| 3 | Medium | <input type="checkbox"/> |
| 4 | Low | <input type="checkbox"/> |
| 5 | Low | <input type="checkbox"/> |
| 6 | Low | <input type="checkbox"/> |
| 7 | Low | <input type="checkbox"/> |
| 8 | Low | <input checked="" type="checkbox"/> |

| Service Name | Queue |
|--------------|-------|
| ... | 1 |
| ... | 1 |

| Type | Value | Protocol | Queue | DSCP | 802 |
|------|-------|----------|-------|------|-----|
|------|-------|----------|-------|------|-----|

Figure 3-23: QoS Configuration

| Parameter | Description |
|--------------------|---|
| Mode Row | QoS template. There are several templates to choose from. |
| Enable QoS | Enable QoS |
| Upstream Bandwidth | Set up upstream bandwidth. 0 means no limit. |
| Queue Precedence | Set up the scheduling policy. |
| Enable DSCP | Enable DSCP |
| Enable 802.1P | Enable 802.1P |

3.3.8 Time Server

This page allows you to configure time related parameters of your router. After you have selected the check box, select the time server and time zone you want to set and then click the “Save/Apply” button to save.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|---------|----------|-------------|------------|-------------|-------|
| | Internet | LAN | WLAN | TR069 | QoS | Time Server | Route |

Time Server

Time Setting

This page allows you to configure time related parameters of your router.

☒ Automatically synchronize with an internet time server

The first NTP time server:

The second NTP time server:

The third NTP time server:

The fourth NTP time server:

The fifth NTP time server:

Timezone:

Figure 3-24: Time server

3.3.9 Route

This page allows you to configure static routing.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

Static Route

Router -- Static Routing

Please input destination address, subnet mask, gateway or valid WAN interface, then click on "Save/Apply" button to add this routing rule.

IP Version:

Destination IP address/Prefix Length:

WAN Interface:

Gateway IP Address:

(optional: metric value should be equal or bigger than 0)

Metric:

Figure 3-25: Configure Static Route

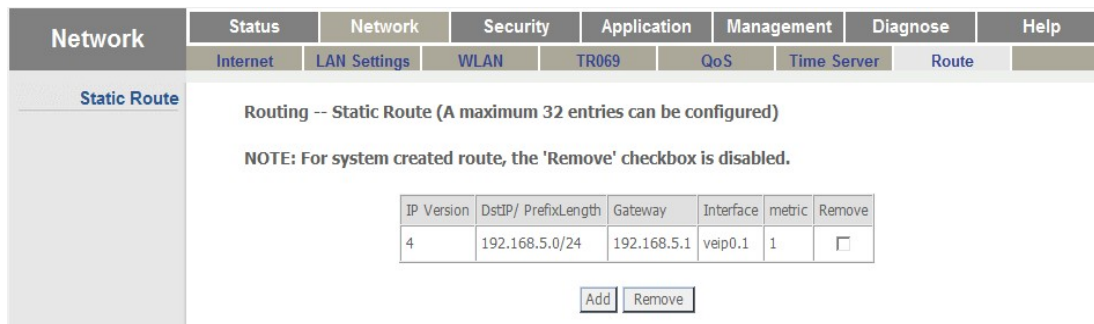


Figure 3-26: Static Route List

| Parameter | Description |
|------------------------|--|
| IP Version | IPv4: Static route for IPv4. IPv6: Static route for IPv6. |
| Destination IP Address | Destination IP address format: the last several bits should be zero, such as 192.168.5.0/24, 192.168.0.0/16. |
| WAN Interface | Select the WAN interface you want to add static route. |
| Gateway IP Address | Please input the gateway IP address. |
| Metric | Please input the metric value. |

3.4 Security

3.4.1 URL Filter

This page allows you to configure the URL filter. The URL filter takes effect when the WAN connection is in router mode. When the WAN connection is in bridge mode, the URL filter cannot take effect.

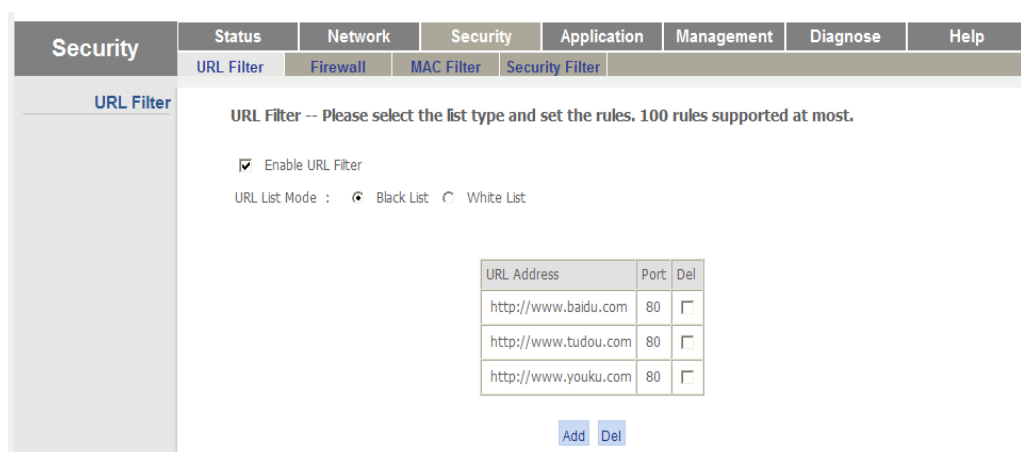


Figure 3-27: URL Filter

| Parameter | Description |
|-------------------|--|
| Enable URL Filter | Enable or Disable URL Filter |
| URL List Mode | Black List: URLs in the list will be forbidden, all others can be accessed. White List: URLs in the list can be accessed, all others are forbidden. |
| URL List | URL list you want to deal with (Drop or Access). Click the “Add” button to add a URL item to the list. Select the “Del” checkbox and then click the “Del” button to remove URL items from the list. |

3.4.2 Firewall

3.4.2.1 Security Level

This page allows you to configure the firewall level. The firewall has three levels: Low, Medium and High.

Figure 3-28: Security Level

| Parameter | Description |
|----------------|--|
| Firewall Level | Low: Protects nothing. Medium: Denial of Service protections. High: Forbid ICMP Input, Forbid Port Scan, and Denial of Service protections. |

3.4.2.2 DoS Protection

This page allows you to enable/disable the DoS protection function

Figure 3-29: DoS Protection

3.4.3 MAC Filter

This page allows you to configure the MAC filter. The MAC filter is different from the URL filter in that it is nothing to do with the WAN connection mode. When packets are input into the LAN port, the packets will be dropped or accessed depending on the MAC filter rules.

Security

MAC Filter

Add MAC Address Filter Rules

MAC Address Filter: ☒ Enable ☐ Disable

Filter Mode: ☒ Black List ☐ White List

MAC Address : (xx:xx:xx:xx:xx:xx)

| MAC Address | Del |
|-------------------|--------------------------|
| 00:00:00:00:00:11 | <input type="checkbox"/> |
| 00:00:00:00:00:22 | <input type="checkbox"/> |

Figure 3-30: MAC Filter

| Parameter | Description |
|-------------------|--|
| MACAddress Filter | Disable: Disable MACFilter Enable: Enable MACFilter |
| Filter Mode | Black List: MAC Addresses in the list are forbidden, all others can be accessed. White List: MAC Addresses in the list can be accessed, all others are forbidden. |
| MAC Address | Input the MAC address and click the “Add” button to add a MAC address to the table. Select the “Del” checkbox and then click “Del” button to remove a MAC address from the table. |

3.4.4 Port Filter

This page is used to configure port filters. Port filters include many kind of filters such as the MAC filter, IP filter, protocol filter, and port filter.

| Security | Status | Network | Security | Application | Management | Diagnose | Help |
|------------|----------|------------|-------------|-------------|------------|----------|------|
| URL Filter | Firewall | MAC Filter | Port Filter | | | | |

Port Filter

Port Id: Port_1
Filter Mode: BlackList

save/effect

| Port Id | Filter Mode |
|---------|-------------|
| Port_1 | BlackList |
| Port_2 | BlackList |
| Port_3 | BlackList |
| Port_4 | BlackList |

Filter Configuration:

Port Id: Port_1
Filter Direction: Ingress

EthType S-MAC D-MAC S-IP D-IP Protocol S-Port D-Port

Select Filter Type
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Ethernet Type:

Src MAC: (xx:xx:xx:xx:xx:xx)

Dst MAC: (xx:xx:xx:xx:xx:xx)

Src IP:

Dst IP:

Protocol: (0-255)

Src Port: --

Dst Port: --

Add

| Port Id | Direction | EthType | SrcMac | DstMac | SrcIp | DstIp | IpProtocol | SrcStartPort | SrcEndPort | DstStartPort | DstEndPort |
|---------|-----------|---------|-------------------|--------|-------|-------|------------|--------------|------------|--------------|------------|
| 1 | BOTH | | 00:00:00:11:22:33 | | | | | | | | |

Figure 3-31: Port Filter

| Parameter | Description |
|------------------------|--|
| Filter Global Settings | |
| Port ID | Select the port you want to configure |
| Filter Mode | Black List: Items in the list are forbidden, all others can be accessed. White List: Items in the list can be accessed, all others are forbidden. |
| Filter Rule Settings | |
| Port ID | Select the port you want to configure rules for. |
| Filter Direction | Ingress: Packet ingress for the port will be filtered by the rule. Egress: Packet egress for the port will be filtered by the rule. BOTH: Packets of both directions will be filtered by the rule. |
| Select Filter Type | Select the items you want to configure a rule for. |
| Ethernet Type | Select which Ethernet type you want to configure in the rule. |
| Src MAC | Input the source MAC address you want to configure in the rule. |
| Dst MAC | Input the destination MAC address you want to configure in the rule. |

| | |
|----------|---|
| Src IP | Input the source IP address you want to configure in the rule. |
| Dst IP | Input the destination IP address you want to configure in the rule. |
| Protocol | Input the protocol you want to configure in the rule. |
| Src Port | Input the source port you want to configure in the rule. |
| Dst Port | Input the destination port you want to configure in the rule. |

Notice: When port filter mode changes to white list, you should configure two rules: One rule for ingress direction and one rule for egress direction.

Eg: Port_1 filter mode has changed into white list.

| Port Id | Filter Mode |
|---------|-------------|
| Port_1 | WhiteList |
| Port_2 | WhiteList |
| Port_3 | BlackList |
| Port_4 | BlackList |

Here two rules have been configured (one for ingress and one for egress). The MAC address is the computer's MAC address. In this way, the computer can access the equipment via port 1.

| Port Id | Direction | EthType | SrcMac | DstMac | SrcIp |
|---------|-----------|---------|-------------------|-------------------|-------|
| 1 | Ingress | | 00:30:18:ae:ef:35 | | |
| 1 | Egress | | | 00:30:18:ae:ef:35 | |

3.5 Application

3.5.1 NAT

3.5.1.1 ALG

This page shows ALG settings such as h.323, SIP, RTSP, IPSEC, FTP, and L2TP.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|----------------|--------|---------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| ALG | | | | | | | |
| DMZ | | | | | | | |
| Virtual Server | | | | | | | |

Application-level Gateway Settings

Select ALG :

- ☒ Enable H.323
- ☐ Enable SIP
- ☒ Enable RTSP
- ☒ Enable IPSEC
- ☒ Enable FTP
- ☒ Enable L2TP

Save/Apply

Figure 3-32: ALG

3.5.1.2 DMZ

This page allows you to configure the DMZ server.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|----------------|--------|---------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| ALG | | | | | | | |
| DMZ | | | | | | | |
| Virtual Server | | | | | | | |

NAT -- DMZ host

The CPE Router will send all WAN packets which are not included on the allowed list of the virtual server to the Demilitarised Zone. Input the DMZ Host IP address and click Save/Apply to activate the DMZ host. Clear the IP address and click Save/Apply to deactivate the DMZ host.

DMZ Host IP Address :

Save/Apply

Figure 3-33: DMZ

3.5.1.3 Virtual Server

This page allows you to configure a virtual server. You should create a WAN connection with NAT function enabled before you configure the virtual server. After you click the “Add” button, you will see the page shown in Figure 3-32.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |

ALG

DMZ

Virtual Server

NAT -- Virtual Servers Setup

Virtual Server allows you to direct incoming traffic from WAN side (identified by Protocol and External port) to the Internal server with private IP address on the LAN side. The Internal port is required only if the external port needs to be converted to a different port number used by the server on the LAN side. A maximum 32 entries can be configured.

[Add](#) [Remove](#)

| Server Name | External Port Start | External Port End | Protocol | Internal Port Start | Internal Port End | Server IP Address | WAN Interface | Remove |
|---------------|---------------------|-------------------|----------|---------------------|-------------------|-------------------|---------------|--------------------------|
| Active Worlds | 3000 | 3000 | TCP | 3000 | 3000 | 192.167.10.25 | epon0.1 | <input type="checkbox"/> |
| Active Worlds | 5670 | 5670 | TCP | 5670 | 5670 | 192.167.10.25 | epon0.1 | <input type="checkbox"/> |
| Active Worlds | 7777 | 7777 | TCP | 7777 | 7777 | 192.167.10.25 | epon0.1 | <input type="checkbox"/> |
| Active Worlds | 7000 | 7000 | TCP | 7000 | 7000 | 192.167.10.25 | epon0.1 | <input type="checkbox"/> |

Figure 3-34: Virtual Server

You can select the “Remove” checkbox and then click the “Remove” button to remove service items from the service table.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

ALG

DMZ

Virtual Server

NAT -- Virtual Servers

Select the service name, and enter the server IP address and click "Apply/Save" to forward IP packets for this service to the specified server. **NOTE: The "Internal Port End" cannot be modified directly. Normally, it is set to the same value as "External Port End". However, if you modify "Internal Port Start", then "Internal Port End" will be set to the same value as "Internal Port Start".**
Remaining number of entries that can be configured:32

Use Interface:

Service Name:

☒ Select a Service:

☐ Custom Service:

Server IP Address:

[Apply/Save](#)

| External Port Start | External Port End | Protocol | Internal Port Start | Internal Port End |
|----------------------|----------------------|----------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/> | TCP | <input type="text"/> | <input type="text"/> |

Figure 3-35: Virtual Server

| Parameter | Description |
|-------------------|---|
| Use Interface | Select a WAN connection with NAT function enabled. |
| Service Name | Select a service you want to add to the virtual server. |
| Server IP Address | Input an internal server IP address. |

3.5.2 UPNP

This page is used to enable UPNP.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|---|--------|-------------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| UPNP | | | | | | | |
| <p>UPnP Setting</p> <p><input checked="" type="checkbox"/> Enable UPnP</p> <p>Save/Apply</p> | | | | | | | |

Figure 3-36: UPNP Settings

3.5.3 VoIP

3.5.3.1 General Settings

This page allows you to configure VoIP general settings.

| Application | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | | | | | | | | | | | | | |
|--|--|--|-------------|-------------|-------------|----------|-------|------|--------|--------|--------|-------------------------------------|-------------------------------------|--------------|---------------------------------------|---------------------------------------|----------|---------------------------------------|---------------------------------------|----------|--|--|----------------|---------------------------------|---------------------------------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other | | | | | | | | | | | | | | | | | | |
| General Settings | | | | | | | | | | | | | | | | | | | | | | | | | |
| VoIP Advanced | | | | | | | | | | | | | | | | | | | | | | | | | |
| VoIP Debug | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>VoIP Basic Settings</p> <p>Input the VoIP service SIP parameters and select Start to apply the settings and start the SIP registrations process. Select Stop to prevent SIP registration from occurring. Select Restart to reinitialise the SIP registration with the current settings.</p> <p>Interface Name: <input type="text" value="veip0.2"/> (Note: You must restart the VoIP service for the settings to take effect.)</p> <p>Region : <input type="text" value="USA - NORTHAMERICA"/> (Note: You must restart the VoIP service for the settings to take effect.)</p> <p>Proxy Server: <input type="text" value="87.12.3.102"/> Port: <input type="text" value="5060"/></p> <p>External Proxy Server: <input type="text"/> Port: <input type="text" value="5060"/></p> <p>Registering Server: <input type="text" value="87.12.3.102"/> Port: <input type="text" value="5060"/></p> <table border="1"> <thead> <tr> <th>Line</th> <th>Phone1</th> <th>Phone2</th> </tr> </thead> <tbody> <tr> <td>Enable</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Phone Number</td> <td><input type="text" value="88880001"/></td> <td><input type="text" value="88880002"/></td> </tr> <tr> <td>Username</td> <td><input type="text" value="88880001"/></td> <td><input type="text" value="88880002"/></td> </tr> <tr> <td>Password</td> <td><input type="password" value="*****"/></td> <td><input type="password" value="*****"/></td> </tr> <tr> <td>ptime Settings</td> <td><input type="text" value="20"/></td> <td><input type="text" value="20"/></td> </tr> </tbody> </table> | | | | | | | | Line | Phone1 | Phone2 | Enable | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Phone Number | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> | Username | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> | Password | <input type="password" value="*****"/> | <input type="password" value="*****"/> | ptime Settings | <input type="text" value="20"/> | <input type="text" value="20"/> |
| Line | Phone1 | Phone2 | | | | | | | | | | | | | | | | | | | | | | | |
| Enable | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | |
| Phone Number | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> | | | | | | | | | | | | | | | | | | | | | | | |
| Username | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> | | | | | | | | | | | | | | | | | | | | | | | |
| Password | <input type="password" value="*****"/> | <input type="password" value="*****"/> | | | | | | | | | | | | | | | | | | | | | | | |
| ptime Settings | <input type="text" value="20"/> | <input type="text" value="20"/> | | | | | | | | | | | | | | | | | | | | | | | |

Figure 3-37: VoIP General Setting

| Parameter | Description |
|-----------------------|--|
| Interface Name | Select a WAN connection that includes VoIP service. |
| Region | Select the region. |
| Proxy Server | Enter the IP address or domain name of the SIP proxy server. |
| External Proxy Server | Enter external proxy server address. If the main proxy server is down, the equipment will send the signal to an external proxy server. |
| Registering Server | Enter the IP address or domain name of the SIP server address. |

| | |
|----------------|--|
| Port | Enter the signal port of the server. The range is 1 to 65535. The default port is 5060. |
| Enable | Enable: Enable phone 1 or phone 2 VoIP function. Disable: Disable phone 1 or phone 2 VoIP function. |
| Phone Number | Enter the display name as it should appear on caller ID. |
| Username | Enter the registration ID of the user with the registrar. |
| Password | Enter the password used for authentication with the registrar. |
| ptime Settings | Select the packing time you want to set. |

This page shows the VoIP WAN connection. Service mode must contain VoIP.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

WAN Settings

Configure the WAN parameters.

Uplink Mode : GPON

Connection Name : 3_VOIP_R_VID_100

Mode : Route

Protocol Mode : IPv4

☒ DHCP Automatically obtain an IP address from your ISP

☐ Static Configure a static IP address supplied by your ISP

☐ PPPoE Select this option if your ISP uses PPPoE

MTU : 1492

Enable Vlan : ☒

Vlan ID : 100

802.1p : 7

VLAN Mode : Tag

Service Mode : VOIP

Save/Apply Del

Figure 3-38: VoIP WAN Connection Setting

3.5.3.2 VoIP Advanced

This page shows advanced VoIP settings.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

General Settings

VoIP Advanced

VoIP Debug

VoIP advanced settings

SIP Transport Protocol:

T38 Fax Enable:

Echo Canceller Enable:

Dial Plan:

DTMF Mode:

PRC2833PT(96~127):

HeartBeat Enable:

HeartBeat Cycle:

HeartBeat Count:

Outgain:

Ingain:

SIP Register Interval: s

Reregister failed and retry interval: s

Call Progress Tone

Dial Tone Duration (10~20): s

Short Digit Timer (4~30): s

Busy tone Duration (30~180): s

Howler tone Duration (30~180): s

RingBack Tone Duration (30~120): s

RingMax Duration(30~120): s

CallWait Duration(12~30): s

Codec Priority Settings

| Line | Line1 | Line2 |
|--------------------|--|--|
| Encoder priority 1 | <input type="text" value="G. 711MuLaw"/> | <input type="text" value="G. 711MuLaw"/> |
| Encoder priority 2 | <input type="text" value="G. 711ALaw"/> | <input type="text" value="G. 711ALaw"/> |
| Encoder priority 3 | <input type="text" value="G. 729a"/> | <input type="text" value="G. 729a"/> |
| Encoder priority 4 | <input type="text" value="G. 723. 1"/> | <input type="text" value="G. 723. 1"/> |

Figure 3-39: VoIP Advanced Settings (1)

| Parameter | Description |
|------------------------|---|
| SIP Transport Protocol | Select the SIP transport protocol: UDP or TCP. |
| Enable T38 Fax | Enable T38 mode. |
| Enable Echo Canceller | Enable echo canceller. |
| Dial Plan | Default is: 00x. 0[1-9]x. [1-9]x. ExxFx.F FxxF E54ExxxxxF ExxExxxxxxxsx .F ExxExxExxxxxxxxF FxxF EExx FxxExxF ExxF EExxExxxxxExxxxxxxxF FExxExxxxxExxxxxxxxF FF ExxExxxxxF FExx ExxEx.F ExxEx.Ex.F E98x. E5s. F54ExxxxxF |
| DTMF Mode | DTMF type: Refers to the transfer mode of users pressing buttons while a voice call is active. It can be set as 3 modes: In-Band, RFC2833, and INFO message. If the mode is set as In-band transport, the signal from pressing buttons will be transferred along with the voice signal. If the mode is set as INFO message, the signal from pressing buttons will be transferred in the signaling. Note that the INFO message mode only supports nonfast-connections. |
| Outgain | Select outgain value. |
| Ingain | Select ingain value. |
| SIP Register Interval | Set the SIP register internal value, default value is 1000. |
| Register Interval | Set the register internal value, default value is 2. |
| Dial Tone Duration | Set the off-hook dialing expire time, default value is 10 (range: 10 s to 20 s). |

| | |
|-------------------------|---|
| Short Digit Timer | Set the short digit timer value, default value is 5 (range: 4 s to 30 s). |
| Busy Tone Duration | Set the busy tone duration, default value is 40 (range: 30 s to 180 s). |
| Howler Tone Duration | Set the howler tone duration, default value is 60 (range: 30 s to 180 s). |
| Ring Back Tone Duration | Set the ring back tone duration, default value is 60 (range: 30 s to 120 s). |
| Ring Max Duration | Set the ringing duration, default value is 60 (range: 30 s to 120 s). |
| Call Wait Duration | Set the call wait duration, default value is 12 (range: 12 s to 30 s). |
| Codec Priority Settings | This parameter sets the ITU-T coding standard of voice calls. The coding technology supported by this equipment is G.711 A law, G.711 Mu law, G.723.1, G.729, and so on. Users can choose one of several coding modes, but one of those modes must be chosen as the priority. |

Call Addition Functions

| Line | Line1 | Line2 |
|---------------------|-------------------------------------|-------------------------------------|
| Call Wait | <input type="checkbox"/> | <input type="checkbox"/> |
| Call Conference | <input type="checkbox"/> | <input type="checkbox"/> |
| Warm Line | <input type="checkbox"/> | <input type="checkbox"/> |
| Warm Line Timeout | <input type="text" value="0"/> | <input type="text" value="0"/> |
| Warm Line Number | <input type="text"/> | <input type="text"/> |
| CfwdUncond | <input type="checkbox"/> | <input type="checkbox"/> |
| CfwdUncond Number | <input type="text"/> | <input type="text"/> |
| CfwdBusy | <input type="checkbox"/> | <input type="checkbox"/> |
| CfwdBusy Number | <input type="text"/> | <input type="text"/> |
| CfwdNoAns | <input type="checkbox"/> | <input type="checkbox"/> |
| CfwdNoAns Timeout | <input type="text" value="30"/> | <input type="text" value="30"/> |
| CfwdNoAns Number | <input type="text"/> | <input type="text"/> |
| Call Transfer | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Unattended(E/F/0~9) | <input type="text" value="E77"/> | <input type="text" value="E77"/> |
| Attended(E/F/0~9) | <input type="text" value="E78"/> | <input type="text" value="E78"/> |

RTP Transfer Setting

| Line | Line1 | Line2 |
|------------|-----------------------------------|-----------------------------------|
| Audio port | <input type="text" value="4000"/> | <input type="text" value="4010"/> |
| T.38 port | <input type="text" value="5000"/> | <input type="text" value="5010"/> |

Figure 3-40: VoIP Advanced Settings (2)

| Parameter | Description |
|-------------------------|--|
| Call Addition Functions | Set call wait, call conference, warm line, and several call forward modes. |
| RTP Transfer Setting | Set audio port and T38 port for the two lines. |

3.5.4 IGMP

3.5.4.1 IGMP SNOOPING

This page allows you to enable or disable the IGMP Snooping function.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|--------|---------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| IGMP SNOOPING | | | | | | | |
| IGMP PROXY | | | | | | | |

IGMP Snooping Setting

This page allows you to enable or disable the IGMP Snooping function.

☒ Enable IGMP Snooping

☐ Ignore SSM Limiting

[Save/Apply](#)

Figure 3-41: IGMP Snooping Setting

3.5.4.2 IGMP PROXY

This page allows you to enable IGMP proxies for a specified WAN connection.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |
| IGMP SNOOPING | | | | | | | |
| IGMP PROXY | | | | | | | |

IGMP Proxy Setting

The IGMP proxy function allows users in LAN to use the internet multimedia services.

IGMP Setting

This page allows you to enable IGMP proxy for a specified WAN connection.

| | |
|------------------------------|--------------------------|
| Internet Connect | Enable IGMP Proxy |
| 2_TR069_VOIP_INTERNET_R_VID_ | <input type="checkbox"/> |

[Save/Apply](#)

Figure 3-42: IGMP PROXY Setting

3.5.5 CATV

This page allows you to enable IGMP proxies for a specified WAN connection.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|------------|-------------|-------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| | | | | | | MLD | Other |

CATV

CATV Setting

This page allows you to enable or disable the CATV function.

☒ CATV Power

Save/Apply

Figure 3-43: CATV Setting

3.5.6 MAC Limited

This page allows you to configure MAC aging time as well as the MAC address limited.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|------------|-------------|-------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| | | | | | | MLD | Other |

MAC Limited

MAC Aging time

MAC Aging:

MAC Address Limited

Total:

LAN1:

LAN2:

LAN3:

LAN4:

Save/Apply

Figure 3-44: MAC Limited Setting

3.5.7 MLD

3.5.7.1 MLD SNOOPING

This page allows you to enable or disable the MLD snooping function for IPv6, just like the IGMP snooping function for IPv4.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|--------------|--------|---------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| MLD SNOOPING | | | | | | | |
| MLD PROXY | | | | | | | |

MLD Snooping Settings

The Multicast Listener Discovery (MLD) Snooping feature for IPv6 can be enabled here. MLD is used by IPv6 routers for discovering Multicast listeners on a directly attached link.

☒ MLD Snooping Enabling

Save/Apply

Figure 3-45: MLD SNOOPING Setting

3.5.7.2 MLD PROXY

This page allows you to enable MLD proxies for IPv6, just like the enable IGMP proxy function for IPv4.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|--------------|--------|---------|----------|-------------|------------|-------------|------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| MLD SNOOPING | | | | | | | |
| MLD PROXY | | | | | | | |

MLD Server Settings

With enabling proxy function, users are able to use multi-media services of internet servers at local side.

MLD Settings

You are able to enable MLD proxy with a specified WAN connection.

Internet Connection

MLD Server Enabling

Save/Apply

Figure 3-46: MLD PROXY Setting

3.5.8 Other

3.5.8.1 Family Storage

This page allows you to build a FTP server.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|------------|-------------|-------|
| | NAT | UPNP | VoIP | IGMP | CATV | MAC Limited | MLD |
| | | | | | | | Other |

Family Storage

IPTV

Server Status

FTP Server: On [Refresh](#)

USB Download

File storage directory: NO USB storage device found /xdown

Username: Password: Port:

Remote URL: [Download](#)

Figure 3-47: Family Storage

3.5.8.2 IPTV

This page allows you to configure IPTV settings for route mode WAN connections.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |
| | | | | | | | |

Family Storage

IPTV

Public multicast VLAN

Please select the public multicast VLAN network connection, input the the public multicast VLAN ID, click "Save/Apply" and reboot the device, then you are able to enable/disable the public multicast VLAN function.

A value of -1 indicates to disable the public multicast VLAN function.

Connection Name :

Public multicast VLAN:

[Save/Apply](#)

Figure 3-48: IPTV Setting

3.6 Management

3.6.1 User Manage

This page allows you to change username or password. There are two levels for accounts: admin and user.

The admin account is able to access and modify all settings of the HGU.

The user account can only be used to view configurations, statuses, and configure limited parameters such as enable wireless, modify SSID name, configure filter, firewall, reboot HGU, etc.

| Management | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|---------------|----------|----------|-------------|------------|----------|------|
| User Manage | Device Manage | Log File | Maintain | | | | |

User Manage

Access Control -- Password

Router is controlled by the following three accounts: Admin, Support and User.

Admin account is able to browse and modify the configuration of your DSL router .

ISP technicians use Support account to maintain or test your DSL router.

User account is able to view configuration and status, and update software.

Password is not more than 16 characters. Click "Save/Apply" to modify or create a password. Note: password is not allowed to contain space.

Username:

Old password:

New Password:

Password Confirm:

[Save/Apply](#)

Figure 3-49: User manage

3.6.2 Device Manage

3.6.2.1 Device Reboot

This page allows you to reboot the device. The process of rebooting will take several minutes.

| Management | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|---------------|----------|----------|-------------|------------|----------|------|
| User Manage | Device Manage | Log File | Maintain | | | | |

Device Reboot

[Update Image](#)

[USB Backup](#)

[Configure Manage](#)

[Load Default](#)

Press the button to reboot your router.

[Reboot](#)

Figure 3-50: Device reboot

3.6.2.2 Update Image

This page allows you to update the software of the device. You can click the "browse" button to select the software you want to update and then click the "Update Software" button to update the image.

| Management | Status | Network | Security | Application | Management | Diagnose | Help |
|------------|-------------|---------------|----------|-------------|------------|----------|------|
| | User Manage | Device Manage | Log File | Maintain | | | |

Tools -- Update Software

Step 1: Obtain an updated software image file from your ISP.

Step 2: Enter the path to the image file location in the box below or click the "Browse" button to locate the image file.

Step 3: Click the "Update Software" button once to upload the new image file.

NOTE: The update process takes about 2 minutes to complete, and your DSL Router will reboot.

Software File Name:

Figure 3-51: Update image

3.6.2.3 USB Backup

This page allows you to back up a configuration file to USB storage.

| Management | Status | Network | Security | Application | Management | Diagnose | Help |
|------------|-------------|---------------|----------|-------------|------------|----------|------|
| | User Manage | Device Manage | Log File | Maintain | | | |

Rapid Recover: ☐ Enable ☒ Disable

Select the USB partition :

Figure 3-52: USB backup

3.6.2.4 Configure Manage

This page allows you to back up and restore the configuration settings of a router.

| Management | Status | Network | Security | Application | Management | Diagnose | Help |
|------------|-------------|---------------|----------|-------------|------------|----------|------|
| | User Manage | Device Manage | Log File | Maintain | | | |

Configuration -- Backup

Backup the configurations of router and save as file in PC.

Configure -- restore

Restore the configurations of router from a file in PC.

Note: Restore will take about 30s, the router will reboot automatic after restore.

Configure file:

Figure 3-53: Configure manage

3.6.2.5 Load Default

This page allows you to restore the device to default settings. You can click the “Load Default” button to restore the factory settings of the device. After being restored, it will restart automatically.

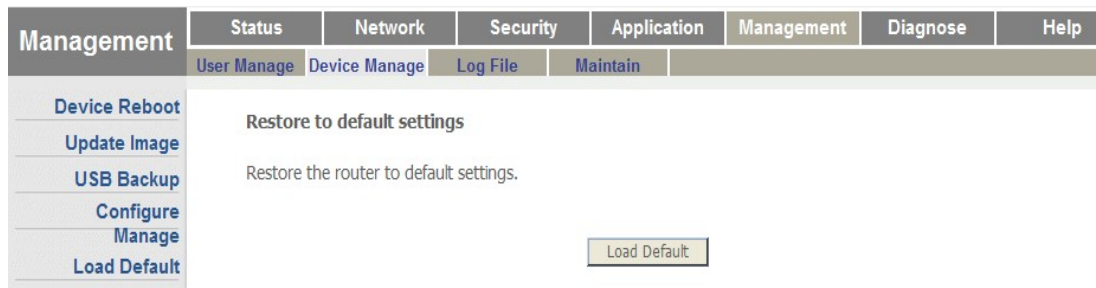


Figure 3-54: Load default

3.6.3 Log File

3.6.3.1 Log

This page allows you to set up log level, display level, etc.

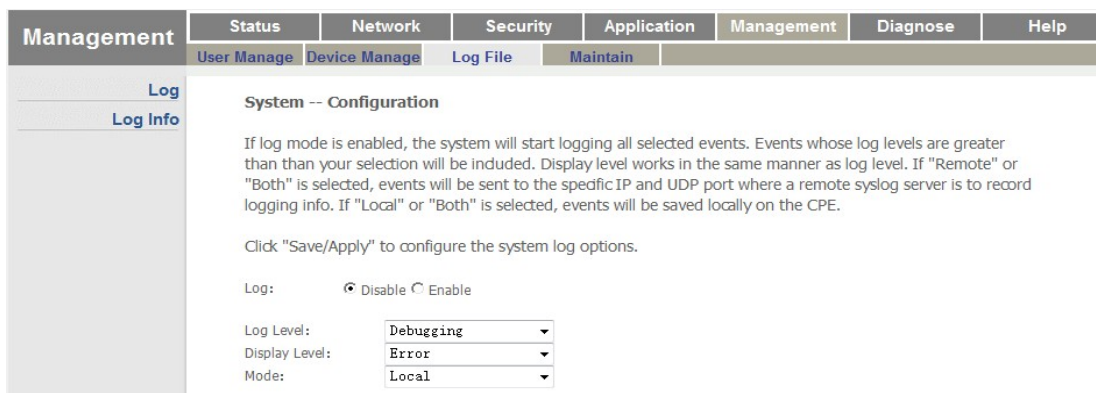


Figure 3-55: Log settings

Parameters

Log Level

Display Level

Mode

Description

Log record level. Includes Emergency, Alert, Critical, Error, Warning, Notice, Informational, and Debugging.

Log display level. Includes Emergency, Alert, Critical, Error, Warning, Notice, Informational, and Debugging.

Local: Log will be saved locally.

Remote: Log will be sent to remote specific host.

Both: Log will be saved locally and sent to remote specific host.

3.6.3.2 Log Info

This page allows you to view and clear the log information.

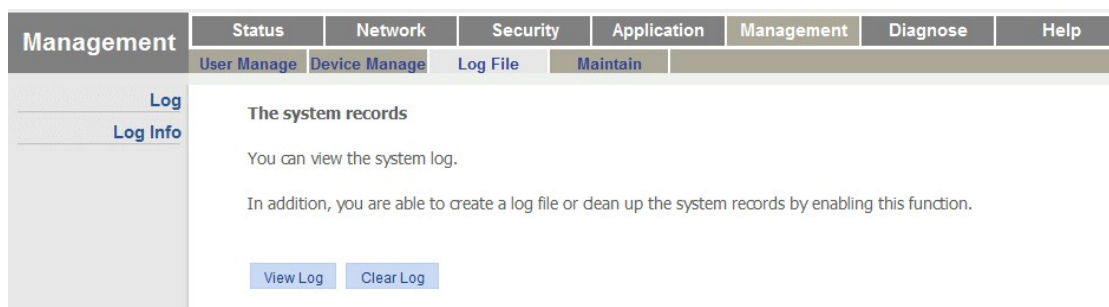


Figure 3-56: Log Info

3.6.4 Maintain

This page shows about the maintenance. Click the "End of maintenance" button, the new data will automatically be reported to the server.

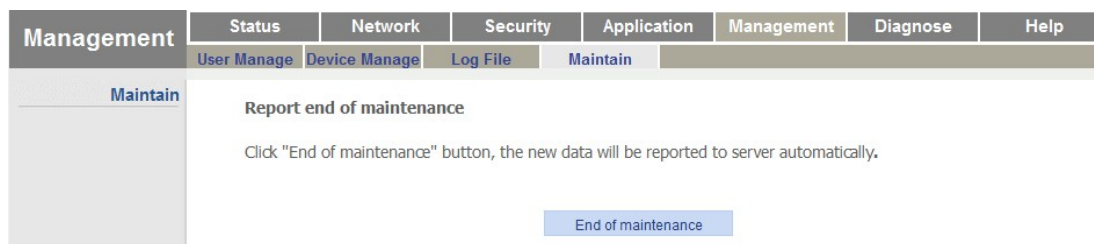


Figure 3-57: Maintain

3.7 Diagnose

3.7.1 Line Diagnose

This page shows information about the line diagnosis. You can click the "Re-diagnose" button to refresh the status.

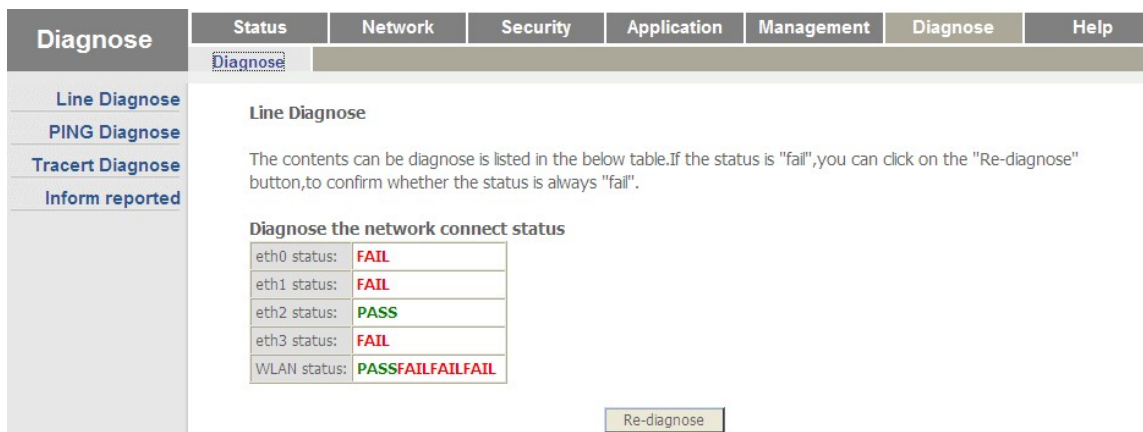


Figure 3-58: Line diagnose

3.7.2 PING Diagnose

This page shows information about the ping test. You can diagnose the connection status between the HGU and other devices.

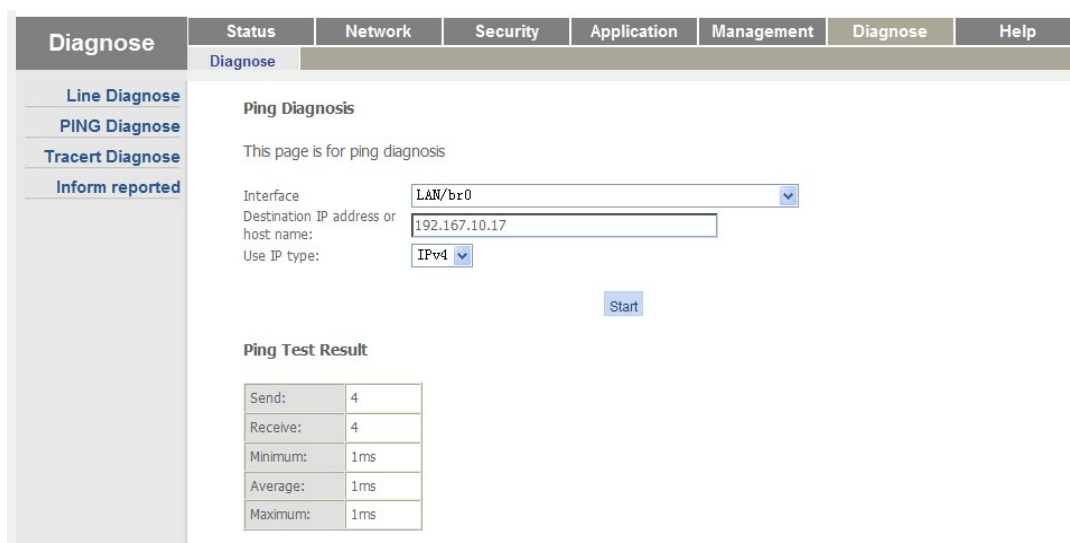


Figure 3-59: PING diagnose

Parameters

Interface

Destination IP or Host Name

Use IP type

Description

Select the interface you want to test.

Input the destination IP you want to ping.

IPv4: Use IPv4 protocol.

IPv6: Use IPv6 protocol.

3.7.3 Tracert Diagnosis

This page shows information about the tracert diagnosis.

| Diagnose | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | |
|--|---------------------------------|----------------------------|----------|-------------|------------|----------|------|--|--|--|---|---------------------------------|----------------------------|
| Diagnose | | | | | | | | | | | | | |
| Line Diagnose | | | | | | | | | | | | | |
| PING Diagnose | | | | | | | | | | | | | |
| Tracert Diagnose | | | | | | | | | | | | | |
| Inform reported | | | | | | | | | | | | | |
| <h3>Trace Route Diagnosis</h3> <p>This page is for trace route diagnosis</p> <p>Interface: <input type="text" value="LAN/br0"/></p> <p>Destination IP address or host name: <input type="text" value="192.168.100.90"/></p> <p><input type="button" value="Start"/></p> <h3>Tracert Test Result</h3> <table border="1"> <tr> <td colspan="3">tracert to 192.168.100.90 (192.168.100.90), 15 hops max, 38 byte packets</td> </tr> <tr> <td>1</td> <td>192.168.100.90 (192.168.100.90)</td> <td>1.052 ms 0.510 ms 0.675 ms</td> </tr> </table> | | | | | | | | tracert to 192.168.100.90 (192.168.100.90), 15 hops max, 38 byte packets | | | 1 | 192.168.100.90 (192.168.100.90) | 1.052 ms 0.510 ms 0.675 ms |
| tracert to 192.168.100.90 (192.168.100.90), 15 hops max, 38 byte packets | | | | | | | | | | | | | |
| 1 | 192.168.100.90 (192.168.100.90) | 1.052 ms 0.510 ms 0.675 ms | | | | | | | | | | | |

Figure 3-60: Tracert diagnosis



Note

Do not start a trace route test when the trace route is in running status.

3.7.4 Inform reported

This page shows information about the manual send inform test.

| Diagnose | Status | Network | Security | Application | Management | Diagnose | Help |
|---|--------|---------|----------|-------------|------------|----------|------|
| Diagnose | | | | | | | |
| Line Diagnose | | | | | | | |
| PING Diagnose | | | | | | | |
| Tracert Diagnose | | | | | | | |
| Inform reported | | | | | | | |
| <p>Manual send inform test, needs about 10 seconds.</p> <p>Test</p> <p>Manual Send Inform Test result:</p> <p>Inform data is fail to be verified</p> <p><input type="button" value="Refresh"/></p> | | | | | | | |

Figure 3-61: Inform reported

3.8 Help

The Help tab displays information for HGU display instructions and prompts in each web UI.

| Help | Status | Network | Security | Application | Management | Diagnose | Help |
|--|---------|----------|-------------|-------------|------------|----------|------|
| State | Network | Security | Application | Management | | | |
| Network | | | | | | | |
| DHCP | | | | | | | |
| WLAN | | | | | | | |
| TR069 | | | | | | | |
| QoS | | | | | | | |
| Time Manage | | | | | | | |
| Route | | | | | | | |
| <p>Uplink Mode: VDSL uplink</p> <p>Mode: Set WAN connection to bridging or routing mode.</p> <p>Service Mode: Select the special use type of WAN connection: TR069, internet and so on.</p> | | | | | | | |

Figure 3-62: Help information

Chapter 4. Examples

4.1 Internet Service

There are two configuration methods for internet service: bridge mode and route mode.

4.1.1 Requirements

1. HGU works on bridge mode, service VLAN is 9. Users access the Internet via LAN port 1.
2. HGU works on route mode, service VLAN is 10. HGU receives IP address via DHCP.

4.1.2 Steps

Before configuring, make sure the HGU has been successfully registered and authorized.
Connect PC to one of the HGU's LAN ports with a twisted cable.

4.1.2.1 Bridge Mode for Internet Service

3. Add a WAN connection

Choose "Network > Internet > Internet" in the navigation menu. Add a bridge mode WAN connection with the following parameters:

- Mode is bridge.
- Enable VLAN and VLAN mode is transparent.
- Service mode is OTHER.
- Bind port 1.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|----------|--------------|----------|-------------|------------|-------------|-------|
| Internet | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| LAN VLAN | | | | | | | |
| Multicast LAN | | | | | | | |
| VLAN | | | | | | | |

WAN Settings

Configure the WAN parameters.

Uplink Mode:

Connection Name:

Mode:

MTU:

Enable Vlan: ☒

VLAN Mode:

Service Mode:

Port Binding:

☒ Port_1 ☐ Port_2

☐ Port_3 ☐ Port_4

☐ Wlan(SSID1) ☐ Wlan(SSID2)

☐ Wlan(SSID3) ☐ Wlan(SSID4)

Figure 4-1: Add a bridge WAN connection

1. Configure LAN port

Choose “Network > Internet > LAN VLAN” in the navigation menu. Enable VLAN mode of LAN1, received VLAN is 0 and translation VLAN is 9.

The screenshot shows the 'LAN VLAN Basic Settings' page. The left sidebar has a 'Network' menu with sub-items: Internet, LAN VLAN (selected), Multicast LAN, and VLAN. The top navigation bar includes tabs for Status, Network, Security, Application, Management, Diagnose, and Help. Under the 'Network' tab, there are sub-tabs: Internet, LAN Settings (selected), WLAN, TR069, QoS, Time Server, and Route. The main content area is titled 'Local Area Network (LAN) VLAN Basic Settings'. It contains a section for 'Advanced Mode Settings' with a note: 'When setting LAN VLAN, you should add an Others transparent bridge on Internet page. Notice: The Advanced Mode is independent with Basic Mode. When Advanced Mode is set to enable VLAN, the rules of Advanced Mode should be taken effect. When Advanced Mode is set to disable VLAN, the rules of Basic Mode should be taken effect.' Below this, there is a 'Select a LAN port:' dropdown menu set to 'eth0/eth0' and a checked checkbox for 'Enable VLAN Mode'. At the bottom, there is a table for mapping Received VLAN ID to Translation VLAN ID.

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 9 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Figure 4-2: LAN VLAN settings

2. Access the internet

Connect PC to LAN 1 port. After receiving an IP address from a DHCP server in the network, the PC can access the Internet.

4.1.2.2 Route Mode for Internet Service

1. Add a WAN connection

Choose “Network > Internet > Internet” in the navigation menu. Add a route mode WAN connection using the following parameters:

- Protocol mode is IPv4.
- Choose DHCP.
- NAT function is checked.
- Enable VLAN with VLAN ID as 10.
- Service mode is INTERNET.
- Bind port 1.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|--|---|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| Internet | Uplink Mode : <input type="text" value="GPON"/> | | | | | | |
| LAN VLAN | Connection Name : <input type="text" value="Add WAN Connection"/> | | | | | | |
| Multicast LAN | Mode : <input type="text" value="Route"/> | | | | | | |
| VLAN | Protocol Mode : <input type="text" value="IPv4"/> | | | | | | |
| <input checked="" type="radio"/> DHCP Automatically obtain an IP address from your ISP | | | | | | | |
| <input type="radio"/> Static Configure a static IP address supplied by your ISP | | | | | | | |
| <input type="radio"/> PPPoE Select this option if your ISP uses PPPoE | | | | | | | |
| MTU : <input type="text" value="1492"/> | | | | | | | |
| NAT : <input checked="" type="checkbox"/> | | | | | | | |
| Enable Vlan : <input checked="" type="checkbox"/> | | | | | | | |
| Vlan ID : <input type="text" value="10"/> | | | | | | | |
| 802.1p : <input type="text" value="0"/> | | | | | | | |
| VLAN Mode : <input type="text" value="Tag"/> | | | | | | | |
| Service Mode : <input type="text" value="INTERNET"/> | | | | | | | |
| Port Binding : | | | | | | | |
| <input checked="" type="checkbox"/> Port_1 <input type="checkbox"/> Port_2 | | | | | | | |
| <input type="checkbox"/> Port_3 <input type="checkbox"/> Port_4 | | | | | | | |
| <input type="checkbox"/> Wlan(SSID1) <input type="checkbox"/> Wlan(SSID2) | | | | | | | |
| <input type="checkbox"/> Wlan(SSID3) <input type="checkbox"/> Wlan(SSID4) | | | | | | | |
| Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one! | | | | | | | |

Figure 4-3: Add a route WAN connection

2. Configure LAN port

You should disable the VLAN mode of port 1.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|--|--|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| Internet | Local Area Network (LAN) VLAN Basic Settings | | | | | | |
| LAN VLAN | <input type="text" value="Advanced Mode Settings"/> | | | | | | |
| Multicast LAN | When setting LAN VLAN, you should add an Others transparent bridge on Internet page. | | | | | | |
| VLAN | Notice: The Advanced Mode is independent with Basic Mode . | | | | | | |
| When Advanced Mode is set to enable VLAN, the rules of Advanced Mode should be taken effect. | | | | | | | |
| When Advanced Mode is set to disable VLAN, the rules of Basic Mode should be taken effect. | | | | | | | |
| Select a LAN port: <input type="text" value="eth0/eth0"/> | | | | | | | |
| <input type="checkbox"/> Enable VLAN Mode | | | | | | | |

Figure 4-4: LAN VLAN settings

3. Access the Internet

Connect PC to LAN port 1. The PC receives an IP address from the HGU and the HGU receives an IP address from a DHCP server in the network. The PC can then access the internet.



Note

Usually, VLAN mode for bridge WAN connections is transparent.

4.2 IPTV Service

There are two methods for IPTV service, IGMP snooping and IGMP proxy. You must enable IGMP proxy when the HGU is working in route mode.

4.2.1 Requirements

1. HGU works in bridge mode for IPTV service, VLAN is 20.
2. HGU works in route mode for IPTV service, VLAN is 30.

4.2.2 Steps

Before configuring, make sure the HGU has been successfully registered and authorized.

Connect PC to one of the HGU's LAN ports with a twisted cable.

4.2.2.1 Bridge mode for IGMP

1. Add a WAN connection

Choose "Network > Internet > Internet" in the navigation menu. Add a bridge mode WAN connection using the following parameters:

- Enable VLAN with VLAN mode as transparent.
- Service mode is OTHER.
- Bind port 2.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

WAN Settings

Configure the WAN parameters.

Uplink Mode : GPON

Connection Name : Add WAN Connection

Mode : Bridge

MTU : 1500

Enable Vlan : ☒

VLAN Mode : Transparent

Service Mode : Other

Port Binding :

☐ Port_1
 ☒ Port_2
 ☐ Port_3
 ☐ Port_4

☐ Wlan(SSID1)
 ☐ Wlan(SSID2)
 ☐ Wlan(SSID3)
 ☐ Wlan(SSID4)

Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one!

When a port is bound using Bridge connection mode and OTHER service mode, PC connected to this port will not be able to get dynamic (DHCP) IP address from gateway. So it is not recommended to bind all ethernet ports using above-mentioned method!

Figure 4-5: Add a bridge WAN connection

2. Configure LAN port

Choose “Network > Internet > LAN VLAN” in the navigation menu. Enable VLAN mode of port

2. Received VLAN ID is 0 and translation VLAN ID is 0.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

Advanced Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.

When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.

When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port: eth1/eth1

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 0 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Notice: When Received/Translation VLAN ID is 0, it means that received/translation packet without VLAN.
 When Received VLAN ID is same as Translation VLAN ID, it means there is a VLAN trunk rule.
 When Received VLAN ID is different with Translation VLAN ID, it means there is a VLAN translate rule.

Figure 4-6: Enable LAN VLAN

Choose “Network > Internet > Multicast LAN VLAN” in the navigation menu. Enable VLAN mode of LAN 2. Received VLAN is 0 and translation VLAN is 20.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|------------|----------|------|
| Internet | LAN Settings | TR069 | QoS | Time Server | Route | | |

Local Area Network (LAN) Multicast VLAN Basic Settings

Select a LAN port: eth1/eth1

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 20 |
| | |
| | |
| | |

☐ Enable VLAN Cross

Notice: When Received/Translation VLAN ID is 0, it's mean that received/translation packet without VLAN.
 When Received VLAN ID is same as Translation VLAN ID, it's mean there is a VLAN trunk rule.
 When Received VLAN ID is difference with Translation VLAN ID, it's mean there is a VLAN translate rule.

Apply/Save

Figure 4-7: Configure multicast VLAN

3. Enable IGMP snooping

Choose “Application > IGMP > IGMP SNOOPING” in the navigation menu. Check the box for IGMP snooping. IGMP snooping is checked by default. It will not be mentioned in previous examples.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|------------|----------|------|
| NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other | |

IGMP SNOOPING

IGMP PROXY

IGMP Snooping Setting

This page allows you to enable or disable the IGMP Snooping function.

☒ Enable IGMP Snooping

Save/Apply

Figure 4-8: Enable IGMP snooping

4. Join multicast group

User sends an IGMP report message through LAN port 2. Report messages don't have a VLAN tag.

4.2.2.2 Route Mode for IGMP

5. Add a WAN connection

Choose “Network > Internet > Internet” in the navigation menu. Add a route mode WAN connection using the following parameters:

- Mode is Route.
- Protocol mode is IPv4.
- Choose DHCP (Provided by ISP).
- NAT function is checked.
- Enable VLAN and VLAN ID is 30.
- Service mode is INTERNET.
- Bind port 3.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|--|--------------|----------|-------------|------------|-------------|-------|
| Internet | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| Internet | Mode : Route | | | | | | |
| LAN VLAN | Protocol Mode : IPv4 | | | | | | |
| Multicast LAN | <input checked="" type="radio"/> DHCP Automatically obtain an IP address from your ISP | | | | | | |
| VLAN | <input type="radio"/> Static Configure a static IP address supplied by your ISP | | | | | | |
| | <input type="radio"/> PPPoE Select this option if your ISP uses PPPoE | | | | | | |
| | MTU : 1492 | | | | | | |
| | NAT : <input checked="" type="checkbox"/> | | | | | | |
| | Enable Vlan : <input checked="" type="checkbox"/> | | | | | | |
| | Vlan ID : 30 | | | | | | |
| | 802.1p : 0 | | | | | | |
| | VLAN Mode : Tag | | | | | | |
| | Service Mode : INTERNET | | | | | | |
| | Port Binding : | | | | | | |
| | <input type="checkbox"/> Port_1 <input type="checkbox"/> Port_2 | | | | | | |
| | <input checked="" type="checkbox"/> Port_3 <input type="checkbox"/> Port_4 | | | | | | |
| | <input type="checkbox"/> Wlan(SSID1) <input type="checkbox"/> Wlan(SSID2) | | | | | | |
| | <input type="checkbox"/> Wlan(SSID3) <input type="checkbox"/> Wlan(SSID4) | | | | | | |
| | Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one! | | | | | | |
| | Save/Apply Del | | | | | | |

Figure 4-9: Add a route WAN connection

6. Enable IGMP proxy

Choose "Application > IGMP > IGMP PROXY" in the navigation menu. Choose the relevant WAN connection and enable IGMP proxy.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

IGMP SNOOPING

IGMP PROXY

IGMP Proxy Setting

The IGMP proxy function allows users in LAN to use the internet multimedia services.

IGMP Setting

This page allows you to enable IGMP proxy for a specified WAN connection.

| | |
|---------------------|-------------------------------------|
| Internet Connect | Enable IGMP Proxy |
| 3_INTERNET_R_VID_30 | <input checked="" type="checkbox"/> |

[Save/Apply](#)

Figure 4-10: Enable IGMP proxy

7. Configure LAN port

It is not necessary to configure any VLANs for LAN ports when the HGU works in route mode for IGMP, so you should disable the VLAN mode of LAN 3.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

Internet

LAN VLAN

Multicast LAN VLAN

Local Area Network (LAN) VLAN Basic Settings

[Advanced Mode Settings](#)

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.

When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.

When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☐ Enable VLAN Mode

Figure 4-11: LAN VLAN settings

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

Internet

LAN VLAN

Multicast LAN VLAN

Local Area Network (LAN) Multicast VLAN Basic Settings

Select a LAN port:

☐ Enable VLAN Mode

Figure 4-12: Multicast LAN VLAN settings

8. Join multicast group

User sends an IGMP report message through LAN port 3 after they receive an IP address from the HGU.

4.3 VoIP Service

HGU supports the SIP protocol for VoIP service. This example introduces how to configure VoIP service through the web interface.

4.3.1 Requirements

HGU works in route mode. Its IP address is 192.168.3.199, VLAN ID is 100. The SIP server is 192.168.3.19, proxy server is 192.168.3.19.

Phone numbers are 88880001 and 88880002. Usernames and their passwords are the same as the phone numbers.

4.3.2 Steps

Before configuring, make sure the HGU has been successfully registered and authorized.

Connect PC to one of the HGU's LAN ports with a twisted cable.

1. Add a WAN connection

Choose "Network > Internet > Internet" in the navigation menu. Add a route mode WAN connection using the following parameters:

- Protocol mode is IPv4.
- Static IP address.
- Enable VLAN with VLAN ID as 100.
- IP address is 192.168.3.199.
- Subnet mask is 255.255.255.0.
- Default gateway is 192.168.3.1.
- DNS is 192.168.1.1.
- Service mode is VoIP.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|--------------------|----------|--------------|----------|-------------|------------|-------------|-------|
| Internet | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| LAN VLAN | | | | | | | |
| Multicast LAN VLAN | | | | | | | |

Uplink Mode:

Connection Name:

Mode:

Protocol Mode:

☐ DHCP Automatically obtain an IP address from your ISP

☒ Static Configure a static IP address supplied by your ISP

☐ PPPoE Select this option if your ISP uses PPPoE

MTU:

Enable Vlan: ☒

Vlan ID:

802.1p:

VLAN Mode:

IP Address:

Subnet Mask:

Default gateway:

Primary DNS:

Secondary DNS:

Service Mode:

Figure 4-13: Add a route WAN connection

2. Configure VoIP general parameters

Choose "Application > VoIP > General settings" in the navigation menu. Set up VoIP using the following parameters:

- Interface Name is the WAN connection for the VoIP you have added.
- Choose which region the VoIP service is used for. Different regions have different dial tones, ring tones, etc.
- Proxy server and registering server are both 192.168.3.19. Protocol ports are both 5060.
- Enable phone 1 and phone 2. Input phone numbers, usernames, and passwords.
- Select a suitable packing time, default value is 20 ms.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

General Settings

VoIP Advanced

VoIP Debug

VoIP Basic Settings

Input the VoIP service SIP parameters and select Start to apply the settings and start the SIP registrations process. Select Stop to prevent SIP registration from occurring. Select Restart to reinitialise the SIP registration with the current settings.

Interface Name: (Note: You must restart the VoIP service for the settings to take effect.)

Region : (Note: You must restart the VoIP service for the settings to take effect.)

Proxy Server: Port:

External Proxy Server: Port:

Registering Server: Port:

| Line | Phone1 | Phone2 |
|----------------|--|--|
| Enable | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Phone Number | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> |
| Username | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> |
| Password | <input type="password" value="*****"/> | <input type="password" value="*****"/> |
| ptime Settings | <input type="text" value="20"/> | <input type="text" value="20"/> |

Figure 4-14: VoIP general settings

3. Look up register status

Choose "Status > VoIP Info > VoIP Info" in the navigation menu. You can use the VoIP service once the Registering status is successful.

| Status | Status | Network | Security | Application | Management | Diagnose | Help |
|--------|-------------|--------------|-----------|-------------|--------------|----------|------|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | |

VoIP Info

| Name | Line1 | Line2 |
|--------------------|-------------|-------------|
| Registering status | Registering | Registering |
| User status | Idle | Idle |
| Phone No. | 88880001 | 88880002 |

Figure 4-15: VoIP registering status

4.4 Internet and IPTV Service Mixed

This example introduces how to achieve internet service and IPTV service at the same time.

4.4.1 Requirements

- HGU uses route mode for internet service and bridge mode for IPTV service.
LAN 1 is used for internet service, VLAN is 10. LAN 2 is used for IPTV service, including VOD (unicast) and multicast. VOD VLAN is 1000 and multicast VLAN is 1100.
- HGU uses route mode for internet service and IPTV service.

LAN 1 is used for Internet service, VLAN is 11. LAN 2 is used for IPTV service, including VOD (unicast) and multicast. VOD VLAN is 11 and multicast VLAN is 22.

4.4.2 Steps

Before configuring, make sure the HGU has been successfully registered and authorized.

Connect PC to one of the HGU's LAN ports with a twisted cable.

4.4.2.1 Route and Bridge Mode for Mixed Service

1. Add WAN connections

Choose "Network > Internet > internet" in the navigation menu. Add a route mode WAN connection using the following parameters:

- Protocol mode is IPv4.
- Choose DHCP. (Provided by ISP)
- Enable VLAN with VLAN ID as 10.
- Service mode is INTERNET.
- Bind port 1.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|--|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |
| Internet | Uplink Mode : <input type="text" value="GPON"/> | | | | | | |
| LAN VLAN | Connection Name : <input type="text" value="Add WAN Connection"/> | | | | | | |
| Multicast LAN | Mode : <input type="text" value="Route"/> | | | | | | |
| VLAN | Protocol Mode : <input type="text" value="IPv4"/> | | | | | | |
| | <input checked="" type="radio"/> DHCP Automatically obtain an IP address from your ISP | | | | | | |
| | <input type="radio"/> Static Configure a static IP address supplied by your ISP | | | | | | |
| | <input type="radio"/> PPPoE Select this option if your ISP uses PPPoE | | | | | | |
| | MTU : <input type="text" value="1492"/> | | | | | | |
| | NAT : <input checked="" type="checkbox"/> | | | | | | |
| | FullConeNAT : <input type="checkbox"/> | | | | | | |
| | Enable Vlan : <input checked="" type="checkbox"/> | | | | | | |
| | Vlan ID : <input type="text" value="10"/> | | | | | | |
| | 802.1p : <input type="text" value="1"/> | | | | | | |
| | VLAN Mode : <input type="text" value="Tag"/> | | | | | | |
| | Service Mode : <input type="text" value="INTERNET"/> | | | | | | |
| | Port Binding : | | | | | | |
| | <input checked="" type="checkbox"/> Port_1 <input type="checkbox"/> Port_2 | | | | | | |
| | <input type="checkbox"/> Port_3 <input type="checkbox"/> Port_4 | | | | | | |
| | <input type="checkbox"/> Wlan(SSID1) <input type="checkbox"/> Wlan(SSID2) | | | | | | |

Figure 4-16: Add a route mode WAN

Add a bridge mode WAN connection. Enable VLAN with transparent mode. Service mode is OTHER. Bind port 2.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

WAN Settings

Configure the WAN parameters.

Uplink Mode :

Connection Name :

Mode :

MTU :

Enable Vlan : ☒

VLAN Mode :

Service Mode :

Port Binding :

☐ Port_1
 ☒ Port_2
 ☐ Port_3
 ☐ Port_4

☐ Wlan(SSID1)
 ☐ Wlan(SSID2)
 ☐ Wlan(SSID3)
 ☐ Wlan(SSID4)

Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one!

When a port is bound using Bridge connection mode and OTHER service mode, PC connected to this port will not be able to get dynamic (DHCP) IP address from gateway. So it is not recommended to bind all ethernet ports using above-mentioned method!

Figure 4-17: Add a bridge mode WAN

2. Configure LAN VLAN

Choose "Network > Internet > LAN VLAN" in the navigation menu. Disable VLAN mode of LAN 1.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.

When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.

When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☐ Enable VLAN Mode

Figure 4-18: Set VLAN for LAN1

Set VLAN as 1000 for VOD service in LAN 2. Received VLAN is 0 and translation VLAN is 1000.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | VLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

Advanced Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.
 When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.
 When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 1000 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Notice: When Received/Translation VLAN ID is 0, it means that received/translation packet without VLAN.
 When Received VLAN ID is same as Translation VLAN ID, it means there is a VLAN trunk rule.
 When Received VLAN ID is different with Translation VLAN ID, it means there is a VLAN translate rule.

Figure 4-19: Set VLAN for LAN2

3. Configure LAN multicast VLAN.

Choose “Network > Internet > Multicast LAN VLAN” in the navigation menu. Set multicast VLAN as 1100 for LAN2. Received VLAN is 0 and translation VLAN is 1100.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | VLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) Multicast VLAN Basic Settings

Select a LAN port:

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 1100 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

☐ Enable VLAN Cross

Notice: When Received/Translation VLAN ID is 0, it's mean that received/translation packet without VLAN.
 When Received VLAN ID is same as Translation VLAN ID, it's mean there is a VLAN trunk rule.
 When Received VLAN ID is difference with Translation VLAN ID, it's mean there is a VLAN translate rule.

Figure 4-20: Set multicast VLAN for LAN2

4. Access the Internet

Connect PC to LAN port 1. The PC receives an IP address from the HGU and the HGU receives an IP address from a DHCP server in the network. The PC can then access the internet.

5. Watch IPTV

After the STB receives an IP address from your ISP via DHCP, you can watch IPTV.

4.4.2.2 Route Mode for Mixed Service

1. Add WAN connection

Choose “Network > Internet > internet” in the navigation menu. Add a route mode WAN connection using the following parameters:

- Protocol mode is IPv4.
- Choose DHCP (Provided by ISP).
- Enable VLAN and VLAN ID is 11.
- Service mode is INTERNET.
- Bind port 1 and port 2.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |
| LAN VLAN | | | | | | | |
| Multicast LAN | | | | | | | |
| VLAN | | | | | | | |

| | |
|--|--|
| Uplink Mode : | GPON |
| Connection Name : | Add WAN Connection |
| Mode : | Route |
| Protocol Mode : | IPv4 |
| <input checked="" type="radio"/> DHCP | Automatically obtain an IP address from your ISP |
| <input type="radio"/> Static | Configure a static IP address supplied by your ISP |
| <input type="radio"/> PPPoE | Select this option if your ISP uses PPPoE |
| MTU : | 1492 |
| NAT : | <input checked="" type="checkbox"/> |
| Enable Vlan : | <input checked="" type="checkbox"/> |
| Vlan ID : | 11 |
| 802.1p : | 1 |
| VLAN Mode : | Tag |
| Service Mode : | INTERNET |
| Port Binding : | |
| <input checked="" type="checkbox"/> Port_1 | <input checked="" type="checkbox"/> Port_2 |
| <input type="checkbox"/> Port_3 | <input type="checkbox"/> Port_4 |
| <input type="checkbox"/> Wlan(SSID1) | <input type="checkbox"/> Wlan(SSID2) |
| <input type="checkbox"/> Wlan(SSID3) | <input type="checkbox"/> Wlan(SSID4) |

Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one!

Figure 4-21: Add a route mode WAN connection

2. Enable IGMP proxy

Choose “Application > IGMP > IGMP PROXY” in the navigation menu. Choose the relevant WAN connection and enable IGMP proxy.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

IGMP SNOOPING

IGMP PROXY

IGMP Proxy Setting

The IGMP proxy function allows users in LAN to use the internet multimedia services.

IGMP Setting

This page allows you to enable IGMP proxy for a specified WAN connection.

| Internet Connect | Enable IGMP Proxy |
|---------------------|-------------------------------------|
| 2_INTERNET_R_VID_11 | <input checked="" type="checkbox"/> |

[Save/Apply](#)

Figure 4-22: Enable IGMP proxy

3. Configure public multicast VLAN

Choose “Application > Other > IPTV” in the navigation menu. Choose the relevant WAN connection and set public multicast VLAN as 22.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

Family Storage

IPTV

Public multicast VLAN

Please select the public multicast VLAN network connection, input the the public multicast VLAN ID, click "Save/Apply" and reboot the device, then you are able to enable/disable the public multicast VLAN function.

A value of -1 indicates to disable the public multicast VLAN function.

Connection Name :

Public multicast VLAN:

Figure 4-23: Configure public multicast VLAN

4. Configure LAN VLAN

Choose “Network > Internet > LAN VLAN” in the navigation menu. Disable VLAN mode of LAN

1.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

Advanced Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.
 When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.
 When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☐ Enable VLAN Mode

Figure 4-24: Configure VLAN of LAN 1

Disable VLAN mode of LAN 2.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

Advanced Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.
 When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.
 When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☐ Enable VLAN Mode

Figure 4-25: Configure VLAN of LAN 2

5. Configure LAN multicast VLAN

Choose "Network > Internet > Multicast LAN VLAN" in the navigation menu. Disable multicast VLAN of LAN 2.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) Multicast VLAN Basic Settings

Select a LAN port:

☐ Enable VLAN Mode

Figure 4-26: Configure multicast VLAN of LAN 2

6. Access the internet

Connect PC to LAN port 1. The PC receives an IP address from the HGU and the HGU receives an IP address from a DHCP server in the network. The PC can then access the internet.

7. Watch IPTV

After STB receives an IP address from your ISP via DHCP, you can watch IPTV.

4.5 Internet, IPTV and VoIP Service Mixed

4.5.1 Requirements

LAN 1 is used for Internet service, VLAN is 10.

LAN 2 is used for IPTV service, including VOD(unicast) and multicast, VLAN both are 1100.

VoIP VLAN is 100, VoIP IP address is 192.168.3.199, and SIP server is 192.168.3.19. The proxy server is 192.168.3.19 as well.

Username and password of SIP account 1: 88880001, 88880001; Account 2: 88880002, 88880002.

4.5.2 Steps

Before configuring, make sure the HGU has been successfully registered and authorized.

Connect PC to one of the HGU's LAN ports with a twisted cable.

1. Add WAN connection

Choose "Network > Internet > Internet" in the navigation menu. Add a route mode WAN connection for internet service using the following parameters:

- Protocol mode is IPv4.
- Choose PPPoE.
- NAT function is checked.
- Enable VLAN and VLAN ID is 10.
- Service mode is INTERNET.
- Bind port 1.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------------------|--|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| Internet | Uplink Mode : <input type="text" value="GPON"/> | | | | | | |
| LAN VLAN | Connection Name : <input type="text" value="Add WAN Connection"/> | | | | | | |
| Multicast LAN | Mode : <input type="text" value="Route"/> | | | | | | |
| VLAN | Protocol Mode : <input type="text" value="IPv4"/> | | | | | | |
| | <input type="radio"/> DHCP Automatically obtain an IP address from your ISP | | | | | | |
| | <input type="radio"/> Static Configure a static IP address supplied by your ISP | | | | | | |
| | <input checked="" type="radio"/> PPPoE Select this option if your ISP uses PPPoE | | | | | | |
| | MTU : <input type="text" value="1492"/> | | | | | | |
| | NAT : <input checked="" type="checkbox"/> | | | | | | |
| | Enable Vlan : <input checked="" type="checkbox"/> | | | | | | |
| | Vlan ID : <input type="text" value="10"/> | | | | | | |
| | 802.1p : <input type="text" value="1"/> | | | | | | |
| | VLAN Mode : <input type="text" value="Tag"/> | | | | | | |
| | Username : <input type="text" value="ppp"/> | | | | | | |
| | Password : <input type="password" value="..."/> | | | | | | |
| | Service Name : <input type="text" value="p"/> | | | | | | |
| | Service Mode : <input type="text" value="INTERNET"/> | | | | | | |
| | Port Binding : | | | | | | |
| | <input checked="" type="checkbox"/> Port_1 <input type="checkbox"/> Port_2 | | | | | | |
| | <input type="checkbox"/> Port_3 <input type="checkbox"/> Port_4 | | | | | | |
| | <input type="checkbox"/> Wlan(SSID1) <input type="checkbox"/> Wlan(SSID2) | | | | | | |
| | <input type="checkbox"/> Wlan(SSID3) <input type="checkbox"/> Wlan(SSID4) | | | | | | |
| | Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one! | | | | | | |

Figure 4-27: Add a WAN connection for Internet service

Add a bridge mode WAN connection for IPTV service. Enable VLAN with transparent mode. Service mode is other. Bind LAN 2.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|----------|--------------|----------|-------------|------------|-------------|-------|
| Internet | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

WAN Settings

Configure the WAN parameters.

Uplink Mode : GPON

Connection Name : Add WAN Connection

Mode : Bridge

MTU : 1500

Enable Vlan : ☒

VLAN Mode : Transparent

Service Mode : Other

Port Binding :

☐ Port_1 ☒ Port_2

☐ Port_3 ☐ Port_4

☐ Wlan(SSID1) ☐ Wlan(SSID2)

☐ Wlan(SSID3) ☐ Wlan(SSID4)

Note: The bound port can not be shared by different WAN connections, and the last binding operation will cover the previous one!

When a port is bound using Bridge connection mode and OTHER service mode, PC connected to this port will not be able to get dynamic (DHCP) IP address from gateway. So it is not recommended to bind all ethernet ports using above-mentioned method!

Figure 4-28: Add a WAN connection for IPTV service

Add a route mode WAN connection for VoIP service. Choose IPv4 and static. Input the IP address, mask, gateway, DNS etc. Enable VLAN, VLAN ID is 100. Service mode is VoIP.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|--|---|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |
| Internet | Uplink Mode : <input type="text" value="GPON"/> | | | | | | |
| LAN VLAN | Connection Name : <input type="text" value="Add WAN Connection"/> | | | | | | |
| Multicast LAN | Mode : <input type="text" value="Route"/> | | | | | | |
| VLAN | Protocol Mode : <input type="text" value="IPv4"/> | | | | | | |
| <input type="radio"/> DHCP Automatically obtain an IP address from your ISP | | | | | | | |
| <input checked="" type="radio"/> Static Configure a static IP address supplied by your ISP | | | | | | | |
| <input type="radio"/> PPPoE Select this option if your ISP uses PPPoE | | | | | | | |
| MTU : <input type="text" value="1492"/> | | | | | | | |
| Enable Vlan : <input checked="" type="checkbox"/> | | | | | | | |
| Vlan ID : <input type="text" value="100"/> | | | | | | | |
| 802.1p : <input type="text" value="7"/> | | | | | | | |
| VLAN Mode : <input type="text" value="Tag"/> | | | | | | | |
| IP Address : <input type="text" value="192.168.3.199"/> | | | | | | | |
| Subnet Mask : <input type="text" value="255.255.255.0"/> | | | | | | | |
| Default gateway : <input type="text" value="192.168.3.1"/> | | | | | | | |
| Primary DNS : <input type="text" value="192.168.1.1"/> | | | | | | | |
| Secondary DNS : <input type="text"/> | | | | | | | |
| Service Mode : <input type="text" value="VOIP"/> | | | | | | | |
| <input type="button" value="Save/Apply"/> <input type="button" value="Del"/> | | | | | | | |

Figure 4-29: Add a WAN connection for VoIP service

2. Configure LAN VLAN

Choose "Network > Internet > LAN VLAN" in the navigation menu. Disable VLAN mode of LAN

1.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---|---|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route | |
| Internet | Local Area Network (LAN) VLAN Basic Settings | | | | | | |
| LAN VLAN | <input type="button" value="Advanced Mode Settings"/> | | | | | | |
| Multicast LAN | When setting LAN VLAN, you should add an Others transparent bridge on Internet page. | | | | | | |
| VLAN | Notice: The Advanced Mode is independent with Basic Mode . When Advanced Mode is set to enable VLAN, the rules of Advanced Mode should be taken effect. When Advanced Mode is set to disable VLAN, the rules of Basic Mode should be taken effect. | | | | | | |
| Select a LAN port: <input type="text" value="eth0/eth0"/> | | | | | | | |
| <input type="checkbox"/> Enable VLAN Mode | | | | | | | |

Figure 4-30: Configure VLAN of LAN 1

Configure VLAN of LAN 2. VLAN ID is 1100, for VOD service.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | VLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) VLAN Basic Settings

Advanced Mode Settings

When setting LAN VLAN, you should add an **Others transparent bridge** on **Internet** page.

Notice: The **Advanced Mode** is independent with **Basic Mode**.

When **Advanced Mode** is set to enable VLAN, the rules of **Advanced Mode** should be taken effect.

When **Advanced Mode** is set to disable VLAN, the rules of **Basic Mode** should be taken effect.

Select a LAN port:

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 1100 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Notice: When Received/Translation VLAN ID is 0, it means that received/translation packet without VLAN.

When Received VLAN ID is same as Translation VLAN ID, it means there is a VLAN trunk rule.

When Received VLAN ID is different with Translation VLAN ID, it means there is a VLAN translate rule.

Figure 4-31: Configure VLAN of LAN 2

3. Configure LAN multicast VLAN

Choose “Network > Internet > Multicast LAN VLAN” in the navigation menu. Enable VLAN of LAN 2. Input received VLAN ID with 0 and translation VLAN ID with 1100.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------|--------------|---------|----------|-------------|-------------|----------|------|
| Internet | LAN Settings | VLAN | TR069 | QoS | Time Server | Route | |

Local Area Network (LAN) Multicast VLAN Basic Settings

Select a LAN port:

☒ Enable VLAN Mode

| Received VLAN ID | Translation VLAN ID |
|------------------|---------------------|
| 0 | 1100 |
| | |
| | |
| | |

☐ Enable VLAN Cross

Notice: When Received/Translation VLAN ID is 0, it's mean that received/translation packet without VLAN.

When Received VLAN ID is same as Translation VLAN ID, it's mean there is a VLAN trunk rule.

When Received VLAN ID is difference with Translation VLAN ID, it's mean there is a VLAN translate rule.

Figure 4-32: Configure multicast VLAN of LAN 2

4. Configure VoIP general parameters

Choose “Application > VoIP > General Settings” in the navigation menu. Configure VoIP using the following parameters:

- “Interface Name” is the WAN connection that you have added for VoIP in step 1.
- “Region” contains many countries or regions. Different regions have their own dial tones, ring tones, etc.
- “Proxy server” and “Registering server” are both 192.168.3.19, port is 5060.
- Input phone number, username, and password of each line.
- Choose packing time, default is 20ms.

| Application | Status | Network | Security | Application | Management | Diagnose | Help |
|-------------|--------|---------|----------|-------------|-------------|----------|-------|
| | NAT | UPNP | VoIP | IGMP | MAC Limited | MLD | Other |

General Settings

VoIP Advanced

VoIP Debug

VoIP Basic Settings

Input the VoIP service SIP parameters and select Start to apply the settings and start the SIP registrations process. Select Stop to prevent SIP registration from occurring. Select Restart to reinitialise the SIP registration with the current settings.

Interface Name: (Note: You must restart the VoIP service for the settings to take effect.)

Region : (Note: You must restart the VoIP service for the settings to take effect.)

Proxy Server: Port:

External Proxy Server: Port:

Registering Server: Port:

| Line | Phone1 | Phone2 |
|----------------|--|--|
| Enable | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Phone Number | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> |
| Username | <input type="text" value="88880001"/> | <input type="text" value="88880002"/> |
| Password | <input type="password" value="*****"/> | <input type="password" value="*****"/> |
| ptime Settings | <input type="text" value="20"/> | <input type="text" value="20"/> |

Figure 4-33: VoIP general settings

5. Access the internet

Connect PC to LAN port 1. The PC receives an IP address from the HGU and the HGU receives an IP address from a DHCP server in the network. The PC can then access the internet.

6. Watch IPTV

After the STB receives an IP address from your ISP via DHCP, you can watch IPTV.

7. Look up register status

Choose “Status > VoIP Info > VoIP Info” in the navigation menu. You can use the VoIP service once Registering status is successful.

| Status | Status | Network | Security | Application | Management | Diagnose | Help | | | | | | | | | | | | |
|--------------------|---|-----------------|-----------|-------------|--------------|----------|------|------|-------|-------|--------------------|-----------------|-----------------|-------------|------|------|-----------|----------|----------|
| | Device Info | Network Info | User Info | VoIP Info | TR069 Status | | | | | | | | | | | | | | |
| VoIP Info | VoIP Info | | | | | | | | | | | | | | | | | | |
| | <table><tr><th>Name</th><th>Line1</th><th>Line2</th></tr><tr><td>Registering status</td><td>Register failed</td><td>Register failed</td></tr><tr><td>User status</td><td>Idle</td><td>Idle</td></tr><tr><td>Phone No.</td><td>88880001</td><td>88880002</td></tr></table> | | | | | | | Name | Line1 | Line2 | Registering status | Register failed | Register failed | User status | Idle | Idle | Phone No. | 88880001 | 88880002 |
| Name | Line1 | Line2 | | | | | | | | | | | | | | | | | |
| Registering status | Register failed | Register failed | | | | | | | | | | | | | | | | | |
| User status | Idle | Idle | | | | | | | | | | | | | | | | | |
| Phone No. | 88880001 | 88880002 | | | | | | | | | | | | | | | | | |

Figure 4-34: VoIP information

4.6 WLAN Service

HGU supports wireless access service. This example introduces how to configure WLAN service when HGU works in Route mode.

4.6.1 Requirements

1. HGU works in Route mode, HGU receives IP by DHCP mode, VLAN ID is 11.
2. Only enable SSID 1, its name is “xyz”. Network authentication method is WPA-PSK, and encryption method is TKIP+AES.

4.6.2 Steps

Before configuring, make sure HGU has been successfully registered and authorized.

Connect PC to one of the HGU's LAN ports with a twisted cable.

1. Add a WAN connection

Choose “Network > Internet > Internet” in the navigation menu. Add a bridge mode WAN connection using the following parameters:

- Obtain IP address by DHCP.
- Enable VLAN with VLAN ID as 11.
- Service mode is INTERNET and bind SSID1.
- Keep other parameters default.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|----------------------|--|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |
| Internet | Uplink Mode : GPON | | | | | | |
| LAN VLAN | Connection Name : Add WAN Connection | | | | | | |
| Multicast LAN | Mode : Route | | | | | | |
| VLAN | Protocol Mode : IPv4 | | | | | | |
| | <input checked="" type="radio"/> DHCP Automatically obtain an IP address from your ISP | | | | | | |
| | <input type="radio"/> Static Configure a static IP address supplied by your ISP | | | | | | |
| | <input type="radio"/> PPPoE Select this option if your ISP uses PPPoE | | | | | | |
| | MTU : 1492 | | | | | | |
| | NAT : <input checked="" type="checkbox"/> | | | | | | |
| | Enable Vlan : <input checked="" type="checkbox"/> | | | | | | |
| | Vlan ID : 11 | | | | | | |
| | 802.1p : 2 | | | | | | |
| | VLAN Mode : Tag | | | | | | |
| | Service Mode : INTERNET | | | | | | |
| | Port Binding : | | | | | | |
| | <input type="checkbox"/> Port_1 <input type="checkbox"/> Port_2 | | | | | | |
| | <input type="checkbox"/> Port_3 <input type="checkbox"/> Port_4 | | | | | | |
| | <input checked="" type="checkbox"/> Wlan(SSID1) <input type="checkbox"/> Wlan(SSID2) | | | | | | |
| | <input type="checkbox"/> Wlan(SSID3) <input type="checkbox"/> Wlan(SSID4) | | | | | | |

Figure 4-35: Add a route WAN connection

2. Configure WLAN basic parameters

Choose “Network > WLAN > WLAN Basic” in the navigation menu. Enable wireless and modify SSID1’s name to xyz. For other parameters, just configure the suitable ones if necessary.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

WLAN Basic
Security
WLAN Advanced
Station Info

Wireless -- Basic

This page is used to configure basic features of wireless LAN port. Including enable or disable wireless LAN port, hide SSID from being scanned by AP, set wireless network name (SSID), set channel frequency according to different country standards and so on.
Click on "Save/Apply" to take effect the basic configuration of wireless.

☒ Enable Wireless
☐ Hide Access Point
☐ Clients Isolation
☐ Disable WMM Advertise
☐ Enable Wireless Multicast Forwarding (WMF)

SSID:
BSSID: 80:14:A8:04:94:63
Country:
Max Clients:

Wireless - Virtual Interface:

| Enabled | SSID | Hidden | Isolate Clients | Disable WMM Advertise | Enable WMF | Max Clients | BSSID |
|--------------------------|-----------|--------------------------|--------------------------|--------------------------|--------------------------|-------------|-------|
| <input type="checkbox"/> | Broadcom2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 16 | N/A |
| <input type="checkbox"/> | Broadcom3 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 16 | N/A |
| <input type="checkbox"/> | Broadcom4 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 16 | N/A |

Figure 4-36: WLAN basic settings

3. Configure network authentication

Choose "Network > WLAN > Security" in the navigation menu. Select the SSID, and set up WPA-PSK for its network authentication method and TKIP+AES for its encryption method. Enter a password in the passphrase textbox.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

WLAN Basic

Security

WLAN Advanced

Station Info

WLAN Config -- Security

This page is used to configure the security of wireless LAN interface. Including WPS on/off, authentication methods, data encryption, Wi-Fi authentication key, key length and so on.

WPS Setup

Enable WPS

Manual Setup AP

You can set the network authentication method, selecting data encryption, specify whether a network key is required to authenticate to this wireless network and specify the encryption strength. Click "Apply/Save" when done.

Select SSID:

Network Authentication:

WPA/WAPI passphrase: [Click here to display](#)

WPA Group Rekey Interval:

WPA/WAPI Encryption:

WEP Encryption:

Figure 4-37: WLAN security settings

4. Configure WPS

Choose "Network > WLAN > Security" in the navigation menu. Enable WPS and select Push-Button for both client and AP.

| Network | Status | Network | Security | Application | Management | Diagnose | Help |
|---------|----------|--------------|----------|-------------|------------|-------------|-------|
| | Internet | LAN Settings | WLAN | TR069 | QoS | Time Server | Route |

WLAN Basic

Security

WLAN Advanced

Station Info

WLAN Config -- Security

This page is used to configure the security of wireless LAN interface. Including WPS on/off, authentication methods, data encryption, Wi-Fi authentication key, key length and so on.

WPS Setup

Enable WPS

Add **Client** (This feature is available only when WPA-PSK(WPS1), WPA2 PSK or OPEN mode is configured)
☐ Enter STA PIN ☐ Use AP PIN

Set WPS AP Mode

Setup **AP** (Configure all security settings with an external registrar)

Device PIN [Help](#)

Figure 4-38: WPS settings

5. Access the Internet

Search for an SSID named xyz with a laptop. Double-click to connect and enter the correct password.

If client has WPS function, you can connect the client to AP by pressing the Pair button on the HGU. When the WPS indicator blinks, press the WPS button on the client simultaneously. They will connect after a short time.

4.7 Update Image

You can update software image on webpage.

Choose “Management > Device Manage > Update Image” in the navigation menu. Select the software image file with .w as a suffix, and click the “Update Software” button. The HGU will restart automatically once it’s been updated. The whole process takes about 2 minutes.

| Management | Status | Network | Security | Application | Management | Diagnose | Help |
|------------|-------------|---------------|----------|-------------|------------|----------|------|
| | User Manage | Device Manage | Log File | Maintain | | | |

Device Reboot

Update Image

USB Backup

Load Default

Tools -- Update Software

Step 1: Obtain an updated software image file from your ISP.

Step 2: Enter the path to the image file location in the box below or click the "Browse" button to locate the image file.

Step 3: Click the "Update Software" button once to upload the new image file.

NOTE: The update process takes about 2 minutes to complete, and your DSL Router will reboot.

Software File Name:

Figure 4-39: Update software

Chapter 5. Troubleshooting

Q: None of the indicators are lit.

A: (1) Power is off or power adapter is bad.

(2) Indicator LED switch is turned off.

Q: The Los indicator is flashing.

A: (1) There is no optical signal. The fiber might have broken down or the connection is loose.

(2) Optical power is too low.

(3) The fiber is dusty.

Q: The LAN indicators are not lit.

A: (1) Indicator LED switch is turned off.

(2) The cable broke down or the connection is loose.

(3) The cable type is incorrect or too long.

Q: The FXS indicators are not lit.

A: (1) Indicator LED switch is turned off.

(2) SIP accounts aren't registered.

Q: PC can't visit web UI.

A: (1) PC and HGU are not in the same network fragment. By default, LAN IP is 192.168.1.1/24. The default Admin password is "vsONU101".

(2) The cable broke down.

(3) IP conflict or there is loopback.

Q: User can't access the internet.

A: (1) PC has set a wrong IP and gateway or the network is bad.

(2) There is loopback or an attack in the network.

(3) Route mode WAN connection doesn't receive an IP or DNS is disabled.

Q: Customer can't use the VoIP service.

A: (1) The phone or the wire is damaged.

(2) SIP accounts aren't registered.

(3) Dial plan is wrong.

Q: HGU stops working after working for some time.

A: (1) Power supply is not working properly.

(2) The device overheats.



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