

EchoLife HG8010/HG8110/HG8240/HG8245/ HG8247/HG8447 GPON Terminal

V100R002C06&C07

Service Manual

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About This Document

Overview

GPON terminal EchoLife HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 (hereafter referred to as the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447) is an indoor optical network terminal (ONT) designed for home users and small office and home office (SOHO) users. This document provides the appearance and specifications of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447, and describes its configuration and usage, which helps you know the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 quickly.

Product Version

The following table lists the product versions related to this document.

Product Name	Product Version
EchoLife HG8010/ HG8110/HG8240/HG8245/ HG8247/HG8447	V100R002C06&C07

Intended Audience

The intended audience of this document is as follows:

- Technical support engineers
- Maintenance engineers

Update History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

Updates in Issue 02 (2011-12-08)

Modified the figure of VoIP Basic Configuration.

Updates in Issue 01 (2011-03-02)

This is the first release for the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 V100R002C06&C07. It is the first archive.

Contents

About This Document	ii
1 Safety Precautions	1
2 System Overview	3
2.1 Product Introduction	4
2.1.1 Appearance	4
2.1.2 Ports	7
2.1.3 LEDs	17
2.2 Typical Network Applications	23
3 Configuration	28
3.1 Before Your Start	29
3.2 Configuring the Service by Using the NMS	31
3.2.1 Data Plan	31
3.2.2 Configuring GPON FTTH Layer 2 Internet Access Service on the NMS	
3.2.3 Configuring GPON FTTH Layer 3 Internet Access Service on the NMS	
3.2.4 Configuring GPON FTTH Voice Service (H.248 Protocol) on the NMS	62
3.2.5 Configuring GPON FTTH Voice Service (SIP Protocol) on the NMS	78
3.2.6 Configuring GPON FTTH Layer 2 Multicast Service on the NMS	94
3.2.7 Configuring GPON FTTH Layer 3 Bridge Multicast Service on the NMS	110
3.3 Configuration by Using OLT Commands	
3.3.1 Data Plan	129
3.3.2 Configuring the GPON FTTH Layer 2 Internet Access Service on the OLT CLI	
3.3.3 Configuring the GPON FTTH Layer 3 Internet Access Service on the OLT CLI	
3.3.4 Configuring the GPON FTTH VoIP Service (H.248 Protocol) on the OLT CLI	151
3.3.5 Configuring the GPON FTTH VoIP Service (SIP Protocol) on the OLT CLI	167
3.3.6 Configuring the GPON FTTH Layer 2 Multicast Service on the OLT CLI	182
3.3.7 Configuring the GPON FTTH Layer 3 Bridge Multicast Service on the OLT CLI	190
3.4 Configuration on the Web Page	
3.4.1 Preparations	
3.4.2 Data Plan	
3.4.3 Locally Logging in to the Web Interface	
3.4.4 Configuring the Internet Access Service on the Web Page	217
3.4.5 Configuring the SIP-based Voice Service on the Web Page	

3.4.6 Configuring the H.248-based Voice Service on the Web Page	
3.4.7 Configuring the Wi-Fi Access Service on the Web Page	
3.5 Configuring the Service by Using U2560	
3.5.1 Preparations	
3.5.2 Data Plan	
3.5.3 Configuring the Internet Access Service Through the U2560	
3.5.4 Configuring SIP-based Voice Service Through the U2560	
3.5.5 Configuring the H.248-based Voice Service Through the U2560	
3.5.6 Configuring the Wi-Fi Access Service Through the U2560	
3.6 Operation Guide on the XML Configuration File	
3.6.1 Operation Guide on the XML Configuration File (on the Web Page)	
3.6.2 Operation Guide on the XML Configuration File (on the U2000)	
4 Maintenance and Troubleshooting	
4.1 Frequently Used Methods for Troubleshooting	
4.2 General Troubleshooting Flowchart and Methods	
4.3 Tools Used for Troubleshooting	
4.3.1 Digital Multimeter	
4.3.2 Optical Power Meter	
4.4 Remote Maintenance and Troubleshooting on the Web Page	
4.4.1 Remotely Logging in to the Web Page	
4.5 Maintenance and Troubleshooting on the NMS	
4.5.1 PPPoE Dialup Emulation	
4.5.2 Querying the Physical State of a POTS Port	
4.5.3 Querying the Status of a VoIP User	
4.5.4 Querying and Deleting VoIP Statistics	
4.5.5 Caller Emulation Test	
4.5.6 Callee Emulation Test	
4.5.7 Automatic Emulation Test	
4.5.8 Local Loopback and Remote Loopback on a POTS Port	
4.5.9 VoIP Loop-Line Test	
4.6 Maintenance and Troubleshooting on the OLT CLI	
4.6.1 Querying and Deleting Performance Statistics of an ETH Port	
5 Web Page Reference	
5.1 Status	
5.1.1 WAN Information	
5.1.2 VoIP Information	
5.1.3 Wi-Fi Information	
5.1.4 Eth Port Information	
5.1.5 DHCP Server Information	
5.1.6 Optic Information	
5.1.7 Battery Information	
5.1.8 Device Information	

5.1.9 Remote Management	
5.2 WAN	
5.2.1 WAN Configuration	
5.3 LAN	
5.3.1 LAN Port Work Mode	
5.3.2 LAN Host Configuration	
5.3.3 DHCP Server Configuration	
5.4 WLAN	
5.4.1 WLAN Configuration	
5.5 Security	
5.5.1 IP Filter Configuration	
5.5.2 MAC Filter Configuration	
5.5.3 URL Filter Configuration	
5.5.4 DoS Configuration	
5.5.5 ONT Access Control Configuration	
5.6 Route	
5.6.1 Default Route Configuration	
5.6.2 Static Route Configuration	
5.6.3 Policy Route Configuration	
5.7 Forward Rules	
5.7.1 DMZ Configuration	
5.7.2 PortMapping Configuration	
5.7.3 PortTrigger Configuration	
5.8 Network Applications	
5.8.1 USB	
5.8.2 ALG Configuration	
5.8.3 UPnP Configuration	
5.8.4 ARP Configuration	
5.8.5 Portal Configuration	
5.8.6 DDNS Configuration	
5.8.7 IGMP Configuration	
5.8.8 QoS Configuration	
5.8.9 Terminal Limit Configuration	
5.9 Voice	
5.9.1 VoIP Interface Configuration	
5.9.2 VoIP User Configuration	
5.10 System Tools	
5.10.1 Reboot	
5.10.2 Configuration File	
5.10.3 USB Backup Restore CFG	
5.10.4 Firmware Upgrade	
5.10.5 Restore Default Configuration	

5.10.6 Ping Test	
5.10.7 Log	
5.10.8 ONT Authentication	
5.10.9 Time Setting	
5.10.10 TR-069	
5.10.11 Advanced Power Management	
5.10.12 Modify Login Password	
6 Technical Specifications	
6.1 Physical Specifications	
6.2 Protocols and Standards	
7 Acronyms and Abbreviations	

1 Safety Precautions

To ensure normal running of the device, read the safety precautions carefully before operating the device, and comply with the precautions when performing the operations.

Basic Requirements

- Keep the device dry during storage, transportation, and running of the device.
- Prevent the device from colliding with other objects during storage, transportation, and running of the device.
- Install the device in strict compliance with the vendor requirements.
- Do not uninstall the device without permission. Contact the specified service center when a fault occurs on the device.
- No enterprise or personnel should modify the structure, security design, or performance design of the device without authorization.
- Abide by local laws and regulations and respect the legal rights of others when using the device.

Environment Requirements

- Install the device in a well-ventilated place that is not directly exposed to sunlight.
- Keep the device clean.
- Keep the device away from water sources or wet places.
- Do not place any objects on the device. This is to protect the device from damages, such as overheat or distortion, which can be caused by such objects.
- Leave a space of at least 10 cm around the device for heat dissipation.
- Keep the device away from heat sources or fire sources, such as electrical heaters and candles.
- Keep the device away from the electrical appliances with strong magnetic fields or strong electric fields, such as microwave ovens, refrigerators, and mobile phones.

Instructions for Use

• Use the accessories delivered with the device, or use those recommended by the vendor, such as the power adapter and battery.

- The power supply voltage of the device must meet the requirements on the input voltage of the device.
- Keep power plugs clean and dry to avoid electric shocks or any other hazards.
- Dry your hands before removing or inserting cables.
- Stop the device and switch off the power before removing or inserting cables.
- Switch off the power and remove all the cables, including the power cable, optical fibers, and network cables, from the device during periods of lightning activity.
- Switch off the power and remove the power plug if the device needs to be shut down for a long time.
- Protect the device from ingress of water or other liquids. If such an accident occurs, switch off the power immediately and remove all the cables, including the power cable, optical fibers, and network cables, from the device. Contact the specified service center in the case of a device failure.
- Do not stamp, pull, drag, or excessively bend the cables because they may get damaged. Damaged cables can cause a device failure.
- Do not use the cables that are damaged or have deteriorated.
- Do not look directly into the optical port on the device without eye protection. The laser emitted from the optical port can injure your eyes.
- In case of any abnormalities, such as smoke, abnormal sound, or odor from the device, immediately stop the device, switch off the power, and remove all cables, including the power cable, optical fibers, and network cables, from the device. Contact the specified service center in the case of a device failure.
- Prevent foreign objects such as metal objects from dropping into the device through the heat dissipation mesh.
- Protect the outer case of the device from scratches, because the paint that peels off in the scratched areas can cause device abnormalities. If the paint falls into the device it may cause short circuits. In addition, peeled-off paint can cause an allergic reaction to the human body.
- Ensure that the device is kept out of the reach of children. Guard against risks such as children playing with the device or swallowing small parts of the device.

Instructions for Cleaning

- Before cleaning the device, stop the device from running, switch off the power, and remove all cables, including the power cable, optical fibers, and network cables, from the device. When inserting and removing optical fibers, keep the optical fiber connectors clean.
- Do not use cleaning fluid or spray-on detergent to clean the outer case of the device. Use a soft cloth instead.

Instructions for Environment Protection

- Put the retired device and batteries at the specified recycle place.
- Abide by local laws and regulations to handle packaging materials, run-out batteries and retired devices.

2 System Overview

About This Chapter

This topic provides the appearance and describes the typical network applications of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447.

2.1 Product Introduction

This topic provides the appearance and describes the ports and LEDs of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447.

2.2 Typical Network Applications

This topic describes the typical network applications of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8247/HG8447.

2.1 Product Introduction

This topic provides the appearance and describes the ports and LEDs of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447.

The HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 is an indoor optical network terminal (ONT) designed for home users and small office and home office (SOHO) users. Its upper shell adopts the natural heat dissipation material, and its optical port adopts the dust-proof design with a rubber plug. The HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 is eye-pleasing and energy-efficient. It can be deployed on a workbench or mounted on a wall, meeting users' deployment requirements in different scenarios.

By using the gigabit-capable passive optical network (GPON) technology, the HG8010/ HG8110/HG8240/HG8245/HG8247/HG8447 provides a high-speed data channel through a single optical fiber with an upstream rate of 1.244 Gbit/s and a downstream rate of 2.488 Gbit/ s. In this way, you can enjoy quality high-speed data service, voice service, and video service. In addition, the HG8245 and HG8247 provide reliable wireless access service, and convenient storage and file sharing services within a home network.

As an ONT, the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 provides convenient and efficient remote management functions. The HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 supports ONT Management and Control Interface (OMCI) protocol and the U2560 (Huawei TR-069 server) and manages all home terminals in a unified manner, thus implementing remote fault diagnosis, service provisioning, and performance statistics measurement.

2.1.1 Appearance

This topic provides the appearance of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447.

Figure 2-1, **Figure 2-2**, **Figure 2-3**, **Figure 2-4**, **Figure 2-5** and **Figure 2-6**show the appearance of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447.

Figure 2-1 Appearance of the HG8010



Figure 2-2 Appearance of the HG8110



Figure 2-3 Appearance of the HG8240



Figure 2-4 Appearance of the HG8245





2.1.2 Ports

This topic provides the appearance of the ports on the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 and describes the functions of the ports.

Figure 2-7 and **Figure 2-8** show the ports on the rear panel and side panel of the HG8010 respectively.

Figure 2-7 Ports on the rear panel of the HG8010



 Table 2-1 Descriptions of the ports on the rear panel of the HG8010

Port and Button	Function
OPTICAL	Indicates the optical port. The optical port is equipped with a rubber plug and is connected to an optical fiber for upstream transmission.
	The type of the optical connector connected to the OPTICAL port is SC/APC.
LAN	Indicate auto-sensing 10/100/1000M Base-T Ethernet ports (RJ-45), used for connecting to PCs or IP set-top boxes (STBs).
POWER	Indicates the power port, used for connecting to the power adapter or backup battery.

Figure 2-8 Ports on the side panel of the HG8010



Table 2-2 Descriptions	of the ports on the	side panel of the HG8010
------------------------	---------------------	--------------------------

Port and Button	Function
(1)	Indicates the power button. It is used to power on or power off the device.

Port and Button	Function
RESET	Indicates the reset button. Press the button for a short time to reset the device; press the button for a long time (longer than 10s) to restore the device to the default settings and reset the device.

Figure 2-9 and **Figure 2-10** show the ports on the rear panel and side panel of the HG8110 respectively.

OPTICAL	LAN	TEL	BBU	POWER
			-	
			2.0.0.0	
_		_	_	

Figure 2-9 Ports on the rear panel of the HG8110

Table 2-3 Descriptions of the ports on the rear panel of the HG8110

Port and Button	Function
OPTICAL	Indicates the optical port. The optical port is equipped with a rubber plug and is connected to an optical fiber for upstream transmission. The type of the optical connector connected to the OPTICAL port is SC/APC.
LAN	Indicate auto-sensing 10/100/1000M Base-T Ethernet ports (RJ-45), used for connecting to PCs or IP set-top boxes (STBs).
TEL	Indicate VoIP telephone ports (RJ-11), used for connecting to the ports on telephone sets.
BBU	Indicates the external backup battery monitoring port, used for connecting to the backup battery for monitoring the battery.
POWER	Indicates the power port, used for connecting to the power adapter or backup battery.

Figure 2-10 Ports on the side panel of the HG8110



Port and Button	Function
0	Indicates the power button. It is used to power on or power off the device.
RESET	Indicates the reset button. Press the button for a short time to reset the device; press the button for a long time (longer than 10s) to restore the device to the default settings and reset the device.

Table 2-4 Descri	ptions of the	ports on the side	panel of the HG8110

Figure 2-11 and **Figure 2-12** show the ports on the rear panel and side panel of the HG8240 respectively.

Figure 2-11 Ports on the rear panel of the HG8240



Table 2-5 Descriptions of the ports on the rear panel of the HG8240

Port and Button	Function
OPTICAL	Indicates the optical port. The optical port is equipped with a rubber plug and is connected to an optical fiber for upstream transmission.
	The type of the optical connector connected to the OPTICAL port is SC/APC.
LAN1-LAN4	Indicate auto-sensing 10/100/1000M Base-T Ethernet ports (RJ-45), used for connecting to PCs or IP set-top boxes (STBs).
TEL1-TEL2	Indicate VoIP telephone ports (RJ-11), used for connecting to the ports on telephone sets.
ON/OFF	Indicates the power-on/power-off button, used for powering on or powering off the device.
POWER	Indicates the power port, used for connecting to the power adapter or backup battery.





Table 2-6 Descriptions of the ports on the side panel of the HG8240

Port and Button	Function
BBU	Indicates the external backup battery monitoring port, used for connecting to the backup battery for monitoring the battery.
RESET	Indicates the reset button. Press the button for a short time to reset the device; press the button for a long time (longer than 10s) to restore the device to the default settings and reset the device.

Figure 2-13 and **Figure 2-14** show the ports on the rear panel and side panel of the HG8245 respectively.



Figure 2-13 Ports on the rear panel of the HG8245

Port and Button	Function
OPTICAL	Indicates the optical port. The optical port is equipped with a rubber plug and is connected to an optical fiber for upstream transmission.
	The type of the optical connector connected to the OPTICAL port is SC/APC.
LAN1-LAN4	Indicate auto-sensing 10/100/1000M Base-T Ethernet ports (RJ-45), used for connecting to PCs or IP STBs.
TEL1-TEL2	Indicate VoIP telephone ports (RJ-11), used for connecting to the ports on telephone sets.
ON/OFF	Indicates the power-on/power-off button, used for powering on or powering off the device.
POWER	Indicates the power port, used for connecting to the power adapter or backup battery.

Table 2-7 Descriptions of the ports on the rear panel of the HG8245

Figure 2-14 Ports on the side panel of the HG8245



Port and Button	Function
BBU	Indicates the external backup battery monitoring port, used for connecting to the backup battery for monitoring the battery.
USB	Indicates the USB host port, used for connecting to a USB storage device.
WLAN	Indicates the WLAN button, used for enabling or disabling the WLAN function.
WPS	Indicates the WLAN data encryption switch.
RESET	Indicates the reset button. Press the button for a short time to reset the device; press the button for a long time (longer than 10s) to restore the device to the default settings and reset the device.

Table 2-8 Descriptions of the ports on the side panel of the HG8245

Figure 2-15 and **Figure 2-16** show the ports on the rear panel and side panel of the HG8247 respectively.



Figure 2-15 Ports on the rear panel of the HG8247

Table 2-9 Descriptions of the ports on the rear panel of the HG8247

Port and Button	Function
CATV	Indicates the radio frequency (RF) port, used for connecting to a TV set.

Port and Button	Function
OPTICAL	Indicates the optical port. The optical port is equipped with a rubber plug and is connected to an optical fiber for upstream transmission.
	The type of the optical connector connected to the OPTICAL port is SC/APC.
LAN1-LAN4	Indicate auto-sensing 10/100/1000M Base-T Ethernet ports (RJ-45), used for connecting to PCs or IP STBs.
TEL1-TEL2	Indicate VoIP telephone ports (RJ-11), used for connecting to the ports on telephone sets.
ON/OFF	Indicates the power-on/power-off button, used for powering on or powering off the device.
POWER	Indicates the power port, used for connecting to the power adapter or backup battery.





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I able 2-10 D	escriptions	of the pc	orts on the	side panel	of the $HG824/$

Port and Button	Function
BBU	Indicates the external backup battery monitoring port, used for connecting to the backup battery for monitoring the battery.
USB	Indicate the USB host port, used for connecting to a USB storage device.

Port and Button	Function	
WLAN	Indicates the WLAN button, used for enabling or disabling the WLAN function.	
WPS	Indicates the WLAN data encryption switch.	
RESET	Indicates the reset button. Press the button for a short time to reset the device; press the button for a long time (longer than 10s) to restore the device to the default settings and reset the device.	

Figure 2-17 and **Figure 2-18** show the ports on the rear panel and side panel of the HG8447 respectively.

Figure 2-17 Ports on the rear panel of the HG8447



Table 2-11 Descriptions of the ports on the rear panel of the HG8447

Port and Button	Function	
CATV	Indicates the radio frequency (RF) port, used for connecting to a TV set.	
OPTICAL	Indicates the optical port. The optical port is equipped with a rubber plug and is connected to an optical fiber for upstream transmission.	
	The type of the optical connector connected to the OPTICAL port is SC/APC.	
LAN1-LAN4	Indicate auto-sensing 10/100/1000M Base-T Ethernet ports (RJ-45), used for connecting to PCs or IP STBs.	

Port and Button	Function
TEL1-TEL4	Indicate VoIP telephone ports (RJ-11), used for connecting to the ports on telephone sets.
ON/OFF	Indicates the power-on/power-off button, used for powering on or powering off the device.
POWER	Indicates the power port, used for connecting to the power adapter or backup battery.

Figure 2-18 Ports on the side panel of the HG8447



Table 2-12	Descriptions	of the ports or	n the side panel	of the HG8447
	1	1	1	

Port and Button	Function
BBU	Indicates the external backup battery monitoring port, used for connecting to the backup battery for monitoring the battery.
USB	Indicate the USB host port, used for connecting to a USB storage device.
WLAN	Indicates the WLAN button, used for enabling or disabling the WLAN function.
WPS	Indicates the WLAN data encryption switch.
RESET	Indicates the reset button. Press the button for a short time to reset the device; press the button for a long time (longer than 10s) to restore the device to the default settings and reset the device.

2.1.3 LEDs

This topic provides the appearance of the LEDs on the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 and describes the indications of these LEDs.

Figure 2-19, Figure 2-20, Figure 2-21, Figure 2-22, Figure 2-23 and **Figure 2-24** show the LEDs on the HG8010, HG8110, HG8240, HG8245, HG8247 and HG8447 respectively.

Figure 2-19 LEDs on the HG8010



2 System Overview

Figure 2-20 LEDs on the HG8110













Figure 2-23 LEDs on the HG8247





Figure 2-24 LEDs on the HG8447

Table 2-13 Indications of the LEDs on the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447

Silk Screen	Name	Status	Indication
POWER	Power supply LED	Green: always on	The device is powered on.
		Orange: always on	The device is powered by the backup battery.
		Off	The power supply is cut off.
PON	Authentication LED	See Table 2-14.	
LOS	Connection LED	See Table 2-14.	
LAN1-LAN4	Ethernet port LED	Always on	The Ethernet connection is in the normal state.
		Blinks	Data is being transmitted on the Ethernet port.
		Off	The Ethernet connection is not set up.

Silk Screen	Name	Status	Indication
TEL1-TEL2	Voice telephone port LED	Always on	The connection to the voice server is set up.
		Blinks quickly (twice per second)	The connection to the voice server is set up and the telephone is in the off-hook or ringing state.
		Blinks slowly (once two seconds)	The ONT is registering with the voice server.
		Off	The connection to the voice server is not set up.
USB	USB port LED	Always on	The USB port is connected and is working in the host mode, but no data is being transmitted.
		Blinks quickly (twice per second)	Data is being transmitted on the USB port.
		Off	The system is not powered on or the USB port is not connected.
WLAN	WLAN port LED	Always on	The WLAN function is enabled.
		Blinks	Data is being transmitted on the WLAN port.
		Off	The WLAN function is disabled.
WPS	WPS port LED	Always on	The WPS function is enabled.
		Blinks	A Wi-Fi terminal is accessing the system.
		Off	The WPS function is disabled.
CATV	CATV port LED	Always on	The CATV function is enabled and CATV signals are received.
		Off	The CATV function is disabled or CATV signals are not received.

Table 2-14 Indications of PON and LOS LEDs

No	LED Status		Indication	
N0.	PON	LOS		
1	Off	Off	The ONT is disabled by the OLT.	

No	LED Status		Indication	
INO.	PON	LOS		
2	Blinks quickly (twice per second)	Off	The ONT is attempting to set up a connection to the OLT.	
3	Always on	Off	The connection between the ONT and the OLT is set up.	
4	Off	Blinks slowly (once two seconds)	The Rx optical power of the ONT is lower than the optical receiver sensitivity.	
5	Blinks quickly (twice per second)	Blinks quickly (twice per second)	The OLT detects that the ONT is a rogue ONT.	

2.2 Typical Network Applications

This topic describes the typical network applications of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8247/HG8447.

As a network terminal, the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 is deployed at the GPON access layer and connects home users and SOHO users to the Internet through optical upstream ports. On the local area network (LAN) side, the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 provides abundant hardware ports to meet various network requirements of home users and SOHO users.

Network Topology of the HG8010

Figure 2-25 shows the position of the HG8010 in a network.



Figure 2-25 Network topology of the HG8010

- In the upstream direction, the HG8010 is connected to the optical splitter and the networkside OLT through the passive optical network (PON) port, namely the OPTICAL port, to provide integrated access services.
- In the downstream direction, the HG8010 is provides a 10/100/1000M Base-T Ethernet port for connecting to a home gateway. The home gateway then can be connected to a PC, STB, or video phone to provide high-speed data and video services.

Figure 2-26 shows the position of the HG8110 in a network.

 MMS
 BRAS LAN switch

 Immerity
 BRAS LAN switch

 Immerity
 BRAS LAN switch

 Immerity
 Optical splitter

 Immerity
 Immerity

 <td

Figure 2-26 Network topology of the HG8110

- In the upstream direction, the HG8110 is connected to the optical splitter and the networkside OLT through the passive optical network (PON) port, namely the OPTICAL port, to provide integrated access services.
- In the downstream direction, the HG8110 is connected to various terminals through the following LAN-side ports to implement the triple play service:
 - One 10/100/1000M Base-T Ethernet ports, which can be connected to terminals such as PCs, STBs, and video phoned to provide the high-speed data and video services.
 - One TEL ports, which can be connected to telephone sets or fax machines to provide superior and cost-effective voice over IP (VoIP), fax over IP (FoIP), and modem over IP (MoIP) services.

Network Topology of the HG8240

Figure 2-27 shows the position of the HG8240 in a network.





- In the upstream direction, the HG8240 is connected to the optical splitter and the networkside OLT through the passive optical network (PON) port, namely the OPTICAL port, to provide integrated access services.
- In the downstream direction, the HG8240 is connected to various terminals through the following LAN-side ports to implement the triple play service:
 - Four 10/100/1000M Base-T Ethernet ports, which can be connected to terminals such as PCs, STBs, and video phoned to provide the high-speed data and video services.
 - Two TEL ports, which can be connected to telephone sets or fax machines to provide superior and cost-effective voice over IP (VoIP), fax over IP (FoIP), and modem over IP (MoIP) services.

Figure 2-28 shows the position of the HG8245 in a network.



Figure 2-28 Network topology of the HG8245

- In the upstream direction, the HG8245 is connected to the optical splitter and the networkside OLT through the PON port, namely the OPTICAL port, to provide integrated access services.
- In the downstream direction, the HG8245 is connected to various terminals through the following LAN-side ports to implement the triple play service:
 - Four 10/100/1000M Base-T Ethernet ports, which can be connected to terminals such as PCs, STBs, and video phones to provide the high-speed data and video services.
 - Two TEL ports, which can be connected to telephone sets or fax machines to provide superior and cost-effective VoIP, FoIP, and MoIP services.
 - Two Wi-Fi antennas, which can connect to Wi-Fi terminals wirelessly to provide a secure and reliable high-speed wireless network.
 - One USB port, which can be connected to a USB storage device to provide convenient storage and file sharing services within a home network.

Figure 2-29 shows the position of the HG8247 in a network.

Figure 2-29 Network topology of the HG8247



- In the upstream direction, the HG8247 is connected to the optical splitter and the networkside OLT through the PON port, namely the OPTICAL port, to provide integrated access services.
- In the downstream direction, the HG8247 is connected to various terminals through the following LAN-side ports to implement the triple play service:
 - One CATV port, which can be connected to a TV set to provide high-quality CATV service transmission.
 - Four 10/100/1000M Base-T Ethernet ports, which can be connected to terminals such as PCs, STBs, and video phones to provide the high-speed data and video services.
 - Two TEL ports, which can be connected to telephone sets or fax machines to provide superior and cost-effective VoIP, FoIP, and MoIP services.

- Two Wi-Fi antennas, which can connect to Wi-Fi terminals wirelessly to provide a secure and reliable high-speed wireless network.
- One USB port, which can be connected to a USB storage device to provide convenient storage and file sharing services within a home network.

Figure 2-30 shows the position of the HG8447 in a network.

Figure 2-30 Network topology of the HG8447



- In the upstream direction, the HG8447 is connected to the optical splitter and the networkside OLT through the PON port, namely the OPTICAL port, to provide integrated access services.
- In the downstream direction, the HG8447 is connected to various terminals through the following LAN-side ports to implement the triple play service:
 - One CATV port, which can be connected to a TV set to provide high-quality CATV service transmission.
 - Four 10/100/1000M Base-T Ethernet ports, which can be connected to terminals such as PCs, STBs, and video phones to provide the high-speed data and video services.
 - Four TEL ports, which can be connected to telephone sets or fax machines to provide superior and cost-effective VoIP, FoIP, and MoIP services.
 - Two Wi-Fi antennas, which can connect to Wi-Fi terminals wirelessly to provide a secure and reliable high-speed wireless network.
 - One USB port, which can be connected to a USB storage device to provide convenient storage and file sharing services within a home network.

3_{Configuration}

About This Chapter

This topic describes how to configure services through the NMS, the OLT CLI, the Web page or the U2560.

Context

- The procedures for configuring HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 are similar. The following sections consider HG8247 as an example.
- The following descriptions use V800R008C01 as the OLT, U2000 V100R003C00 as the BMS, and U2560 V100R002C00 as the TR-069 server. Screen shots may vary with different versions but the configuration procedures are similar. For details about configuration procedures, see the BMS configuration manuals.

3.1 Before Your Start

This section provides common methods for configuring ONT services.

3.2 Configuring the Service by Using the NMS

This topic describes how to configure Internet access service, VoIP service and IPTV service by using the NMS.

3.3 Configuration by Using OLT Commands

This topic describes how to configure the Internet access service, VoIP service and IPTV service by using OLT commands.

3.4 Configuration on the Web Page

This topic describes how to configure Internet access service, VoIP service and Wi-Fi service on the Web page.

3.5 Configuring the Service by Using U2560

This topic describes how to configure the Internet access service, VoIP service and Wi-Fi service by using U2560.

3.6 Operation Guide on the XML Configuration File

This topic describes how to issue the XML configuration files on the Web page and on the U2000.
3.1 Before Your Start

This section provides common methods for configuring ONT services.

Methods for configuring ONT services include configuring services by using the OLT commands, U2000, Web interface, TR-069 server and by issuing XML configuration file. **Table 3-1** shows the application scenario of each configuration method.

Configurati on Method	Application Scenario
OLT commands	This method uses the OMCI protocol to configure ONT services. It can be used to add ONTs, configure ONT port attributes and port VLANs, and to enable the Layer 2 service channels between the OLT and ONTs. It can implement all configurations for Layer 2 services such as the Layer 2 Internet access service and the Layer 2 multicast service. In the case of configuring Layer 3 services such as the WAN port, ONT voice service, and Wi-Fi service, coordination of one or more other methods is required.
U2000	This method can be used to configure Layer 2 services for the ONT by using the OMCI protocol, and to configure ONT value-added service profile and customized parameters. Customized parameters can be configured after batch adding general configurations to facilitate configuration efficiency. This method is recommended in batch service provisionings.
Web interface	This method uses Web interface of the ONT to configure related ONT parameters. In this method, batch configuration is not supported, and the coordination of OLT commands or the U2000 is required. It is simple and is generally used in the deployment.
TR-069 server	All the configurable nodes of the ONT are defined on the TR-069 server. The TR-069 server supports real-time configuration and status query. In this method, the coordination of OLT commands or the U2000 is required.
Issuing XML configuration file	The ONT voice service and gateway involve a large amount of configuration information, most of which is not defined in the OMCI protocol and cannot be configured on Web interface or the U2000. This method functions as a supplement to Web interface and the U2000. In this method, the coordination of OLT commands or the U2000 is required. This method is not recommended because it is complex.

Table 3-1 Application scenario of each configuration method

 Table 3-2 lists configuration methods supported in the FTTH service.

Service Type	Configurat ion by Using OLT Commands	Configurat ion by Using the U2000	Configurat ion by Using Web Interface	Configurat ion by Using TR-069 Server	Configurat ion by Issuing XML Configurat ion File
Layer 2 Internet access service	Supported	Supported	Configuratio n is not needed.	Configuratio n not needed.	Configuratio n not needed
Layer 3 Internet access service	Coordinatio n of other methods is required.	Supported	Coordinatio n of OLT commands or the U2000 is required.	Coordinatio n of OLT commands or the U2000 is required.	Coordinatio n of OLT commands or the U2000 is required.
Layer 2 multicast service	Supported	Supported	Configuratio n is not needed.	Configuratio n is not needed.	Configuratio n is not needed.
Layer 3 bridge multicast service	Coordinatio n of other methods is required.	Supported	Coordinatio n of OLT commands or the U2000 is required.	Coordinatio n of OLT commands or the U2000 is required.	Coordinatio n of OLT commands or the U2000 is required.
Voice service	Coordinatio n of other methods is required.	Supported	Coordinatio n of OLT commands or the U2000 is required.	Coordinatio n of OLT commands or the U2000 is required.	Coordinatio n of OLT commands or the U2000 is required.
Wi-Fi service	Not supported	Not supported	Supported	Supported	Supported

Table 3-2 Configuration methods supported in the FTTH service

The following section provides key technologies involved in these methods:

 ONT management and control interface (OMCI) is a protocol defined in ITU-T G.984.4. OMCI defines the format and mechanism of the interactive messages between the GPON OLT and ONTs. It analyzes the service model of ONT services and defines a series of management entities used for the service description.

OMCI defines the format of the message exchanged between the GPON OLT and ONTs and the message acknowledgment and retransmission mechanism. In this way, the OMCI provides a logical channel for communication. Operators can manage and configure ONTs (including port attribute and port VLAN) using OLT commands or the U2000. In addition, OMCI supports configuring an ONT offline and restoring the ONT configuration after the ONU goes online. With this management mechanism, ONTs do not need to save their own configuration information. This facilitates service provisioning and ONT maintenance. The OMCI configuration mainly indicates the Layer 2 service configuration such as the Layer 2 Internet access service and the Layer 2 multicast service.

- TR-069 is a WAN management protocol for CPEs. It implements automatic configuration on ONTs by using auto-negotiation interactive protocol between the application control server (ACS) and the CPE. The TR-069 protocol supports the following management functions:
 - Automatic configuration and dynamic service provision
 - Software and firmware mapping management
 - Status and performance monitoring
 - Fault diagnosis
- The extensible markup language (XML) file can be configured in the following two ways:
 - Issuing XML configurations by using Web interface: Web interface stores the configuration information about the ONT in an XML configuration file, and imports the file for the ONT; then the ONT parses the configuration information in the file for processing and storing.
 - Issuing XML configurations by using the U2000: The U2000 stores the configuration information about the ONT in an XML configuration file, and transfers the file to the OLT by using FTP; then the OLT further transfers the file to the ONT by using the OMCI protocol; after receiving the file, the ONT parses the configuration information in the file for processing and storing.

- Web interface and the U2000 cannot use the same XML configuration file. The XML configuration file of Web interface contains all configuration data, while the XML configuration file of the U2000 contains only part of the configuration data.
- H.248 and SIP can share the same XML configuration file, but the configurations involving voice service need to be re-configured accordingly.
- The XML configuration file is generally exported for modifying, and then imported back. Configuration rolls back or even factory defaults are restored if an incorrect XML configuration file is imported. When configuration parameters of an XML configuration file need to be modified, please contact Huawei technical engineers for help.

3.2 Configuring the Service by Using the NMS

This topic describes how to configure Internet access service, VoIP service and IPTV service by using the NMS.

3.2.1 Data Plan

This topic provides the data plan for the configuration examples of the GPON FTTH services. You can configure the services according to the data plan.

Data Plan

Service Type	Item	Settings	Remarks
Device managemen	Upstream port of an OLT	0/19/0	-
t	GPON port of the OLT	0/2/1	-
	ONT	 SN: 6877687714852901 Name: ONT ONU Type: ONT ONU ID: 0 Authentication Mode: SN Terminal Type: 247 Software Version: V1R002C06 or V1R002C07 	-
	MEF IP traffic profile	 Name: FTTx CIR: 20480 Outer Priority: 1 	The MEF IP traffic profile is used on the ONT to control upstream and downstream traffic.
	DBA profile	 Name: FTTx T-CONT type: Maximum Bandwidth Maximum Bandwidth: 32768 	-
	Line profile	 Name: FTTx Mapping Mode: VLAN Qos Mode: Priority Queue T-CONT Index: 1 DBA Profile: FTTx GEM Port Index: 1 Priority Queue:1 	-

Table 3-3 Data plan for the GPON FTTH services

Service Type	Item	Settings	Remarks
	Service profile	• Name: FTTx	-
		• Number of Pots Ports: 2	
		• Number of ETH Ports: 4	
		• Vlan Type: Translation	
		• C-VLAN: 100,1000	
		• S-VLAN: 100,1000	
Internet	VLAN	• VLAN ID: 100	-
service		• Type: Smart VLAN	
	Service port	• Name: HSI	-
		• VLAN ID: 100	
		 Interface Selection: 0/2/1/0/1 	
		 Service Type: Multi- Service VLAN 	
		• User VLAN: 10	
		• Keep the upstream and downstream settings the same: selected	
		 Upstream Traffic Name: FTTx 	
	ONT value-added	• Profile Name: ONT-HSI	-
	services (Layer 3	• Vendor ID: HWTC(2011)	
	routing)	• Terminal Type: 247	
		 Version: V1R002C06– V1R002C07 	
		• WAN VLAN ID: 10	
		• Service Type: INTERNET	
		 Connection Type: IP_Routed 	
		 Addressing Type: PPPoE (User Name: iadtest@pppoe, Password: iadtest) 	
		• Priority: 1	
		• NAT function: enable	
		• Bound port: LAN1 (LAN1 is a Layer 3 LAN)	
IPTV	VLAN	• VLAN ID: 1000	-
service		• Type: Smart VLAN	

Service Type	Item	Settings	Remarks
	Service port	 Name: IGMP Vlan ID: 1000 Interface Selection: 0/2/1/0/1 Service Type: Multi-Service VLAN User VLAN: 30 Keep the upstream and downstream settings the same: selected Unstream Traffic Name: 	-
	Multicast VLAN	 Opsitically Hame Ivalie: FTTx IGMP Version: IGMP V3 Work Mode: igmp_proxy VLAN ID: 1000 	-
	Program profile	 Name: program1 Start IP Address: 224.0.1.1 End IP Address: 224.0.1.1 Source IP Address: 10.10.10.20 Preview Profile: 0 (the default value) 	-
	Multicast user	 Alias: IGMPUserA Unlimited Band Width: selected Select Service Port: service virtual port named IGMP 	-
	ONT value-added services (Layer 3 bridge)	 Profile Name: ONT-HSI Vendor ID: HWTC(2011) Terminal Type: 247 Version: V1R002C06– V1R002C07 WAN VLAN ID: 30 Priority: 4 Service Type: INTERNET Connection Type: IP_Bridged Bound port: LAN3 (LAN3 is a Layer 3 LAN) 	-

Service Type	Item	Settings	Remarks
VoIP	VLAN	• VLAN ID: 200	-
service		• Type: Smart VLAN	
	Service port	• Name: VOIP	-
		• Vlan ID: 200	
		• Interface Selection: 0/2/1/0/1	
		 Service Type: Multi- Service VLAN 	
		• User VLAN: 20	
		 Keep the upstream and downstream settings the same: selected 	
		 Upstream Traffic Name: FTTx 	
	ONT value-added services (H.248)	• Profile Name: ONT-VoIP	The software
		• Vendor ID: HWTC(2011)	version that supports
		• Terminal Type: 247	V100R002C07.
		 Version: V1R002C06– V1R002C07 	
		• WAN VLAN ID: 20	
		• Service Type: VoIP	
		 Connection Type: IP_Routed 	
		• Priority: 6	
		• Signaling Protocol: H248	
		 Primary MGC: 200.200.200.200 	
		• MID Format: Domain name	
		• MGC Port: 2944	
		 MGC Domain name: 6877687714852901 	
		• TID: A0 and A1	

Service Type	Item	Settings	Remarks
	ONT value-added services (SIP)	 Profile Name: ONT-VoIP Vendor ID: HWTC(2011) Terminal Type: 247 Version: V1R002C06– V1R002C07 	The software version that supports SIP is V100R002C06.
		WAN VLAN ID: 20 Semine Terrey Val	
		 Service Type: VolP Connection Type: IP_Routed 	
		• Priority: 6	
		• Signaling Protocol: SIP	
		 Proxy Server: 200.200.200.200 	
		• SIP Server Port: 5060	
		 Home Domain: softx3000.huawei.com 	
		• Digitmap: x.S x.# (Default)	
		 User 1: Directory Number is 88001234; Auth User Name is 88001234@softx3000.hua wei.com; Auth Password is iadtest1 	
		 User 2: Directory Number is 88001235; Auth User Name is 88001235softx3000.huawe i.com; Auth Password is iadtest2 	

3.2.2 Configuring GPON FTTH Layer 2 Internet Access Service on the NMS

This topic describes how to configure the high-speed Internet service when an ONT is connected to an OLT through a GPON port.

Context

For details of the data plan, see Data Plan.

Example Network

• The PC gains access to the Internet in PPPoE dialup mode.

- The ONT is connected to the GPBC card of the OLT through an optical fiber.
- The broadband remote access server (BRAS) provides the authentication, authorization, and accounting (AAA) functions.

Figure 3-1 Configuring the GPON FTTH Internet service



Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **Traffic Profile** from the navigation tree.
 - b. Click the **MEF IP Traffic Profile** tab.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480

- Outer Priority: 1

dd BEF IP T raffic Profile		×
Description Info Configure the desired parameters. When parameter CIR is not set, para PBS do not need to be configured. He Parameter PIR must be greater than Parameter PBS must be greater than	meter CBS, parameter PIR, and parameter re, the rate is not restricted. or equal to parameter CIR. n or equal to parameter CBS.	
Profile Parameters		
Name:	FTTx *	
Alias:		
CIR (Kbit/s) (64-10240000):	20480 🗌 Unlimited	
CBS (bytes) (2000-10240000):	657360 *	
PIR (Kbit/s) (64-10240000):	40960	
PBS (bytes) (2000-10240000):	1312720	
Outer Priority (0-7):	1 *	
Outer Copy Priority:	Assign Priority	
Index of Outer Priority Mapping Profile:	1	
Inner Priority (0-7):	0*	
Inner Copy Priority:	Assign Priority	
Index of Inner Priority Mapping Profile:	1	
Priority Policy:	Local-Setting	
Traffic Color Mode:	color-blind 💌	
	OK Cancel Apply	

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

2. Configure a DBA profile.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the **DBA Profile** tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Ac	d DBA Profile					×
	Profile Parameters					
	Name:	FTTx				*
	Alias:					
	T-CONT type:	Maximum	Bandwidth		•	
	Assured Bandwidth (Kbit/s) (128-1235456):	128				
	Fixed Bandwidth (Kbit/s) (128-1235456):	128				
	Maximum Bandwidth (Kbit/s) (128-1235456):	32768				*
	Bandwidth Compensation:	No			-	
L		Ć	ок	Cancel	Apply	

e. Click OK.

- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

3. Configure a line profile.

In a line profile, a GEM port can be bound to up to eight service streams. In a GEM port, different GEM connections need to be set up for different service streams.

In this example, the mapping between GEM ports and MDU-side services is implemented through VLANs, and the service streams of each service are mapped to GEM port 1. In addition, different GEM connections are set up for the management VLANs and the VLANs for the Internet, voice, and multicast services.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Line Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose Base Info. from the navigation tree and set the parameters.
 - Mapping Mode: VLAN
 - Qos Mode: Priority Queue

dd GPOW Line Profile		
Name: FTTx	* Alias:	
Configuration	Name	Value
🗕 🗕 Base Info.	Upstream FEC Switch	OFF
⊞- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	ок	Cancel <u>A</u> pply

- Right-click T-CONT Info. in the navigation tree and choose ADD T-CONT from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - T-CONT Index: 1
 - DBA Profile: FTTx

ame: FTTx	* Alias:
Configuration Base Info. Line Ethernet port binding group T-CONT Incont T-CONT Incont T-CONT	ADD T-COIT
<>	

- Right-click **T-CONT1** in the navigation tree and choose **Add GEM Port** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - GEM Port Index: 1
 - Priority Queue: 1

ame: FTTx	* Alias:	
Configuration Base Info. Une - Ethernet port binding group - T-CONT Info. - T-CONTO - T-CONTO - T-CONTO - CONTO - CONTO	ADD GEN Port -GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch:	
<		OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 0 (this parameter is set to **0** automatically)
 - VLAN ID: 10 (Internet access user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx		* Alias [.] DD GEE Connection	×
Configuration Base Info. Cune Ethernet port binding grou T-CONT Info. T-CONT0 T-CONT0 CONT0	GEM F Priorit CAR F Servic Encry	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-7): VLAN ID(1-4094): Priority: Port Type: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			OK Cancel
	_	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 1 (this parameter is set to 1 automatically)
 - VLAN ID: 20 (Voice user-side VLAN ID)

Add GPON Line Profile		X
Name: FTTx	* Alias:	
A	UD GE Connection	<u>×</u>
Configuration GEM F	GEM Connection Parameters	
Ethernet port binding grou	GEM Port Index(0-1023):	1
E T-CONT Info. CAR T-CONTO Servic	GEM Connection Index(0-7):	0*
ADD GEM Connection	VLAN ID(1-4094):	20
DEL GEM Port	Priority:	•
	Port Type:	•
	Port ID(1-8):	
	BindGroup ID:	
	CAR Profile:	
<		OK Cancel
	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 2 (this parameter is set to 2 automatically)
 - VLAN ID: 30 (Multicast user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx		* Alias:	
Configuration ├── Base Info. ⊡── Line ├── Ethernet port binding grou	GEM F Priorit	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1	X
T-CONT Info. T-CONTO T-CONTO T-CONT1 CONT1	CAR Servic Encrys	GEM Connection Index(0-7): 0 VLAN ID(1-4094): 30	*
DEL GEM Port		Priority:	•
		Port ID(1-8):	
		CAR Profile:	
		ОК	Cancel
		OK Canc	el <u>A</u> pply

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile.

The service profile type should be consistent with the actual ONT type.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities of HG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Service Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Number of CATV Ports: 1

a GPUN Service Prolit		
ame: FTTx	* Alias:	
Configuration	Name Value	
Base Info.	Number of Pots Ports(0-8) 2	
UNI Port	Number of IPhost Ports 1	—n
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type E1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports(0-8) 0	
	Number of CATV Ports(0-8) 1	
	MAC Address Learning Swit ON	
	Transparent Transmission OFF	
	Multicast Mode Unconcern	
	Multicast forward mode Untag	
	Multicast forward VLAN(1-40	
	Upstream IGMP packet forw Unconcern	
	Upstream IGMP packet forw	
	Upstream IGMP Packet For	~
		Annly

- Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is set to ETH and Port ID is set to 1, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.

- Service Type: Translation
- S-VLAN: 10 (Internet access user-side VLAN ID)
- C-VLAN: 10 (Internet access user-side VLAN ID)

ł	dd VLAN Switch		×	1
	Service Type:	Translation	*	
l	S-VLAN(0-4095):	10	*	
	S-Priority(0-7):			
	C-VLAN(0-4095):	10	* 🗌 untagged	
	C-Priority(0-7):			
	C-Encap:		▼	
			OK Cancel	

- Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is set to ETH and Port ID is set to 3, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.
 - Service Type: Translation
 - S-VLAN: 30 (Multicast user-side VLAN ID)
 - C-VLAN: 30 (Multicast user-side VLAN ID)

Add VLAN Switch			×
Service Type:	Translation]	*
S-VLAN(0-4095):	30]	*
S-Priority(0-7):			
C-VLAN(0-4095):	30	* 🗌 untagg	ed
C-Priority(0-7):			
C-Encap:			-
		OK Cance	el 📄

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. **Confirm the ONT.**

- a. In the Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.
- b. Choose GPON > GPON Management from the navigation tree.
- c. On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- d. In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- e. Select the ONU tab page. Click the Auto Discover ONUs tab.
- f. In the window that is displayed, select **6877687714852901** as the ONU record and click **Confirm**.
 - Name: ONT
 - ONU ID: 0
 - ONU Type: ONT
 - On the **Basic Parameters** tab page, set the parameters.
 - Line Profile: FTTx (click next to Line Profile and select the line profile named FTTx in the dialog box that is displayed)
 - Service Profile: FTTx (click next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: SN
 - Terminal Type: 247
 - Software Version: V1R002C06 (or V1R002C07)

Confirm ONU		2
Affiliated Port:	0/2/1 *	Splitter:
Name:	ONT *	Alias:
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛 🔭	Splitter Port ID(1-128): 1
ONU Type:	ONT *	
Basic Paramet	ters Network Management Cha	annel Parameters
Line Profile:	FTTX*	Service Profile: FTTx*
Alarm Profile:		ONU VAS Profile:
Optic Alarm Pr	ofile:	
Authenticatio	n Info	
Authenticat	ion Mode: SN 💌 *	Timeout Duration 🕢 No Limit 👘 *
SN:	6877687714852901	Password: *
ONU Type		
Verdor ID:	HWTC(2011) 💌	Terminal Type: 247
Software Ve	ersion: V1R002C06 💌	
		Locate to ONU list after operation succeeds
		Cancel Apply

g. Click OK.

• Configure the Internet service.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the OLT. To navigate to the NE Explorer of the OLT, do as follows: In the

Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.

- 1. Configuring the Information About the ETH Port of a GPON ONU
 - a. Choose GPON > GPON Management from the navigation tree.
 - b. On the **GPON ONU** tab page, set the filter criteria or click ^I to display the GPON ONUs.
 - c. In the information list, right-click the ONT record where **Frame**, **Slot**, **Port**, and **ONU ID** are set to 0, 2, 1, and 0 respectively and click the **The Ont's UNI Port Info** tab in the lower pane.
 - d. On the **The Ont's UNI Port Info** tab page, right-click the record where **UNI Type** is set to **ETH** and **UNI ID** is set to **1**, and choose **Modify**from the shortcut menu.
 - e. In the dialog box that is displayed, set **Default VLAN ID** to **10**.
 - f. Click **OK**.

2. Configure a service VLAN on the OLT side.

A service VLAN is the VLAN used for the Internet service.

- a. Choose VLAN from the navigation tree.
- b. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 100
 - Type: Smart VLAN
 - Attribute: Stacking

۸	dd VLAN							×
	🔊 Base Info S Configure VLAN							
		VLAN ID(1-4095):	100				*	
		Name:	VLANI	D_100			*	
		Alias:						
		Туре:	Smar	VLAN			*	
		Attribute:	Stacki	ng			*	
		VLAN Priority:	Uncor	nfigured			•	
		E	<u>ł</u> ack		Next	Done	<u>C</u> ancel	

d. Click **Next**. Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN			×
Base Info	Sub Port L3 Interface Physical Port List Grame0 Gra	Extended Info	
,	<u>B</u> ack	Next Done Cance	_

e. Click Done.

3. Add a service virtual port on the OLT side.

- a. On the VLAN tab page, select the record where VLAN ID is set to 100 and click the **ServicePort** tab in the lower pane.
- b. In the information list, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - VIAN Choice: Smart VLAN
 - VLAN ID: 100 (SVLAN ID)
 - Connection Type: LAN-GPON (when the physical port is a GPON port) or LAN-EPON (when the physical port is an EPON port)
 - Interface Selection: 0/2/1/0/1 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Service Type: Multi-Service VLAN
 - User VLAN: 10
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: ip-traffic-table_6 (it is recommended that you use the default profile ip-traffic-table_6 because the OLT does not limit the rates of service streams in the management VLAN)

Jasic Info			Attributes		
ID(1-32768):					
Name: HSI		*	Connection Type:	LAN-GPON	•
Alias:					
letwork Side			User Side		
Bundle ID(1-8192):					
VLAN Choice:	Smart VLAN	▼ *	Interface Selection:	0/2/1/0/1	•
Tag-Transform:		•	Service Type:	Multi-Service VLAN	•
VLAN ID(1-4095):	100	*	User VLAN(1-4095):	10	•
Cos value(0-7):		*			
raffic Profile Info					
			<u> </u>		
Keep the upstream	and downstream se	ttings the same			
Upstream Traffic Profile	FTTX		Downstream Traffic Profi	le: FTTx	

d. Click OK.

----End

Result

Check whether the user successfully gains access to the Internet through dialup on the PC.

- 1. The LAN port of the ONT is connected to the Ethernet port of the PC properly.
- 2. Dial up on the PC using the PPPoE dialup software.
- 3. The user gains access to the Internet on the PC after the dialup is successful.

3.2.3 Configuring GPON FTTH Layer 3 Internet Access Service on the NMS

This topic describes how to configure the high-speed Internet service when an ONT is connected to an OLT through a GPON port.

Context

For details of the data plan, see Data Plan.

Example Network

- Users' PCs are connected to the ONT using the LAN ports. IP addresses of users' PCs are allocated by the DHCP IP address pool on the ONT. PPPoE auto dialup is performed on the ONT.
- The ONT is connected to the GPBC card of the OLT through an optical fiber.
- The broadband remote access server (BRAS) provides the authentication, authorization, and accounting (AAA) functions.



Figure 3-2 Configuring the GPON FTTH Internet service

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **Traffic Profile** from the navigation tree.
 - b. Click the **MEF IP Traffic Profile** tab.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1

Description Info	
 Configure the desired parameters. When parameter CIR is not set, para PBS do not need to be configured. Hei Parameter PIR must be greater than Parameter PBS must be greater than 	meter CBS, parameter PIR, and parameter e, the rate is not restricted. or equal to parameter CIR. or equal to parameter CBS.
Profile Parameters	
Name:	FTTX
Alias:	
CIR (Kbit/s) (64-10240000):	20480 Unlimited
CBS (bytes) (2000-10240000):	657360
PIR (Kbit/s) (64-10240000):	40960
PBS (bytes) (2000-10240000):	1312720
Outer Priority (0-7):	1
Outer Copy Priority:	Assign Priority 🔹
Index of Outer Priority Mapping Profile:	1
Inner Priority (0-7):	0
Inner Copy Priority:	Assign Priority 💌
Index of Inner Priority Mapping Profile:	1
Priority Policy:	Local-Setting 💌
Traffic Color Mode:	color-blind 👻

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click OK.

2. Configure a DBA profile.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the **DBA Profile** tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	ld DBA Profile					×
	Profile Parameters					
	Name:	FTTx				*
	Alias:					
	T-CONT type:	Maximum	I Bandwidth		 •	
	Assured Bandwidth (Kbit/s) (128-1235456):	128				
	Fixed Bandwidth (Kbit/s) (128-1235456):	128				
	Maximum Bandwidth (Kbit/s) (128-1235456):	32768				*
	Bandwidth Compensation:	No			-	
		2	ок	Cancel	<u>A</u> pply	

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

3. Configure a line profile.

In a line profile, a GEM port can be bound to up to eight service streams. In a GEM port, different GEM connections need to be set up for different service streams.

In this example, the mapping between GEM ports and MDU-side services is implemented through VLANs, and the service streams of each service are mapped to GEM port 1. In addition, different GEM connections are set up for the management VLAN and the VLANs for the Internet, voice, and multicast services.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Line Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose Base Info. from the navigation tree and set the parameters.
 - Mapping Mode: VLAN
 - Qos Mode: Priority Queue

dd GfOY Line Profile			
Name: FTTx + Alias:			
Configuration	Name	Value	
🗕 🗕 Base Info.	Upstream FEC Switch	OFF	
⊞- Line	Mapping Mode	VLAN	
	Qos Mode	Priority Queue	
	OMCC Encryption	Off	
	ок	Cancel <u>A</u> pply	

- Right-click T-CONT Info. in the navigation tree and choose ADD T-CONT from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - T-CONT Index: 1
 - DBA Profile: FTTx

Add GPON Line Profile	X
Name: FTTx	* Alias:
Configuration Base Info. Chine Ethernet port binding group T-CONT ison T-CONT ADD T-CONT CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTk OK Cancel
	OK Cancel <u>A</u> pply

- Right-click **T-CONT1** in the navigation tree and choose **Add GEM Port** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - GEM Port Index: 1
 - Priority Queue: 1

ame: FTTx	* Alias:	
Configuration Base Info. Une - Ethernet port binding group - T-CONT Info. - T-CONTO - T-CONTO - T-CONTO - CONTO - CONTO	ADD GEN Port -GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch:	
<		OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 0 (this parameter is set to **0** automatically)
 - VLAN ID: 10 (Internet access user-side VLAN ID)

Add GPON Line Profile			×
Add GPOY Line Profile Name: FTTx Configuration Base Info. Line Ethernet port binding grou Ethernet port binding grou T-CONT1 T-CONT1 CONT1 CONT CONT1	JEM F Priorit CAR F Bervic Encrys	Alias: GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-7): VLAN ID(1-4094):	
DEL GEM Port		Priority: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
		OK	OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 1 (this parameter is set to 1 automatically)
 - VLAN ID: 20 (Voice user-side VLAN ID)

Add GPON Line Profile		X
Name: FTTx	* Alias:	
Configuration	GEM Connection Parameters	X
Ethernet port binding grou	GEM Port Index(0-1023):	1
E T-CONT Info. T-CONTO Servic	GEM Connection Index(0-7):	0 *
ADD GEM Connection	VLAN ID(1-4094):	20
DEL GEM Port	Priority:	•
	Port Type:	•
	Port ID(1-8):	
	BindGroup ID:	
	CAR Profile:	
<>		OK Cancel
	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 2 (this parameter is set to 2 automatically)
 - VLAN ID: 30 (Multicast user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx		* Alias:	
Configuration ├── Base Info. ⊡── Line ├── Ethernet port binding grou	GEM F Priorit	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1	X
T-CONT Info. T-CONTO T-CONTO T-CONT1 CONT1	CAR Servic Engry	GEM Connection Index(0-7): 0 VLAN ID(1-4094): 30	*
DEL GEM Port		Priority:	•
		Port ID(1-8):	
		CAR Profile:	
		ОК	Cancel
		OK Canc	el <u>A</u> pply

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile.

The service profile type should be consistent with the actual ONT type.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities of HG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Service Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Number of CATV Ports: 1

lame: FTTx	* Alias:	
Configuration	Name Value	
Base Info. UNI Port	Number of Pots Ports(0-8) 2	^
	Number of IPhost Ports 1	
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type E1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports (0-8) 0	
	Number of CATV Ports(0-8) 1	=
	MAC Address Learning Swit ON	
	Transparent Transmission OFF	
	Multicast Mode Unconcern	
	Multicast forward mode Untag	
	Multicast forward VLAN(1-40	
	Upstream IGMP packet forw Unconcern	
	Upstream IGMP packet forw	
	Upstream IGMP Packet For	~

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. **Confirm the ONT.**

- a. In the Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.
- b. Choose GPON > GPON Management from the navigation tree.
- c. On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- d. In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- e. Select the ONU tab page. Click the Auto Discover ONUs tab.
- f. In the window that is displayed, select **6877687714852901** as the ONU record and click **Confirm**.
 - Name: ONT
 - ONU ID: 0
 - ONU Type: ONT
 - On the **Basic Parameters** tab page, set the parameters.
 - Line Profile: FTTx (click next to Line Profile and select the line profile named FTTx in the dialog box that is displayed)
 - Service Profile: FTTx (click next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: SN
 - Terminal Type: 247
 - Software Version: V1R002C06 (or V1R002C07)

Confirm ONU		2
Affiliated Port:	0/2/1 *	Splitter:
Name:	ONT *	Alias:
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛 🔭	Splitter Port ID(1-128): 1
ONU Type:	ONT *	
Basic Paramet	ters Network Management Cha	annel Parameters
Line Profile:	FTTX*	Service Profile: FTTx*
Alarm Profile:		ONU VAS Profile:
Optic Alarm Pr	ofile:	
Authenticatio	n Info	
Authenticat	ion Mode: SN 💌 *	Timeout Duration 🕢 No Limit 👘 *
SN:	6877687714852901	Password: *
ONU Type		
Verdor ID:	HWTC(2011) 💌	Terminal Type: 247
Software Ve	ersion: V1R002C06 💌	
		Locate to ONU list after operation succeeds
		Cancel Apply

g. Click OK.

• Configure the Internet service.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the OLT. To navigate to the NE Explorer of the OLT, do as follows: In the

Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the OLT side.

A service VLAN is the VLAN used for the Internet service.

- a. Choose VLAN from the navigation tree.
- b. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 100
 - Type: Smart VLAN
 - Attribute: Stacking

٨	dd VLAH					×
	 Base Info Configure VLAN 					
		VLAN ID(1-4095):	100			*
		Name:	VLANID_100			*
		Alias:				
		Туре:	Smart VLAN			▼ *
		Attribute:	Stacking			*
		VLAN Priority:	Unconfigured			-
		B	lack	Next	<u>D</u> one	<u>C</u> ancel

d. Click Next. Click the Upstream Port tab and add upstream port 0/19/0 as the upstream port of the VLAN.

	<u>2</u>
Gase Info So Configure VLAN	Sub Port L3 Interface Extended info
	Back Next Done Cancel

- e. Click Done.
- 2. Add a service virtual port on the OLT side.
 - a. On the VLAN tab page, select the record where VLAN ID is set to 100 and click the ServicePort tab in the lower pane.

- b. In the information list, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - VIAN Choice: Smart VLAN
 - VLAN ID: 100 (SVLAN ID)
 - Connection Type: LAN-GPON (when the physical port is a GPON port) or LAN-EPON (when the physical port is an EPON port)
 - Interface Selection: 0/2/1/0/1 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Service Type: Multi-Service VLAN
 - User VLAN: 10
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: ip-traffic-table_6 (it is recommended that you use the default profile ip-traffic-table_6 because the OLT does not limit the rates of service streams in the management VLAN)

Add Service Port					X
Basic Info ID(1-32768): Name: HSI			Attributes Connection Type:	AN-GPON	▼ *
Alias:			-		
Network Side			User Side		
VLAN Choice:	Smart VLAN	*	Interface Selection:	0/2/1/0/1	-
Tag-Transform:		-	Service Type:	Multi-Service VLAN	•
VLAN ID(1-4095):	100	*	User VLAN(1-4095):	10	_ *
Cos value(0-7):		*			
Traffic Profile Info					
Keep the upstream a	nd downstream	settings the same]		
Upstream Traffic Profile:	FTTX		Downstream Traffic Profil	le: FTTx	
			ок	Cancel A	pply

- d. Click OK.
- 3. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-HSI
 - Vendor ID: HWTC(2011)
 - Terminal Type: 247

Add ONT VAS Pro	file				
Profile Name:	ONT-HSI	*	Vendor ID:	HWTC(2011)	•
Terminal Type:	247	*	Version:	V1R002C06 ~ Later	•
E-247 Config In ⊢ Time ⊕ Services ⊕ WAN Devic ⊕ LANDevic ⊢ ALG Abilit ⊕ Security ⊕ Layer 3 Fri	fo. ice y anwarding	Parametr	r Name	Parameter v	alue
	<u> </u>	mport E <u>x</u> po	t	OK Cancel	Apply

d. Configure the working mode of a LAN port.

- Version: V1R002C06-Later

In the navigation tree, choose LANDevice > LAN Interface 1 > LAN Interface > LAN Ethernet Configuration 1. Select LAN Ethernet Configuration 1 and set LAN port two three-port enable to enable (indicating that LAN 1 works in the Layer 3 mode).

- If LAN port two three-port enable is disable, the LAN port works in the Layer 2 mode.
- If LAN port two three-port enable is enable, the LAN port works in the Layer 3 mode.

LAN port two three-port enable is defaulted to disable.

By default, the system has one LAN Ethernet Configuration 1 node. To add nodes, select LAN Interface, right-click, and choose Add from the shortcut menu.



e. Configure parameters of a WAN port.

- a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add PPP Connection from the shortcut menu.
- b. Select WAN PPP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-HSI
 - WAN Enable: enable
 - Connection Type: IP_Routed
 - NATEnable: Enable (NAT must be enabled to configure the Internet access service.)
 - Service Type: INTERNET (For configuring the Internet access service, INTERNET or a combination containing INTERNET needs to be selected.)
 - VLAN ID: 10 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 1

Add ONT VAS Pro	ofile					2
Profile Name:	ONT-HSI	*	Vendor ID:	HWTC(2011)	•
Terminal Type:	247	*	Version:	V1R002	2C06 ~ Later	•
D= 247 Config In Time D= Services WAN Devi D= WAN 1 D= CANDevice ALC Abilit D= Security D= Layer 3 Fi	fo. Device 1 AN Connection 1 	WAN WAN Com NATI Serv V V P Multi Dial	Parameter h IPPP interfac I Interface Nai I Enable enabled Enabled Enabled Cast VLAN(1- Method Interval(s)(18	4ame e index me 4) ~4094) 0~3600)	Paramet 1 ONT-HSI enable IP_Routed enable INTERNET 10 1 Auto 180	ter Value
	[mport	Expor	t)	0K	Cancel	<u>A</u> pply

- f. Configure a routing policy.
 - a. In the navigation tree, choose Layer 3 Forwarding > Policy Route. Select Policy Route, right-click, and choose Add.
 - b. Choose Policy Route 1 and enter proper values.
 - Physical Port Name: LAN1
 - WAN Interface Name: WAN1(ONT-HSI)

Add ONT WAS Pr	ofile							×
Profile Name:	ONT-HSI		*	Vendor ID:	HWTC(2	:011)		*
Terminal Type:	247		•	Version:	V1R002	C06 ~ Lat	er	*
Config Ir ⊢ Time ⊕ Services ⊕ WAN Dev ⊕ UANDevic ⊢ LANDevic ⊢ LAO Abili ⊕ Security ⊕ Layer3 F ⊖ Policy ⊢ Policy	ice ice y orwarding r Route olicy Route 1		Polid Phys Venc WAN	Parameter N y Route Type ical Port Nam or ID Interface Nan	ame e 1e	Pa SourceP LAN1 WAN1(O	nameter V hyPort	aiue v
		Import	Expor	L	ок	Canc	el 🗌	Apply

To bind a LAN port to a WAN port, set **Physical Port Name** and **WAN Interface Name**. The preceding figure shows that WAN 1 is bound to LAN 1.

To bind a WAN port to multiple LAN ports, set **Physical Port Name** to **LAN1,...,LANx**. For example, to bind WAN 1 to LAN 1 and LAN 2, set **Physical Port Name** to **LAN1,LAN2**.

- g. Click **OK** to complete the configuration of the new profile.
- 4. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose **GPON** > **GPON** Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.
- 5. Configure the ONT value-added service.
 - a. On the **GPON ONU** tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
 - b. Configure the user name and password for PPPoE dialup.

In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection > WAN Connection 1 > WAN PPP Interface > WAN PPP Interface 1. Select WAN PPP Interface 1, and set User Name to iadtest@pppoe and Password to iadtest. The user name and password must be the same as those configured on the BRAS.

onfigure VAS						
Profile Name:	ONT-HSI		Vendor ID:	HWTC(2011)	
Ferminal Type:	247	Ŧ	Version:	V1R002	2006	
Activated Status:	Aactivated					
247 Config Info Time Services WAN Device WAN D WAN D O WAN O ALG Ability	Vated status: Activated 247 Config Info. → Time ⊕ Services ⊕ WAN Device ⊕ WAN Connection ⊕ WAN Connection 1 ⊕ WAN Connection 1 ⊕ WAN PPP Interface ↓ WAN PPP Interface ↓ ALG Ability		Parameter Name WAN PPP Interface index 1 WAN Interface Name ONI WAN Enable ena Connection Type IPI NATEnabled ena User Name iadt Password ena		Parameter Value DNT-HSI anable P_Routed adtest@pppoe	
⊕-Security B-Layer 3 Forwarding	Vlan Prior Multi Dial	ID(1~4094) ity(0~7) Cast VLAN(1~4 Method	1094)	10 1 Auto		
		Dial	Interval(s)(180-	~3600)	180	
		J J			Switch to Curre	nt ONT Ta
	<u>U</u> nbind	mport	Expor	t [ок[Cancel

c. Click **OK**. In the dialog box that is displayed, click **OK**. The configurations take effect without the requirement of resetting the ONT.

----End

Result

Check whether the user successfully gains access to the Internet through dialup on the PC.

- 1. The LAN port of the ONT is connected to the Ethernet port of the PC properly.
- 2. After the PC is configured to obtain its IP addresses automatically, the PC can obtain an IP address allocated by the ONT using DHCP.
- 3. After automatic PPPoE dialup is performed successfully on the ONT, users can access the Internet.

3.2.4 Configuring GPON FTTH Voice Service (H.248 Protocol) on the NMS

This topic describes how to configure the voice service when an ONT is connected to an OLT through a GPON port.

Context

For details of the data plan, see Data Plan.

Example Network

- The phones connected to different ONTs can communicate with each other.
- The ONT obtains an IP address in Dynamic Host Configuration Protocol (DHCP) mode.



Figure 3-3 Configuring the GPON FTTH voice service (H.248 protocol)

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **Traffic Profile** from the navigation tree.
 - b. Click the **MEF IP Traffic Profile** tab.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480

- Outer	Priority:	1
---------	-----------	---

 Configure the desired parameters. When parameter CIR is not set, para 	meter CBS, narameter PIR, and narameter
PBS do not need to be configured. He	re, the rate is not restricted.
 Parameter PBS must be greater than 	n or equal to parameter CBS.
Profile Parameters	
Name:	FTTx
Alias:	
CIR (Kbit/s) (64-10240000):	20480 🗌 Unlimited
CBS (bytes) (2000-10240000):	657360
PIR (Kbit/s) (64-10240000):	40960 ,
PBS (bytes) (2000-10240000):	1312720 *
Outer Priority (0-7):	1
Outer Copy Priority:	Assign Priority 💌
Index of Outer Priority Mapping Profile:	1
Inner Priority (0-7):	0
Inner Copy Priority:	Assign Priority 💌
Index of Inner Priority Mapping Profile:	1
Priority Policy:	Local-Setting 💌
Traffic Color Mode:	color-blind 💌

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

2. Configure a DBA profile.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the **DBA Profile** tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768
| Ac | d DBA Profile
Profile Parameters | | | | | × |
|----|---|---------|-----------|--------|---------------|---|
| | Name: | FTTx |] | |
 | * |
| | Alias: | | | | | |
| | T-CONT type: | Maximum | Bandwidth | |
▼ | |
| | Assured Bandwidth (Kbit/s) (128-1235456): | 128 | | | | |
| | Fixed Bandwidth (Kbit/s) (128-1235456): | 128 | | | | |
| | Maximum Bandwidth (Kbit/s) (128-1235456): | 32768 | | | | * |
| | Bandwidth Compensation: | No | | | - | |
| | | Ć | ок | Cancel | <u>s</u> pply | |

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

3. Configure a line profile.

In a line profile, a GEM port can be bound to up to eight service streams. In a GEM port, different GEM connections need to be set up for different service streams.

In this example, the mapping between GEM ports and MDU-side services is implemented through VLANs, and the service streams of each service are mapped to GEM port 1. In addition, different GEM connections are set up for the management VLAN and the VLANs for the Internet, voice, and multicast services.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Line Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose Base Info. from the navigation tree and set the parameters.
 - Mapping Mode: VLAN
 - Qos Mode: Priority Queue

dd GPOW Line Profile		
Name: FTTx	* Alias:	
Configuration	Name	Value
🗕 🗕 Base Info.	Upstream FEC Switch	OFF
⊞- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	ок	Cancel <u>A</u> pply

- Right-click T-CONT Info. in the navigation tree and choose ADD T-CONT from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - T-CONT Index: 1
 - DBA Profile: FTTx

ame: FTTx	* Alias:
Configuration Base Info. Line Ethernet port binding group T-CONT Incont T-CONT Incont T-CONT	ADD T-COIT
<>	

- Right-click **T-CONT1** in the navigation tree and choose **Add GEM Port** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - GEM Port Index: 1
 - Priority Queue: 1

ame: FTTx	* Alias:	
Configuration Base Info. Une - Ethernet port binding group - T-CONT Info. - T-CONTO - T-CONTO - T-CONTO - CONTO -	ADD GEN Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch:	
<		OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 0 (this parameter is set to **0** automatically)
 - VLAN ID: 10 (Internet access user-side VLAN ID)

dd GPON Line Profile				
Name: FTTx		* Alias [.] DD GEE Connection	×	
Configuration Base Info. Cune Ethernet port binding grou T-CONT Info. T-CONT0 T-CONT0 CONT0	GEM F Priorit CAR F Servic Encry	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-7): VLAN ID(1-4094): Priority: Port Type: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:		
			OK Cancel	
	_	ОК	Cancel <u>A</u> pply	

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 1 (this parameter is set to 1 automatically)
 - VLAN ID: 20 (Voice user-side VLAN ID)

dd GPON Line Profile				
Name: FTTx	* Alias:			
Configuration	GEM Connection Parameters	X		
Ethernet port binding grou	GEM Port Index(0-1023):	1		
E T-CONT Info. T-CONTO Servic	GEM Connection Index(0-7):	0 *		
ADD GEM Connection	VLAN ID(1-4094):	20		
DEL GEM Port	Priority:	•		
	Port Type:	•		
	Port ID(1-8):			
	BindGroup ID:			
	CAR Profile:			
<>		OK Cancel		
	ОК	Cancel <u>A</u> pply		

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 2 (this parameter is set to 2 automatically)
 - VLAN ID: 30 (Multicast user-side VLAN ID)

Ad GPOW Line Profile				
Name: FTTx		* Alias:		
Configuration ├── Base Info. ⊡── Line ├── Ethernet port binding grou	GEM F Priorit	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1	X	
T-CONT Info. T-CONTO T-CONTO T-CONT1 CONT1	CAR Servic Encrys	GEM Connection Index(0-7): 0 VLAN ID(1-4094): 30	*	
ADD GEM Connection DEL GEM Port		Priority:	•	
		Port ID(1-8):		
		CAR Profile:		
		ОК	Cancel	
		OK Canc	el <u>A</u> pply	

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile.

The service profile type should be consistent with the actual ONT type.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities of HG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Service Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Number of CATV Ports: 1

lame: FTTx	* Alias:	
Configuration	Name Value	
 Base Info. 	Number of Pots Ports(0-8) 2	^
UNI Port	Number of IPhost Ports 1	
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type E1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports (0-8) 0	
	Number of CATV Ports(0-8) 1	=
	MAC Address Learning Swit ON	
	Transparent Transmission OFF	
	Multicast Mode Unconcern	
	Multicast forward mode Untag	
	Multicast forward VLAN(1-40	
	Upstream IGMP packet forw Unconcern	
	Upstream IGMP packet forw	
	Upstream IGMP Packet For	~

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. **Confirm the ONT.**

- a. In the Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.
- b. Choose GPON > GPON Management from the navigation tree.
- c. On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- d. In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- e. Select the ONU tab page. Click the Auto Discover ONUs tab.
- f. In the window that is displayed, select **6877687714852901** as the ONU record and click **Confirm**.
 - Name: ONT
 - ONU ID: 0
 - ONU Type: ONT
 - On the **Basic Parameters** tab page, set the parameters.
 - Line Profile: FTTx (click next to Line Profile and select the line profile named FTTx in the dialog box that is displayed)
 - Service Profile: FTTx (click next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: SN
 - Terminal Type: 247
 - Software Version: V1R002C06 (or V1R002C07)

Confirm ONU		2
Affiliated Port:	0/2/1 *	Splitter:
Name:	ONT *	Alias:
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛 🔭	Splitter Port ID(1-128): 1
ONU Type:	ONT *	
Basic Paramet	ters Network Management Cha	annel Parameters
Line Profile:	FTTX*	Service Profile: FTTx*
Alarm Profile:		ONU VAS Profile:
Optic Alarm Pr	ofile:	
Authenticatio	n Info	
Authenticat	ion Mode: SN 💌 *	Timeout Duration 🕢 No Limit 👘 *
SN:	6877687714852901	Password: *
ONU Type		
Verdor ID:	HWTC(2011) 💌	Terminal Type: 247
Software Ve	ersion: V1R002C06 💌	
		Locate to ONU list after operation succeeds
		Cancel Apply

- g. Click OK.
- Configure the voice service.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the OLT. To navigate to the NE Explorer of the OLT, do as follows: In the

Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.

Some voice parameters cannot be configured on the NMS but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.2 Operation Guide on the XML Configuration File (on the U2000)**.

1. Configure a service VLAN on the OLT side.

A service VLAN is the VLAN used for the voice service.

- a. Choose VLAN from the navigation tree.
- b. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 200
 - Type: Smart VLAN

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	200 *
	Name:	VLANID_200 *
	Alias:	
	Туре:	Smart VLAN 🔹 *
	Attribute:	Common
	VLAN Priority:	Unconfigured
	E	ack Next Done Cancel

- d. Click Next.
- e. Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN		×
Add VLAN	Sub Port L3 Interface 1	Extended Info
	Back	Next Done Cancel

f. Click Done.

2. Add a service virtual port on the OLT side.

- a. On the VLAN tab page, select the record where VLAN ID is set to 200 and click the ServicePort tab in the lower pane.
- b. In the information list, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - VIAN Choice: Smart VLAN
 - Connection Type: LAN-GPON (when the physical port is a GPON port) or LAN-EPON (when the physical port is an EPON port)
 - Interface Selection: 0/2/1/0/1 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 200 (SVLAN ID)
 - Service Type: Multi-Service VLAN
 - User VLAN: 20 (CVLAN ID)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: FTTx

asic Info			Attributes		
ID(1-32768):					
Name: VolP		*	Connection Type:	AN-GPON	•
Alias:					
letwork Side			User Side		
Eurodia ID/1 9192)					
Bullule ID(1=61 52).					
VLAN Choice:	Smart VLAN	*	Interface Selection:	0/2/1/0/1	•
Tag-Transform:		-	Service Type:	Multi-Service VLAN	•
VLAN ID(1-4095):	200	*	User VLAN(1-4095):	20	•
Cos value(0-7):		*			
raffic Profile Info					
Keen the unstream a	nd downstream set	tings the same	1		
]		
Upstream Traffic Profile:	FTTX		Downstream Traffic Profil	e: FTTx	
			`		

- d. Click **OK**.
- 3. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-VoIP

- Vendor ID: HWTC(2011)
- Terminal Type: 247
- Version: V1R002C06-Later

Add OHT VAS Pro	ofile				×
Profile Name:	ONT-VoIP	*	Vendor ID:	HWTC(2011)	*
Terminal Type:	247	*	Version:	V1R002C06 ~ Later	•
	rfo. ice :e y orwarding	Paramete	Name	Parameter \	/alue
	Imp	ort Export	L	OK Cancel	Apply

- d. Configure the parameters of the voice WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu.
 - b. Select WAN IP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-VoIP
 - WAN Enable: enable
 - Connection Type: IP_Routed
 - VLAN ID: 20 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 6
 - Addressing Type: DHCP
 - Service List: VOIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)

dd ONT VAS Pr	ofile			×
Profile Name:	ONT-VolP	* Vendor ID:	HWTC(2011)	*
Terminal Type:	247	▼ * Version:	V1R002C06 ~ Later	*
⊡- 247 Config Ir — Time	ifo.	Parameter Nam WAN IP interface index	e Paramete 1	r Value
E- Services	ice	WAN Interface Name	ONT-VolP	
É- WAN	Device 1	WAN Enable	enable	-
É-W	AN Connection	Connection Type	IP_Routed	-
É	HWAN Connection 1	NATEnabled	disable	•
	HAVAN IP Interface 1	Vian ID(1~4094)	20	
	e	Priority(0~7)	6	
- ALG Abilit	hy	MultiCast VLAN(1~4094	4)	
E Security	onvording	Addressing Type	DHCP	•
Er Layer 5 F	orwarung	Service Type	VOIP	•
		DNS Enabled	enable	~
		DNS Server		
		Option60 Vender Class	; ID	
	Import	Export	OK Cancel	Apply

e. Configure the voice protocol parameters.

In the navigation tree, choose **Services** > **Voice Service** > **Voice Service** 1 > **Interface configuration** > **Interface 1**. Select **Interface 1** and select a proper value.

- Signaling Protocol: H248
- Region: China
- Associate WAN Interface: WAN1(ONT-VoIP) (binding the created voice WAN port)



If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create a WAN port named **WAN-RTP** on the ONT, and set this WAN port to a media WAN port. Specifically, choose **Interface 1 > RTP** and set **Associate WAN Interface** to **WAN2(WAN-RTP)**.

Add ONT VAS Pro	ofile						×
Profile Name: Terminal Type:	ONT-VoIP *	V	'endor ID: 'ersion:	HWTC(2011)	~ Later	•	·]*
E 247 Config In ⊢ Time Services E Voice E Voice F V	fo. Service ice Service 1 Interface Configuration Interface 1 SIP Redundancy Jitter Buffer Redundancy Jitter Buffer Redundancy Stater Stater Jitter Sta		Param Base of Por Top of Port DSCP(0-6 Telephone Associate	eter Name irt(0~65535) (0~65535) 3) Event Paylo WWAN Interface	Parameter \ 50000 50020 0 97 WAN2(WAN-RT	Yalue P) '	
	Import Expo	t		ок	Cancel .	Apply	

f. Configure the MGC parameters.

In the navigation tree, choose **Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > H248**. Select **H248** and enter (or select) a proper value.

- Primary MGC: 200.200.200
- MID Format: Domain name

- If dual-homing is configured, Secondary MGC must be set.
- MID Format can be set to Domain Name, IP, or Device name.



- g. Configure the voice users.
 - a. In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > User. Select User, right-click, and choose Add from the shortcut menu.

- The HG8010 does not support voice services.
- The HG8110 supports one user.
- The HG8240/HG8245/HG8247 supports a maximum of two users.
- b. Click User 1 below User and set Interface ID to 1. Click User 2 below User and set Interface ID to 2.

If **Interface ID** is **1**, port TEL1 on the ONT is bound. If **Interface ID** is **2**, port TEL2 on the ONT is bound.

Add OHT VAS Pro	ofile					×
Profile Name:	ONT-VoIP	*	Vendor ID:	HWTC(20	011)	*
Terminal Type:	247	*	Version:	V1R002C	06 ~ Later	*
	fo. Service 1 ince Service 1 Interface Configuration → Interface 1 ↔ SIP ↔ H248 ↔ RTP → Fax T38 → FaxModem ↔ User 1 ↔ User 1 ↔ User 2 ↔ Physical Interface ice ie y onwarding	Pai User index Interface IC	rameter Name		Parameter Val	
		Expor	t	ок)(Cancel	Apply

- h. Click **OK** to complete the configuration of the new profile.
- 4. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.
- 5. Configure the ONT value-added service.
 - a. On the **GPON ONU** tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
 - b. Configure the domain name of the MG.

In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > H248. Select H248 and set Domain name to 6877687714852901.

Domain Name is ONT's domain name registered on the MGC. It is globally unique. **Domain Name** in this example is ONT's SN.

Configure VAS					×
Profile Name:	ONT-VoIP		Vendor ID:	HWTC(2011)	-
Terminal Type:	247	-	Version:	V1R002C06	•
Activated Status:	Aactivated				
- 247 Config Info - Time - Services - Voice S - Voice S	n. ervice te Service 1 Interface 1 ⊕ SIP ⊕ 1243 ⊕ RTP ← Fax T38 ← FaxModern ⊕ User Physical Interface e warding	Pa Primary M Secondary Local Port Domain n Device nai MD Form DSCP(0~6	rameter Name GC GC port(0~6553 MGC MGC port(0~65 (0~65535) ame ne ti i3)	Parameter Value 200.200.200 2944 203535 2944 6697687714852901 Domain name 0	
		ļ		Switch to Current ON	T Task
	Unbind	Import	Export	t OK Can	cel

c. Configure the terminal ID for the H.248 voice user.

In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > User.

a. Click User 1 > H248 and set TID to A0.

romo riamo.	ONT-VOIP		Vendor ID:	HWTC(201	1)	
Terminal Type:	247	-	Version:	V1R002C0	16	-
Activated Status:	Aactivated					
- 247 Config Info - Time - Services - Voice E - Voice - V). ervice :e Service 1 Interface 1 Inter	Ires	Parame	ter Name	Parameter Value	3

b. Click User 2 > H248 and set TID to A1.

1				
Configure VAS				×
Profile Name:	ONT-VolP	Vendor ID:	HWTC(2011)	~
Terminal Type:	247 💌	Version:	V1R002C06	•
Activated Status:	Aactivated			
- 247 Config Info - Time - Services - Voice S - Vo	I	Parame	ter Name Para	urrent ONT Task

The terminal IDs A0 and A1 must be consistent with the corresponding configuration on the MGC.

d. Click **OK**. In the dialog box that is displayed, click **OK**. The configurations take effect without the requirement of resetting the ONT.

----End

Result

Check whether the telephone functions properly. Connect two common telephones phone 1 and phone 2 to two TEL ports on the ONT and test the dialing between phone 1 and phone 2. In normal cases:

- The caller hears the dialing tone after taking the phone off the hook.
- When the caller dials the telephone number of the callee, the phone of the callee rings successfully, and the caller hears the ring back tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

3.2.5 Configuring GPON FTTH Voice Service (SIP Protocol) on the NMS

This topic describes how to configure the voice service when an ONT is connected to an OLT through a GPON port.

Example Network

- The phones connected to different ONTs can communicate with each other.
- The ONT obtains an IP address in DHCP mode.



Figure 3-4 Configuring the GPON FTTH voice service (SIP protocol)

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **Traffic Profile** from the navigation tree.
 - b. Click the **MEF IP Traffic Profile** tab.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480

- Outer	Priority:	1
---------	-----------	---

 Configure the desired parameters. When parameter CIR is not set, para 	meter CBS, parameter PIR, and parameter			
 PBS do not need to be configured. Here, the rate is not restricted. Parameter PIR must be greater than or equal to parameter CIR. 				
Parameter PBS must be greater that	n or equal to parameter CBS.			
rofile Parameters				
Name:	FTTx			
Alias:				
CIR (Kbit/s) (64-10240000):	20480 Unlimited			
CBS (bytes) (2000-10240000):	657360			
PIR (Kbit/s) (64-10240000):	40960			
PBS (bytes) (2000-10240000):	1312720			
Outer Priority (0-7):	1			
Outer Copy Priority:	Assign Priority 💌			
Index of Outer Priority Mapping Profile:	1			
Inner Priority (0-7):	0			
Inner Copy Priority:	Assign Priority 💌			
Index of Inner Priority Mapping Profile:	1			
Priority Policy:	Local-Setting 💌			
Traffic Color Mode:	color-blind 🗸			

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

2. Configure a DBA profile.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the **DBA Profile** tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Ac	d DBA Profile					×
	Profile Parameters					
	Name:	FTTx				*
	Alias:					
	T-CONT type:	Maximum	Bandwidth		•	
	Assured Bandwidth (Kbit/s) (128-1235456):	128				
	Fixed Bandwidth (Kbit/s) (128-1235456):	128				
	Maximum Bandwidth (Kbit/s) (128-1235456):	32768				*
	Bandwidth Compensation:	No			-	
L		Ć	ок	Cancel	Apply	

e. Click OK.

- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

3. Configure a line profile.

In a line profile, a GEM port can be bound to up to eight service streams. In a GEM port, different GEM connections need to be set up for different service streams.

In this example, the mapping between GEM ports and MDU-side services is implemented through VLANs, and the service streams of each service are mapped to GEM port 1. In addition, different GEM connections are set up for the management VLANs and the VLANs for the Internet, voice, and multicast services.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Line Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Mapping Mode: VLAN
 - Qos Mode: Priority Queue

dd GPOW Line Profile		
Name: FTTx	* Alias:	
Configuration	Name	Value
🗕 🗕 Base Info.	Upstream FEC Switch	OFF
⊞- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	ок	Cancel <u>A</u> pply

- Right-click T-CONT Info. in the navigation tree and choose ADD T-CONT from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - T-CONT Index: 1
 - DBA Profile: FTTx

Add GPON Line Profile	X
Name: FTTx	* Alias:
Configuration Base Info. Chine Ethernet port binding group T-CONT ison T-CONT ADD T-CONT CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTk OK Cancel
	OK Cancel <u>A</u> pply

- Right-click **T-CONT1** in the navigation tree and choose **Add GEM Port** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - GEM Port Index: 1
 - Priority Queue: 1

ame: FTTx	* Alias:	
Configuration Base Info. Une - Ethernet port binding group - T-CONT Info. - T-CONTO - T-CONTO - T-CONTO - CONTO -	ADD GEN Port -GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch:	
<		OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 0 (this parameter is set to **0** automatically)
 - VLAN ID: 10 (Internet access user-side VLAN ID)

dd GPOM Line Profile				
Name: FTTx		* Alias [.] DD GEE Connection	×	
Configuration Base Info. Cune Ethernet port binding grou T-CONT Info. T-CONT0 T-CONT0 CONT0	GEM F Priorit CAR F Servic Encry	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-7): VLAN ID(1-4094): Priority: Port Type: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:		
			OK Cancel	
	_	ОК	Cancel <u>A</u> pply	

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 1 (this parameter is set to 1 automatically)
 - VLAN ID: 20 (Voice user-side VLAN ID)

add GPOW Line Profile		2
Name: FTTx	* Alias:	
A	DD GEE Connection	2
Configuration Base Info.	GEM Connection Parameters	
Ethernet port binding grou	GEM Port Index(0-1023):	1
T-CONT Info.	GEM Connection Index(0-7):	0 *
ADD GEM Connection	VLAN ID(1-4094):	20
DEL GEM Port	Priority:	•
	Port Type:	•
	Port ID(1-8):	
	BindGroup ID:	
	CAR Profile:	
		OK Cancel
_	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 2 (this parameter is set to 2 automatically)
 - VLAN ID: 30 (Multicast user-side VLAN ID)

Add GPON Line Profile		X
Name: FTTx	* Alias	
Configuration Base Info. Chine Ethernet port binding grou T-CONT Info. T-CONT1 CONT1 ADD GEM Con	ADD GEE Connection GEM F Priorit GEM Port Index(0-1023): CAR F Servic Endry VLAN ID(1-4094): Det in	x 1 7): 0 30
	Pronty: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	OK Cancel
	ОК	Cancel <u>A</u> pply

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile.

The service profile type should be consistent with the actual ONT type.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities of HG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Service Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Number of CATV Ports: 1

lame: FTTx	* Alias:	
Configuration	Name Value	
 Base Info. 	Number of Pots Ports(0-8) 2	^
UNI Port	Number of IPhost Ports 1	
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type E1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports (0-8) 0	
	Number of CATV Ports(0-8) 1	=
	MAC Address Learning Swit ON	
	Transparent Transmission OFF	
	Multicast Mode Unconcern	
	Multicast forward mode Untag	
	Multicast forward VLAN(1-40	
	Upstream IGMP packet forw Unconcern	
	Upstream IGMP packet forw	
	Upstream IGMP Packet For	~

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. **Confirm the ONT.**

- a. In the Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.
- b. Choose GPON > GPON Management from the navigation tree.
- c. On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- d. In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- e. Select the ONU tab page. Click the Auto Discover ONUs tab.
- f. In the window that is displayed, select **6877687714852901** as the ONU record and click **Confirm**.
 - Name: ONT
 - ONU ID: 0
 - ONU Type: ONT
 - On the **Basic Parameters** tab page, set the parameters.
 - Line Profile: FTTx (click next to Line Profile and select the line profile named FTTx in the dialog box that is displayed)
 - Service Profile: FTTx (click next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: SN
 - Terminal Type: 247
 - Software Version: V1R002C06 (or V1R002C07)

Confirm ONU		2
Affiliated Port:	0/2/1 *	Splitter:
Name:	ONT *	Alias:
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛 🔭	Splitter Port ID(1-128): 1
ONU Type:	ONT *	
Basic Paramet	ters Network Management Cha	annel Parameters
Line Profile:	FTTX*	Service Profile: FTTx*
Alarm Profile:		ONU VAS Profile:
Optic Alarm Pr	ofile:	
Authenticatio	n Info	
Authenticat	ion Mode: SN 💌 *	Timeout Duration 🕢 No Limit 👘 *
SN:	6877687714852901	Password: *
ONU Type		
Verdor ID:	HWTC(2011) 💌	Terminal Type: 247
Software Ve	ersion: V1R002C06 💌	
		Locate to ONU list after operation succeeds
		Cancel Apply

- g. Click OK.
- Configure the voice service.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the OLT. To navigate to the NE Explorer of the OLT, do as follows: In the

Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.

Some voice parameters cannot be configured on the NMS but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.2 Operation Guide on the XML Configuration File (on the U2000)**.

1. Configure a service VLAN on the OLT side.

A service VLAN is the VLAN used for the voice service.

- a. Choose VLAN from the navigation tree.
- b. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 200
 - Type: Smart VLAN

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	200 *
	Name:	VLANID_200 *
	Alias:	
	Туре:	Smart VLAN 🔹 *
	Attribute:	Common
	VLAN Priority:	Unconfigured
	E	ack Next Done Cancel

- d. Click Next.
- e. Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN		×
Add VLAN	Sub Port L3 Interface 1	Extended Info
	Back	Next Done Cancel

f. Click Done.

2. Add a service virtual port on the OLT side.

- a. On the VLAN tab page, select the record where VLAN ID is set to 200 and click the ServicePort tab in the lower pane.
- b. In the information list, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - VIAN Choice: Smart VLAN
 - Connection Type: LAN-GPON (when the physical port is a GPON port) or LAN-EPON (when the physical port is an EPON port)
 - Interface Selection: 0/2/1/0/1 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 200 (SVLAN ID)
 - Service Type: Multi-Service VLAN
 - User VLAN: 20 (CVLAN ID)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: FTTx

				asicilito
				ID(1-32768):
•	LAN-GPON	Connection Type: LAN-GPON	*	Name: VolP
				Alias:
		User Side		etwork Side
				_
				Bundle ID(1-8192):
*	0/2/1/0/1	Interface Selection: 0/2/1/0/1	Smart VLAN 🔻 *	VLAN Choice:
•	Multi-Service VLAN	Service Type: Multi-Ser	•	Tag-Transform:
•	20	User VLAN(1-4095): 20	200*	VLAN ID(1-4095):
			*	Cos value(0-7):
				raffic Profile Info
]	d downstream settings the sam	Keep the upstream a
		Doumotroom Troffic Drofile:		Unotroom Troffic Durffer
	e. FIIX	Downstream trailic Prolife. FTTX	F112	Opstream trainc Prome.
	Ie: FTTx	Downstream Traffic Profile:	d downstream settings the sam	affic Profile Info

- d. Click **OK**.
- 3. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-VoIP

- Vendor ID: HWTC(2011)
- Terminal Type: 247
- Version: V1R002C06-Later

Add OHT VAS Pre	ofile				×
Profile Name:	ONT-VoIP	*	Vendor ID:	HWTC(2011)	*
Terminal Type:	247	*	Version:	V1R002C06 ~ Later	*
Config In Time Services WAN Dev Dev LANDevic LALO Abil Control Layer 3 Fri	fo. ice e y orwarding	Paramete	r Name	Parameter Va	lue
	<u>I</u> m;	oort Expor	t	OK Cancel	Apply

- d. Configure the parameters of the voice WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu.
 - b. Select WAN IP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-VoIP
 - WAN Enable: enable
 - Connection Type: IP_Routed
 - VLAN ID: 20 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 6
 - Addressing Type: DHCP
 - Service List: VOIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)

	-		
ofile Name:	ONT-VoIP	* Vendor ID: HWTC(2011)	•
rminal Type:	247	Version: V1R002C06 ~ Later	•
- 247 Config I	nfo.	Parameter Name Parameter Val	ue
- Time		WAN IP interface index 1	
E-MAN De	iro.	WAN Interface Name ONT-VoIP	
E-WAN	Device 1	WAN Enable enable	
É-W	AN Connection	Connection Type IP_Routed	•
E	WAN Connection 1	NATEnabled disable	•
	WAN IP Interface 1	✓ Vlan ID(1~4094) 20	
- LANDevi	ce	Priority(0~7) 6	
ALG Abili	ty	MultiCast VLAN(1~4094)	
E Security	onwarding	Addressing Type DHCP	
E Edycron	orwarding	Service Type VOIP	
		DNS Enabled enable	
		DNS Server	
		Option60 Vender Class ID	

e. Configure voice protocol parameters.

In the navigation tree, choose **Services** > **Voice Service** > **Voice Service** 1 > **Interface configuration** > **Interface 1**. Select **Interface 1** and select a proper value.

- Signaling Protocol: SIP
- Region: China
- Associate WAN Interface: WAN1(ONT-VoIP) (binding the created voice WAN port)



If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create a WAN port named **WAN-RTP** on the ONT, and set this WAN port to a media WAN port. Specifically, choose **Interface 1 > RTP** and set **Associate WAN Interface** to **WAN2(WAN-RTP)**.

Add ONT VAS Pro	ofile						X
Profile Name:	ONT-VoIP *	v	'endor ID:	HWTC(2011)			*
Terminal Type:	247 💌 *	V	ersion:	V1R002C06	~ Later		▼*
□ 247 Config In □ Time □ Services □ Voice □ LaNDevic □ LaNDevic □ Layer 3 Foi □ Layer 3 Foi	fo. Service ice Service 1 Interface Configuration Interface 1 Service 1 Interface 1 Page SIP Redundancy Jitter Buffer Redundancy Jitter Buffer Redundancy Service		Param Base of Por Top of Port DSCP(0-6 Telephone Associate	eter Name Irt(0-65535) (0-65535) 3) Event Paylo WAN Interface	Parame 50000 50020 0 97 WAN2(WAN	ter Value	3
	Import Expor	t		ок	Cancel	<u>A</u> ppl	у

f. Configure SIP protocol parameters.

In the navigation tree, choose **Services** > **Voice Service** > **Voice Service 1** > **Interface configuration** > **Interface 1** > **SIP**. Select **SIP** and enter (or select) a proper value.

- Proxy Server: 200.200.200
- Home Domain: softx3000.huawei.com

If dual-homing is configured, Secondary Proxy Server must be set.



g. Configure the voice users.

a. In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > User. Select User, right-click, and choose Add from the shortcut menu.

- The HG8010 does not support voice services.
- The HG8110 supports one user.
- The HG8240/HG8245/HG8247 supports a maximum of two users.
- b. Click User 1 below User and set Interface ID to 1. Click User 2 below User and set Interface ID to 2.

If **Interface ID** is **1**, port TEL1 on the ONT is bound. If **Interface ID** is **2**, port TEL2 on the ONT is bound.

Add ONT VAS Pro	ofile					×
Profile Name:	ONT-VoIP	*	Vendor ID:	HWTC(201	1)	*
Terminal Type:	247	•	Version:	V1R002C0	6 ~ Later	*
D 247 Config In Time Services O Vol Vol Vol O Vol D O	fo. Service iice Service 1 ← Interface Configuration ← Interface 1 ← SIP ← H248 ← RTP ← Fax T38 ← FaxT0dem ← User 1 ← User 1 ← User 2 ← Physical Interface i toe te by orwarding	Pa User inde Interface II Priority	rameter Name × D Enable	2	Parameter Value	
	Import) Expo	rt	ок][Cancel 4	Apply

- h. Click **OK** to complete the configuration of the new profile.
- 4. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.
- 5. Configure ONT value-added services.
 - a. On the **GPON ONU** tab page, select an ONT, right-click, and choose **Configure** Value-Added Service from the shortcut menu.
 - b. Configure parameters of the SIP-based voice users.

The parameters of the SIP-based voice user must be consistent with the corresponding configuration on the softswitch.

a. In the navigation tree, choose Services > Voice Service > Voice Service
 1 > Interface configuration > Interface1 > User > User 1. Select User
 1 and set Directory Number to 88001234.

Configure VAS					×
Profile Name:	ONT-VoIP		Vendor ID:	HWTC(2011)	•
Terminal Type:	247	-	Version:	V1R002C06	•
Activated Status:	Aactivated				
E- 247 Config Info).	Param	eter Name	Pa	arameter Value
- Time		Userindex		1	
E-Voice S	ervice	User Enabled		Disabled	
E- Void	ce Service 1	Directory Numb	er	88001234	
- P	Interface Configuration	Interface ID		1	
	E-Interface 1	Priority Enable			
→ IGMP → Portal → WAN Device → ALG Ability → Layer 3 For <	e n246			Swit	ch to Current ONT Task
	Unbind		Expor	t C	K Cancel

- b. Select SIP below User 1 and enter a proper value.
 - Auth User Name: 88001234@softx3000.huawei.com
 - Auth Password: iadtest1



- c. Set parameters of User 2 using the same method.
 - Directory Number: 88001235

- Auth User Name: 88001235@softx3000.huawei.com
- Auth Password: iadtest2
- c. Click **OK**. In the dialog box that is displayed, click **OK**. The configurations take effect without the requirement of resetting the ONT.

----End

Result

Check whether the telephone functions properly. Connect two common telephones phone 1 and phone 2 to two TEL ports on the ONT and test the dialing between phone 1 and phone 2. In normal cases:

- The caller hears the dialing tone after taking the phone off the hook.
- When the caller dials the telephone number of the callee, the phone of the callee rings successfully, and the caller hears the ring back tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

3.2.6 Configuring GPON FTTH Layer 2 Multicast Service on the NMS

This topic describes how to configure the multicast service when an ONT is connected to an OLT through a GPON port.

Context

For details of the data plan, see Data Plan.

Example Network

- The ONT is connected to the OLT in Layer 2 mode.
- The OLT uses IGMP proxy, which is a Layer 2 multicast protocol.
- The IGMP version of the multicast VLAN is IGMPv3.
- Multicast programs are configured statically.



Figure 3-5 Configuring the GPON FTTH multicast service

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **Traffic Profile** from the navigation tree.
 - b. Click the **MEF IP Traffic Profile** tab.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480

- Outer	Priority:	1
---------	-----------	---

 Configure the desired parameters. When parameter CIR is not set, para 	meter CBS, narameter PIR, and narameter
PBS do not need to be configured. He	re, the rate is not restricted.
 Parameter PBS must be greater than 	n or equal to parameter CBS.
Profile Parameters	
Name:	FTTx
Alias:	
CIR (Kbit/s) (64-10240000):	20480 🗌 Unlimited
CBS (bytes) (2000-10240000):	657360
PIR (Kbit/s) (64-10240000):	40960
PBS (bytes) (2000-10240000):	1312720
Outer Priority (0-7):	1
Outer Copy Priority:	Assign Priority 💌
Index of Outer Priority Mapping Profile:	1
Inner Priority (0-7):	0
Inner Copy Priority:	Assign Priority 💌
Index of Inner Priority Mapping Profile:	1
Priority Policy:	Local-Setting 💌
Traffic Color Mode:	color-blind 💌

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

2. Configure a DBA profile.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the **DBA Profile** tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	ld DBA Profile					×
	Name:	FTTx]			*
	Alias:]			
	T-CONT type:	Maximum	n Bandwidth		 ▼	
	Assured Bandwidth (Kbit/s) (128-1235456):	128				
	Fixed Bandwidth (Kbit/s) (128-1235456):	128				
	Maximum Bandwidth (Kbit/s) (128-1235456):	32768				*
	Bandwidth Compensation:	No			-	
		Ì	ок	Cancel	Apply	

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

3. Configure a line profile.

In a line profile, a GEM port can be bound to up to eight service streams. In a GEM port, different GEM connections need to be set up for different service streams.

In this example, the mapping between GEM ports and MDU-side services is implemented through VLANs, and the service streams of each service are mapped to GEM port 1. In addition, different GEM connections are set up for the management VLAN and the VLANs for the Internet, voice, and multicast services.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Line Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose Base Info. from the navigation tree and set the parameters.
 - Mapping Mode: VLAN
 - Qos Mode: Priority Queue

dd GPOW Line Profile		
Name: FTTx	* Alias:	
Configuration	Name	Value
🗕 🗕 Base Info.	Upstream FEC Switch	OFF
⊞- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	ок	Cancel <u>A</u> pply

- Right-click T-CONT Info. in the navigation tree and choose ADD T-CONT from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - T-CONT Index: 1
 - DBA Profile: FTTx

Add GPON Line Profile	X
Name: FTTx	* Alias:
Configuration Base Info. Chine Ethernet port binding group T-CONT ison T-CONT ADD T-CONT CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTk OK Cancel
	OK Cancel <u>A</u> pply

- Right-click **T-CONT1** in the navigation tree and choose **Add GEM Port** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - GEM Port Index: 1
 - Priority Queue: 1

me: FTTx	* Alias:	
Configuration Base Info. Une Ethernet port binding group T-CONT Info. T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO T-CONTO	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Briotik: Quoto:	
DEL I-CONT	CAR Profile: Service Type:	ETH V
	Encryption Switch: Cascade Switch:	ON V
		OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 0 (this parameter is set to **0** automatically)
 - VLAN ID: 10 (Internet access user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx		* Alias [.] DD GEE Connection	×
Configuration Base Info. Cune Ethernet port binding grou T-CONT Info. T-CONT0 T-CONT0 CONT0	GEM F Priorit CAR F Servic Encry	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-7): VLAN ID(1-4094): Priority: Port Type: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			OK Cancel
	_	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 1 (this parameter is set to 1 automatically)
 - VLAN ID: 20 (Voice user-side VLAN ID)

Add GPON Line Profile		X
Name: FTTx	* Alias:	
Configuration	GEM Connection Parameters	X
Ethernet port binding grou	GEM Port Index(0-1023):	1
E T-CONT Info. T-CONTO Servic	GEM Connection Index(0-7):	0 *
ADD GEM Connection	VLAN ID(1-4094):	20
DEL GEM Port	Priority:	•
	Port Type:	•
	Port ID(1-8):	
	BindGroup ID:	
	CAR Profile:	
<>		OK Cancel
	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 2 (this parameter is set to 2 automatically)
 - VLAN ID: 30 (Multicast user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx	_	* Alias:	
Configuration Base Info. Line Ethernet port binding grou T-CONTI Info. T-CONTI T-CONTI DEL GEM Con DEL GEM Port	GEM F Priorit	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1	
	CAR Servic Engryt	GEM Connection Index(0-7): 0 VLAN ID(1-4094): 30	*
		Priority:	· · ·
		Port ID(1-8):	
		CAR Profile:	
		OK Cance	Cancel

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile.

The service profile type should be consistent with the actual ONT type.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities of HG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.
Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Service Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Number of CATV Ports: 1

a GPUN Service Prolit		
ame: FTTx	* Alias:	
Configuration	Name Value	
Base Info.	Number of Pots Ports(0-8) 2	
UNI Port	Number of IPhost Ports 1	—n
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type E1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports(0-8) 0	
	Number of CATV Ports(0-8) 1	
	MAC Address Learning Swit ON	
	Transparent Transmission OFF	
	Multicast Mode Unconcern	
	Multicast forward mode Untag	
	Multicast forward VLAN(1-40	
	Upstream IGMP packet forw Unconcern	
	Upstream IGMP packet forw	
	Upstream IGMP Packet For	~
		Annly

- Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is set to ETH and Port ID is set to 1, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.

- Service Type: Translation
- S-VLAN: 10 (Internet access user-side VLAN ID)
- C-VLAN: 10 (Internet access user-side VLAN ID)

Add VLAN Switch			×
Service Type:	Translation		*
S-VLAN(0-4095):	10		*
S-Priority(0-7):			
C-VLAN(0-4095):	10	*	🗌 untagged
C-Priority(0-7):			
C-Encap:			-
		ОК	Cancel

- Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is set to ETH and Port ID is set to 3, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.
 - Service Type: Translation
 - S-VLAN: 30 (Multicast user-side VLAN ID)
 - C-VLAN: 30 (Multicast user-side VLAN ID)

Add VLAN Switch			×
Service Type:	Translation]	*
S-VLAN(0-4095):	30]	*
S-Priority(0-7):			
C-VLAN(0-4095):	30	* 🗌 untagg	ed
C-Priority(0-7):			
C-Encap:			-
		OK Cance	el 📄

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. **Confirm the ONT.**

- a. In the Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.
- b. Choose GPON > GPON Management from the navigation tree.
- c. On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- d. In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- e. Select the ONU tab page. Click the Auto Discover ONUs tab.
- f. In the window that is displayed, select **6877687714852901** as the ONU record and click **Confirm**.
 - Name: ONT
 - ONU ID: 0
 - ONU Type: ONT
 - On the **Basic Parameters** tab page, set the parameters.
 - Line Profile: FTTx (click next to Line Profile and select the line profile named FTTx in the dialog box that is displayed)
 - Service Profile: FTTx (click next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: SN
 - Terminal Type: 247
 - Software Version: V1R002C06 (or V1R002C07)

Confirm ONU		2
Affiliated Port:	0/2/1 *	Splitter:
Name:	ONT *	Alias:
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛 🔭	Splitter Port ID(1-128): 1
ONU Type:	ONT *	
Basic Paramet	ters Network Management Cha	annel Parameters
Line Profile:	FTTX*	Service Profile: FTTx*
Alarm Profile:		ONU VAS Profile:
Optic Alarm Pr	ofile:	
Authenticatio	n Info	
Authenticat	ion Mode: SN 💌 *	Timeout Duration 🕢 No Limit 👘 *
SN:	6877687714852901	Password: *
ONU Type		
Verdor ID:	HWTC(2011) 💌	Terminal Type: 247
Software Ve	ersion: V1R002C06 💌	
		Locate to ONU list after operation succeeds
		Cancel Apply

- g. Click OK.
- Configure the multicast service.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the OLT. To navigate to the NE Explorer of the OLT, do as follows: In the

Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.

- 1. Configuring the Information About the ETH Port of a GPON ONU
 - a. Choose GPON > GPON Management from the navigation tree.
 - b. On the **GPON ONU** tab page, set the filter criteria or click ^I to display the GPON ONUs.
 - c. In the information list, right-click the ONT record where **Frame**, **Slot**, **Port**, and **ONU ID** are set to 0, 2, 1, and 0 respectively and click the **The Ont's UNI Port Info** tab in the lower pane.
 - d. On the **The Ont's UNI Port Info** tab page, right-click the record where **UNI Type** is set to **ETH** and **UNI ID** is set to **3**, and choose **Modify**from the shortcut menu.
 - e. In the dialog box that is displayed, set **Default VLAN ID** to **30**.
 - f. Click **OK**.

2. Configure a service VLAN on the OLT side.

A service VLAN is the VLAN used for the multicast service.

- a. Choose VLAN from the navigation tree.
- b. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1000
 - Type: Smart VLAN

Add VLAN		×
	VLAN ID(1-4095):	1000 *
	Name:	VLANID_1000
	Alias:	
	Type:	Smart VLAN 💌 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured
	B	3ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

d. Click **Next**. Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN			×
Add VLAN	Sub Port L3 Interface	Extended Info	
		~	
	Back	Next Done	<u>C</u> ancel

e. Click Done.

3. Add a service virtual port on the OLT side.

- a. On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
- b. In the information list, right-click and choose **Add** from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - VIAN Choice: Smart VLAN
 - Connection Type: LAN-GPON (when the physical port is a GPON port) or LAN-EPON (when the physical port is an EPON port)
 - Interface Selection: 0/2/1/0/1 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 1000 (SVLAN ID)
 - Service Type: Multi-Service VLAN
 - User VLAN: 30 (CVLAN ID)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: ip-traffic-table_6 (it is recommended that you use the default profile ip-traffic-table_6 because the OLT does not limit the rates of service streams)

d Service Port Basic Info			Attributes		
ID(1-32768): Name:	IGMP	*	Connection Type:	AN-GPON	*
Alias:					
Network Side			User Side		
Bundle ID(1	-8192):				
VLAN Choice:	Smart VLAN	*	Interface Selection:	0/2/1/0/1	▼ *
Tag-Transform		-	Service Type:	Multi-Service VLAN	•
VLAN ID(1-409	5): 1000	*	User VLAN(1-4095):	30	•
Cos value(0-7)		*			
Traffic Profile Info	istream and downstream	settings the same]		
Upstream Traff	ic Profile: FTTx		Downstream Traffic Profil	e: FTTx	
			ок	Cancel	Apply

- d. Click **OK**.
- 4. Add a multicast VLAN on the OLT side.
 - a. Choose Multicast > Multicast VLAN from the navigation tree.
 - b. On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - c. In the information list, right-click and choose Add from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 1000

Add Multicast VLAN	X
Basic Info	
Device Name: 10.71.227.35	·
Name:	Alias:
IGMP Version: IGMP V3	T Default VLAN
Autogeneration Program IP Address	-Work Mode
Program Match Mode: e Enable O Disable	IGMP Work Mode: igmp_proxy 💌 *
Start IP Address:	Snooping Report Switch: O Open Close
End IP Address:	Snooping Leave Switch: Open OClose
	IGMP Video Mode: Multicast 👻
	IGMP Inner VLAN(1~4095):
	Eack <u>Next> Einish</u> Cancel

Add Multicast VL	AN				×
Default Up Port	Info				
Frame: 0		Slot: 19		Port: 0	
-Parameter Info-					
IGMP Report F (0-7):	riority 6	*	Report Interval (10-5000):	(S) 10	*
Log Switch:	• Oper	n 🔿 Close	Global-Leave S	Switch: 🖲 Op	en O Close
			<u></u>		
	0	< <u>B</u> ack	Next>	<u>F</u> inish	Cancel
Add Bulticast	VLAN				×
Select VLAN-					
Please inp	ut query condi	tion 🛛 🕹] 🗸 Fi	ind	No. 8, Total:11
	Name	Alias	Туре 🛆	Attribute 🔿	Super VLAN II
1	VLANID_1		Smart VLAN	Common	
51	VLANID_51		Smart VLAN	Common	
100	VLANID_100		Smart VLAN	Common	
111	VLANID_111		Smart VLAN	Common	
200	VLANID_200		Smart VLAN	Common	
230	VLANID_230		Smart VLAN	Common	
501	VLANID 501		Smart VLAN	QinQ	
1000	VLANID_10		Smart VLAN	Common	
1001	VLANID 10		Smart VLAN	QinQ	
1233	VLANID 12		Smart VLAN	Stacking	
3454	VLANID_34		Smart VLAN	Common	
	<u>Seck</u> < <u>Back</u> Next> Einish Cancel				

- e. Click Finish.
- 5. Add a virtual upstream port for the multicast service on the OLT side.
 - a. Choose Multicast > Virtual Uplink Port from the navigation tree.
 - b. On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
 - c. In the information list, right-click and choose Add from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	×
Location Info	
Device Name: 10.71.227.35	•
Multicast VLAN Info	Uplink Port Info
	Frame: 0 *
VLAN ID(1-4095): 1000 *	Slot: 19 *
	Port: 0 *
	OK Cancel <u>Apply</u>

- e. Click Done.
- 6. Configure a program profile on the OLT side.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **IGMP Profile** from the navigation tree.
 - b. Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: program1
 - Start IP Address: 224.0.1.1 (IP address of the multicast program)
 - End IP Address: 224.0.1.1
 - Source IP Address: 10.10.10.20 (IP address of the multicast server)
 - Preview Profile: 0 (the default value)

ld Program Profile				
Description Info				
 Configure the desir 	ed parameters.			
 When the program 	is provisioned, if th	e IGMP	version of the multicast VLAN	is V2, the program
can not have a sourc program must have	e IP address.If the a source IP	IGMP	ersion of the multicast VLAN is	s V3, address.the
Name:	program1			
0 line i				
Allas.				
Profile Index (1-1024):	1			
Begin IP Address:	224.0 .1 .1	*	End IP Address:	224.0 .1 .1
Source IP Address:	10.10.10.20		Host IP:	0.0.0.0
Priority (0-7):	7	*	Bandwidth (Kbit/s) (0-65534):	5000
Grade:	no-grade	*	Multicast VLAN(1-4095):	
Preview Parameter				
Preview Profile: 0				
Attribute Parameter				
Preioin Attribute			Host Attribute	
Unsolicited Attribu	te		🖌 Log Attribute	
🗌 Across VLAN Attrik	iute			
			OK	Cancel Annly

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.

- g. In the dialog box that is displayed, select the required OLT and click **Next**. Then, set **VLAN ID** to **1000**.
- h. Click OK.
- 7. Configure a multicast user on the OLT side.

To enable user authentication, select **Enable Authorization**. To add a rights profile and apply it to NEs, choose **Configuration** > **Access Profile Management** > **IGMP Profile** from the main menu and click the **Right Profile** tab.

- a. Choose **Multicast** > **Multicast** User from the navigation tree.
- b. In the information list, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Alias: IGMPUserA
 - Unlimited Band Width: selected
 - Select Service Port: service virtual port named IGMP

User						
Select Device						
Device Name	e: 10.71.227	.35				
arameters						
Name:		0_2_1_0_0/use	nvlan/30 Alias	8:	IGMPUse	erA
Max. Progra	ms NO.(1-32)	8	• 🗹 E	nable Log Switch		
Quick Leave	Mode:	mac-based	• [] [] []	nable Authorizati	on	
(0-4294967	and width(Kbi 294):	05)	V	nlimited Band W	idth 🗹 Recei	ive Global-Leave
elect Servic	e Port					
11					🗸 Find	No. 2, Total:
Name 🛆	Alias 🗠	Connection Type \sim	Interface Infor	Service Type 🗠	Service Para	Jpstream Traffic Nam
233/0_2		LAN-GPONONT LAN	Frame: 0/Slot:	Multi-Service V	User VLAN: I	DEFAULT_SCOS1
FMP		LAN-GPON	Frame: 0/Slot:	Multi-Service V	. User VLAN: I	FTTX
el						
9					/	
				L D D D D D D D D D D D D D D D D D D D		ah Carrel
			< <u>B</u> ac	K Next	e <u>E</u> ini	sn Cancel

- d. Click Finish.
- e. Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- f. In the dialog box that is displayed, select the record where **Multicast VLAN ID** is set to **1000** and click **OK**.

Tease	simplar query cor	rencent)				TINK	140. 2, 10tal
	Name		Alias	Multicast VLAN ID		IGMP Version	1
	dd Multicast	VLAN				×	tv_off
IGMPV	Total : 1. Suc	eeded : 1.	Failed : 0				igmp
			100	%			
				<u>D</u> etails <<		se	
	No. Devi	ce Name	Name	Result	Failure	Cause	
	10.71.	227.35	IGMPVIan_1000) Succeeded			
	<						
<)		

----End

Result

The user can watch program1 on TV.

3.2.7 Configuring GPON FTTH Layer 3 Bridge Multicast Service on the NMS

This topic describes how to configure the multicast service when an ONT is connected to an OLT through a GPON port.

Prerequisite

The OLT must be added to the U2000.

Example Network

- The ONT is connected to the OLT in Layer 3 bridge mode.
- The OLT uses IGMP proxy, which is a Layer 2 multicast protocol.
- The IGMP version of the multicast VLAN is IGMPv3.
- Multicast programs are configured statically.



Figure 3-6 Configuring the GPON FTTH multicast service

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **Traffic Profile** from the navigation tree.
 - b. Click the **MEF IP Traffic Profile** tab.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480

-	Outer	Priority:	1
---	-------	-----------	---

 Configure the desired parameters. When parameter CIR is not set, para 	meter CBS, parameter PIR, and parameter
 PBS do not need to be configured. He Parameter PIR must be greater than 	re, the rate is not restricted. or equal to parameter CIR.
Parameter PBS must be greater that	n or equal to parameter CBS.
rofile Parameters	
Name:	FTTx
Alias:	
CIR (Kbit/s) (64-10240000):	20480 Unlimited
CBS (bytes) (2000-10240000):	657360
PIR (Kbit/s) (64-10240000):	40960
PBS (bytes) (2000-10240000):	1312720
Outer Priority (0-7):	1
Outer Copy Priority:	Assign Priority 💌
Index of Outer Priority Mapping Profile:	1
Inner Priority (0-7):	0
Inner Copy Priority:	Assign Priority 💌
Index of Inner Priority Mapping Profile:	1
Priority Policy:	Local-Setting 💌
Traffic Color Mode:	color-blind 🗸

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

2. Configure a DBA profile.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the **DBA Profile** tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Ac	d DBA Profile					×
	Profile Parameters					
	Name:	FTTx				*
	Alias:					
	T-CONT type:	Maximum	Bandwidth		•	
	Assured Bandwidth (Kbit/s) (128-1235456):	128				
	Fixed Bandwidth (Kbit/s) (128-1235456):	128				
	Maximum Bandwidth (Kbit/s) (128-1235456):	32768				*
	Bandwidth Compensation:	No			-	
L		Ć	ок	Cancel	Apply	

e. Click OK.

- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.

3. Configure a line profile.

In a line profile, a GEM port can be bound to up to eight service streams. In a GEM port, different GEM connections need to be set up for different service streams.

In this example, the mapping between GEM ports and MDU-side services is implemented through VLANs, and the service streams of each service are mapped to GEM port 1. In addition, different GEM connections are set up for the management VLANs and the VLANs for the Internet, voice, and multicast services.

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Line Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose Base Info. from the navigation tree and set the parameters.
 - Mapping Mode: VLAN
 - Qos Mode: Priority Queue

dd GPOW Line Profile		
Name: FTTx	* Alias:	
Configuration	Name	Value
🗕 🗕 Base Info.	Upstream FEC Switch	OFF
⊞- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	ок	Cancel <u>A</u> pply

- Right-click T-CONT Info. in the navigation tree and choose ADD T-CONT from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - T-CONT Index: 1
 - DBA Profile: FTTx

ame: FTTx	* Alias:
Configuration Base Info. Line Ethernet port binding group T-CONT Incont T-CONT Incont T-CONT	ADD T-COIT
<>	

- Right-click **T-CONT1** in the navigation tree and choose **Add GEM Port** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - GEM Port Index: 1
 - Priority Queue: 1

ame: FTTx	* Alias:	
Configuration Base Info. Une - Ethernet port binding group - T-CONT Info. - T-CONTO - T-CONTO - T-CONTO - CONTO -	ADD GEN Port -GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch:	
<		OK Cancel

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 0 (this parameter is set to **0** automatically)
 - VLAN ID: 10 (Internet access user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx		* Alias [.] DD GEE Connection	×
Configuration Base Info. Cune Ethernet port binding grou T-CONT Info. T-CONT0 T-CONT0 CONT0	GEM F Priorit CAR F Servic Encry	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-7): VLAN ID(1-4094): Priority: Port Type: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			OK Cancel
	_	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 1 (this parameter is set to 1 automatically)
 - VLAN ID: 20 (Voice user-side VLAN ID)

Add GPON Line Profile		X
Name: FTTx	* Alias:	
A	UD GE Connection	<u>×</u>
Configuration GEM F	GEM Connection Parameters	
Ethernet port binding grou	GEM Port Index(0-1023):	1
E T-CONT Info. CAR T-CONTO Servic	GEM Connection Index(0-7):	0*
ADD GEM Connection	VLAN ID(1-4094):	20
DEL GEM Port	Priority:	•
	Port Type:	•
	Port ID(1-8):	
	BindGroup ID:	
	CAR Profile:	
<		OK Cancel
	ОК	Cancel <u>A</u> pply

- Right-click GEM Port1 in the navigation tree and choose Add GEM
 Connection from the shortcut menu. In the dialog box that is displayed, set the parameter.
 - GEM Connection Index: 2 (this parameter is set to 2 automatically)
 - VLAN ID: 30 (Multicast user-side VLAN ID)

Add GPON Line Profile			×
Name: FTTx		* Alias:	
Configuration ├── Base Info. ⊡── Line ├── Ethernet port binding grou	GEM F Priorit	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1	X
T-CONT Info. T-CONTO T-CONTO T-CONT1 CONT1	CAR Servic Engry	GEM Connection Index(0-7): 0 VLAN ID(1-4094): 30	*
DEL GEM Port		Priority:	•
		Port ID(1-8):	
		CAR Profile:	
		ОК	Cancel
		OK Canc	el <u>A</u> pply

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile.

The service profile type should be consistent with the actual ONT type.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities of HG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

- a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **PON Profile** > **GPON Profile** from the navigation tree.
- b. Click the Service Profile tab.
- c. Right-click and choose Add Global Profile from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Number of CATV Ports: 1

lame: FTTx	* Alias:	
Configuration	Name Value	
 Base Info. 	Number of Pots Ports(0-8) 2	^
UNI Port	Number of IPhost Ports 1	
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type E1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports (0-8) 0	
	Number of CATV Ports(0-8) 1	=
	MAC Address Learning Swit ON	
	Transparent Transmission OFF	
	Multicast Mode Unconcern	
	Multicast forward mode Untag	
	Multicast forward VLAN(1-40	
	Upstream IGMP packet forw Unconcern	
	Upstream IGMP packet forw	
	Upstream IGMP Packet For	~

- e. Click OK.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. **Confirm the ONT.**

- a. In the Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.
- b. Choose GPON > GPON Management from the navigation tree.
- c. On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- d. In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- e. Select the ONU tab page. Click the Auto Discover ONUs tab.
- f. In the window that is displayed, select **6877687714852901** as the ONU record and click **Confirm**.
 - Name: ONT
 - ONU ID: 0
 - ONU Type: ONT
 - On the **Basic Parameters** tab page, set the parameters.
 - Line Profile: FTTx (click next to Line Profile and select the line profile named FTTx in the dialog box that is displayed)
 - Service Profile: FTTx (click next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: SN
 - Terminal Type: 247
 - Software Version: V1R002C06 (or V1R002C07)

Confirm ONU		
Affiliated Port:	0/2/1	Splitter:
Name:	ONT	Alias:
ONU ID(0-127):	Auto Assign 0	Splitter Port ID(1-128): 1
ONU Type:	ONT •	
Basic Paramet	ers Network Management C	hannel Parameters
Line Profile:	FTTX*	Service Profile: FTTx*
Alarm Profile:		ONU VAS Profile:
Optic Alarm Pr	ofile:	
Authenticatio	n Info	
Authenticati	on Mode: SN 🗸	★ Timeout Duration ✓ No Limit ///**********************************
SN:	6877687714852901	Password:
ONU Type		
Verdor ID:	HWTC(2011)	Terminal Type: 247 💌
Software Ve	ersion: V1R002C06	
		Locate to ONU list after operation succeeds
		Cancel Apply

- g. Click OK.
- Configure the multicast service.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the OLT. To navigate to the NE Explorer of the OLT, do as follows: In the

Main Topology, double-click the required OLT in the **Physical Root** navigation tree; or right-click the required OLT and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the OLT side.

A service VLAN is the VLAN used for the multicast service.

- a. Choose VLAN from the navigation tree.
- b. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1000
 - Type: Smart VLAN

Add VLAN		×
	VLAN ID(1-4095):	1000 *
	Name:	VLANID_1000
	Alias:	
	Type:	Smart VLAN 🔹 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured
	B	Back Next Done Cancel

d. Click **Next**. Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN			×
Base Info Configure VLAN	Sub Port L3 Interface	Extended Info	
	Physical Port List Physical Port List Slot09 Parameter Slot19 Parameter Slot20	> >> <<	SubPort List
	<u>B</u> ack	Next	2one <u>C</u> ancel

- e. Click Done.
- 2. Add a service virtual port on the OLT side.
 - a. On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - b. In the information list, right-click and choose Add from the shortcut menu.

- c. In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - VIAN Choice: Smart VLAN
 - Connection Type: LAN-GPON (when the physical port is a GPON port) or LAN-EPON (when the physical port is an EPON port)
 - Interface Selection: 0/2/1/0/1 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 1000 (SVLAN ID)
 - Service Type: Multi-Service VLAN
 - User VLAN: 30 (CVLAN ID)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: ip-traffic-table_6 (it is recommended that you use the default profile ip-traffic-table_6 because the OLT does not limit the rates of service streams)

acie Info			Attributoe		
			Aunoutes		
ID(1-32768):					
Name: IC	MP	*	Connection Type:	LAN-GPON	-
Alias:					
etwork Side			User Side		
Bundle ID(1-8	192):				
	Owned Mahl		Interface Coloritory	0/2///0/1	
VLAN Choice:	Smart VLAN		Interface Selection:		•
Tag-Transform:		•	Service Type:	Multi-Service VLAN	-
VLAN ID(1-4095):	1000		User VLAN(1-4095):	30	-
Cos value(0-7):		*			
raffic Profile Info					
Voon the une	troom and downstroom and	tings the same			
Neep the ups	ream and downstream set	ungs the same			
Upstream Traffic	Profile: FTTx		Downstream Traffic Profi	le: FTTX	

- d. Click **OK**.
- 3. Add a multicast VLAN on the OLT side.
 - a. Choose Multicast > Multicast VLAN from the navigation tree.
 - b. On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - c. In the information list, right-click and choose Add from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 1000

Device Name:	10.71.227.35				•
Name:			Alias:		
IGMP Version:	IGMP V3		💌 * 🗌 Defau	t VLAN	
Autogeneration P	rogram IP Address		Work Mode		
Program Match	Mode: • Enable	O Disable	IGMP Work M	ode:	igmp_proxy -
Start IP Address	s: <u></u>		Snooping Re	oort Switch:	O Open 💿 Close
End IP Address			Shooping Lea	ive Switch:	Onen O Close
			IGMP Video M	ode:	Multicast
			IGMP Inner VI	AN(1~4095)	
				2010(11:14033).	
			< <u>B</u> ack	t> Ei	inish Cance
ld Multicast \	VLAN				
Default Up Po	rt Info				
Frame: 0		Slot: 19		Port: 0	
Parameter Inf	0				
IGMP Repor (0-7):	t Priority 6		Report Interval (10-5000):	(S) 10	
Len Outbeler			Olahal Laava (Section (A)	0
Log Switch.	Oper		Giubai-Leave a	owitch. 👻	open O close
		< <u>B</u> ack	<u>N</u> ext>) <u>E</u> inish	Cancel
ld Bultica	st VLAN				
ld Hultica -SelectVLAN	st VLAN	Nov. 1	x (, , , , , , , , , , , , , , , , , ,		
ld Ultica Select VLAP Please in	st VLAN N nput query condi	tion	≶ F	ind	No. 8, Total:11
Select VLAN	st VLAN N nput query condi	tion	✓ F Type ∧	nd Attribute	No. 8, Total:11
Select VLAN Please in VLAN ID ~ 1	st VLAN nput query condi Name VLANID_1	tion	✓ FI Type ∧ Smart VLAN	nd Attribute Common	No. 8, Total:1 Super VLAN
d Eultica -Select VLAP Please ir VLAN ID ~ 1 51	st VLAX nput query condi Name VLANID_1 VLANID_51	tion Xias	Type ^ Type ^ Smart VLAN Smart VLAN	nd Attribute Common Common	No. 8, Total:1 Super VLAN
Id Tultica Select VLAF Please in VLAN ID ~ 1 51 100	St VLAN	tion Rias	✓ F Type △ Smart VLAN Smart VLAN Smart VLAN Smart VLAN	nd Attribute Common Common	No. 8, Total:11
Id Bultica Select VLAF Please in VLAN ID ~ 1 51 100 111 200	N Apput query condi Name VLANID_1 VLANID_51 VLANID_100 VLANID_101 VLANID_200	tion Rias	 Type ^ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN 	nd Attribute Common Common Common	No. 8, Total:11
d Eultica -Select VLAI Please ir VLAN ID ~ 1 51 100 111 200 230	VLAY nput query condit Name VLANID_1 VLANID_51 VLANID_100 VLANID_111 VLANID_200 VLANID_230	tion 3	Type ^ Smart VLAN	nd Attribute Common Common Common Common	No. 8, Total:11
d Eultica Select VLAI Please ir VLAN ID ^ 1 51 100 111 200 230 501	VLAT nput query condit Name VLANID_1 VLANID_51 VLANID_100 VLANID_111 VLANID_200 VLANID_230 VLANID_501	tion 3	 Type ~ Type A Smart VLAN 	nd Attribute Common Common Common Common Common Common QinQ	No. 8, Total:11
d Bultics -Select VLAI Please ir VLAN ID ~ 1 51 100 111 200 230 501 1000	VLAN nput query condi VLANID_1 VLANID_51 VLANID_51 VLANID_100 VLANID_111 VLANID_200 VLANID_230 VLANID_501 VLANID_501	tion S Alias		nd Attribute Common Common Common Common Common Common QinQ Common	No. 8, Total:11 Super VLAN
d Bultics -Select VLAI Please ir VLAN ID ~ 1 51 100 111 200 230 501 1000 1001	VLAN nput query condi Name VLANID_1 VLANID_1 VLANID_51 VLANID_100 VLANID_111 VLANID_200 VLANID_230 VLANID_501 VLANID_501 VLANID_10 VLANID_10	tion Since State S	 Type ^ Type ^ Smart VLAN 	nd Attribute Common Common Common Common Common QinQ Common QinQ	No. 8, Total:11 Super VLAN
d Bultics -Select VLAI Please ir VLAN ID ~ 1 51 1000 1111 2000 2300 501 1000 1001 1233	VLAN nput query condi VLANID_1 VLANID_1 VLANID_51 VLANID_100 VLANID_200 VLANID_230 VLANID_501 VLANID_10 VLANID_10 VLANID_10	tion Since Alias	 Type ^ Type ^ Smart VLAN 	nd Attribute Common Common Common Common Common QinQ Common QinQ Stacking	No. 8, Total:11 Super VLAN
d Solution -Select VLAI Please ir VLAN ID ~ 1 51 1000 1111 2000 2300 501 1000 1001 1233 3454	VLAN nput query condi VLANID_1 VLANID_1 VLANID_51 VLANID_100 VLANID_200 VLANID_230 VLANID_501 VLANID_10 VLANID_10 VLANID_10 VLANID_30 VLANID_30 VLANID_10 VLANID_30	tion Since Alias	 Type ^ Type ^ Smart VLAN 	nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:1 Super VLAN
d Bultics -Select VLAI Please in 1 51 100 1111 200 230 501 1000 1001 1233 3454	VLAX nput query condi VLANID_1 VLANID_51 VLANID_51 VLANID_100 VLANID_200 VLANID_230 VLANID_501 VLANID_10 VLANID_10 VLANID_10 VLANID_334	tion	 Type ~ Type ~ Smart VLAN 	nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:11 Super VLAN
d Tultica -Select VLAI Please in VLAN ID ~ 1 51 100 1111 200 230 501 1000 1001 1233 3454	VLAX nput query condi Name VLANID_1 VLANID_51 VLANID_100 VLANID_100 VLANID_200 VLANID_200 VLANID_501 VLANID_10 VLANID_10 VLANID_10 VLANID_334	tion	 Type Type Smart VLAN 	nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:1* Super VLAN
d Tultica -Select VLAI Please ir VLAN ID ~ 1 51 100 1111 200 230 501 1000 1001 1233 3454	VLAY nput query condi Name VLANID_1 VLANID_51 VLANID_100 VLANID_100 VLANID_200 VLANID_200 VLANID_200 VLANID_10 VLANID_10 VLANID_10 VLANID_10 VLANID_134	tion S	✓ ✓ F Type ∧ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:11 Super VLAN
d Tultica -Select VLAI Please ir VLAN ID ~ 1 51 100 111 200 230 501 1000 1001 1233 3454	VLAY nput query condit Name VLANID_1 VLANID_51 VLANID_100 VLANID_111 VLANID_200 VLANID_200 VLANID_10 VLANID_10 VLANID_10 VLANID_10 VLANID_10 VLANID_10	tion Since the second s		nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:11 Super VLAN
d Tultica -Select VLAI Please ir VLAN ID ~ 1 51 100 111 200 230 501 1000 1001 1233 3454	VLAY Name VLANID_1 VLANID_11 VLANID_51 VLANID_100 VLANID_111 VLANID_200 VLANID_200 VLANID_200 VLANID_10 VLANID_10 VLANID_10 VLANID_12 VLANID_334	tion State	 Type ^ Type ^ Smart VLAN 	nd Attribute Common Common Common Common QinQ Stacking Common	No. 8, Total:11 Super VLAN
d Tultics Select VLAI Please ir VLAN ID ~ 1 51 1000 1111 2000 2300 5011 1000 1001 1233 3454	St VLAX Aput query condi A Name VLANID_1 VLANID_51 VLANID_100 VLANID_100 VLANID_200 VLANID_200 VLANID_200 VLANID_501 VLANID_501 VLANID_10 VLANID_10 VLANID_1 VLANID_34	tion	 Type ^ Type ^ Smart VLAN 	nd Attribute Common Common Common Common QinQ Stacking Common	No. 8, Total:11
d Tultica -Select VLAI Please in VLAN ID ~ 1 51 100 1111 200 230 501 1000 1001 1233 3454	St VLAY	tion	Type Type Smart VLAN	nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:1*
d Soltica Select VLAI Please ir VLAN ID ~ 1 51 100 230 501 1000 1001 1233 3454	VLAY nput query condi Name VLANID_1 VLANID_51 VLANID_100 VLANID_100 VLANID_200 VLANID_200 VLANID_10 VLANID_10 VLANID_10 VLANID_10 VLANID_334	tion		nd Attribute Common Common Common Common QinQ Common QinQ Stacking Common	No. 8, Total:1*

- e. Click Finish.
- 4. Add a virtual upstream port for the multicast service on the OLT side.
 - a. Choose **Multicast** > **Virtual Uplink Port** from the navigation tree.

- b. On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
- c. In the information list, right-click and choose Add from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	×
Location Info	
Device Name: 10.71.227.35	•
Multicast VLAN Info	Uplink Port Info
	Frame: 0 *
VLAN ID(1-4095): 1000 *	Slot: 19 *
	Port: 0 *
	OK Cancel <u>A</u> pply

- e. Click Done.
- 5. Configure a program profile on the OLT side.
 - a. Choose **Configuration** > **Access Profile Management** from the main menu. In the dialog box that is displayed, choose **IGMP Profile** from the navigation tree.
 - b. Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - c. Right-click and choose Add Global Profile from the shortcut menu.
 - d. In the dialog box that is displayed, set the parameters.
 - Name: program1
 - Start IP Address: 224.0.1.1 (IP address of the multicast program)
 - End IP Address: 224.0.1.1
 - Source IP Address: 10.10.10.20 (IP address of the multicast server)
 - Preview Profile: 0 (the default value)

Add Program Profile			×
Description Info Configure the desir When the program can not have a source program must have	ed parameters. is provisioned, if the IGMF ce IP address.If the IGMP a source IP	' version of the multicast VLAN i version of the multicast VLAN is	s V2, the program V3, address.the
Name:	program1		*
Alias:			
Profile Index (1-1024):	1		*
Begin IP Address:	224.0 .1 .1 *	End IP Address:	224.0 .1 .1 *
Source IP Address:	10.10.10.20	Host IP:	* 0.0.0
Priority (0-7):	7*	Bandwidth (Kbit/s) (0-65534):	5000 *
Grade:	no-grade 💌 \star	Multicast VLAN(1-4095):	
Preview Parameter			
Preview Profile: 0			*
Attribute Parameter			
🗌 Prejoin Attribute		🗾 Host Attribute	
🔲 Unsolicited Attribu	ite	🗾 Log Attribute	
Across VLAN Attrit	oute		
		ок с	ancel <u>A</u> pply

- e. Click **OK**.
- f. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- g. In the dialog box that is displayed, select the required OLT and click **Next**. Then, set **VLAN ID** to **1000**.
- h. Click OK.
- 6. Configure a multicast user on the OLT side.

To enable user authentication, select **Enable Authorization**. To add a rights profile and apply it to NEs, choose **Configuration** > **Access Profile Management** > **IGMP Profile** from the main menu and click the **Right Profile** tab.

- a. Choose **Multicast** > **Multicast** User from the navigation tree.
- b. In the information list, right-click and choose **Add** from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.
 - Alias: IGMPUserA
 - Unlimited Band Width: selected
 - Select Service Port: service virtual port named IGMP

User						
Select Device						
Device Name	10.71.227	.35				
'arameters						
Name:		0_2_1_0_0/use	rvlan/30 Alias		IGMPUse	erA
Max. Program	ms NO.(1-32)	: 8	* 🗹 EI	hable Log Switch		
0.111.1.0.00	Marta					
WUICK Leave	Mode:	mac-based	• I E	nable Authorizatio	n	
User Max Ba	nd Width(Kbi	t/s)	🗹 U	nlimited Band Wid	ith 🗾 Rece	ive Global-Leave
(0-4234307)	234).				_	
elect Service	Port					
11					🗸 Find	No. 2, Total:
Name 🛆	Alias 🛆	Connection Type 🔿	Interface Infor	Service Type ^	Service Para	Jøstream Traffic Nam
233/0_2		LAN-GPONONT LAN	Frame: 0/Slot:	Multi-Service V	User VLAN:	DEFAULT_SCOS1
ЭМР		LAN-GPON	Frame: 0/Slot:	Multi-Service V	User VLAN:	FTTx
۹Ì						1

- d. Click Finish.
- e. Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- f. In the dialog box that is displayed, select the record where **Multicast VLAN ID** is set to **1000** and click **OK**.

ld Multicast	VLAN to user					
Please inpu	ist VLAN ut query condition	1		•	Eind	No. 2. Total:2
Na	me	Alias	Multicast VLA		IGMP Versio	n
IGMPV Add N	Multicast VLAN				×	tv_off igmp_i
	tar. 1, Succeede	u.i,Faneu.u 1	00%			
			<u>D</u> etails <<		<u>C</u> lose	
1	lo. Device Na	me Name	Resul	Fa	ilure Cause	
	10.71.227.3	5 [IGMPVIan_10	00 Succeeded			
	r					
	^					
<				J		>
				ОК	Cancel	Apply

- 7. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-IPTV
 - Vendor ID: HWTC(2011)

- Terminal Type: 247
- Version: V1R002C06-Later

Add OHT VAS Pro	ofile				×
Profile Name:	ONT-IPTV	*	Vendor ID:	HWTC(2011)	*
Terminal Type:	247	*	Version:	V1R002C06 ~ Later	*
 ⇒ 247 Config In → Time ⊕ Services ⊕ WAN Devi ⊕ LANDevic → ALG Abilit ⊕ Security ⊕ Layer 3 For 	fo. ice e y onwarding	Paramet	er Name	Parameter Value	
	Import.	Export		OK Cancel	Apply

- d. Configure the working mode of a LAN port.
 - a. In the navigation tree, choose LANDevice > LAN Interface 1 > LAN Interface.
 - b. Select LAN Interface, right-click, and choose Add. Add LAN Ethernet Configuration 2 and LAN Ethernet Configuration 3.
 - c. Select LAN Ethernet Configuration 3 and set LAN Port two three-port enable to enable. This indicates that LAN 3 works in Layer 3 mode.

- If LAN Port two three-port enable is disable, the LAN port works in the Layer 2 mode.
- If LAN Port two three-port enable is enable, the LAN port works in the Layer 3 mode.

LAN Port two three-port enable is defaulted to disable.

By default, the system has one LAN Ethernet Configuration 1 node. To add multiple nodes, select LAN Interface, right-click, and choose Add from the shortcut menu.

Add OHT VAS Pro	ofile				2
Profile Name:	ONT-IPTV	*	Vendor ID:	HWTC(2011)	· · · · · ·
Terminal Type:	247	*	Version:	V1R002C06	~ Later 🔹 🔻
-247 Config In Time -Time -Services WNN Devic -LANDevic -LANDevic -LANC Abilit -Security -Layer 3 Fo	rfo. ice ie nterface 1 UN Interface UAN Ethernet Configuration 1 UAN Ethernet Configuration 2 UAN Ethernet Configuration 3 y orwarding	LAN	Parameter Ethernet Cont port two three	Name figuration ind -port enable	Parameter Value 3 enable
	Import	oort		K Ca	incel <u>Apply</u>

- e. Configure parameters of a WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu.
 - b. Select WAN IP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-IPTV
 - WAN Enable: enable
 - Connection Type: IP_Bridged
 - VLAN ID: 30 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 4
 - MultiCast VLAN ID: 1000 (The multicast VLAN ID of the ONT must be the same as the multicast VLAN ID configured on the OLT.)

Add OHT WAS Pro	file					x
Profile Name:	ONT-IPTV	*	Vendor ID:	HWTC(2011)	*
Terminal Type:	247	*	Version:	V1R002	2006 ~ Later	*
Config International Actions Config International Actions Config International Actions Configuration Configuration	fo. ce Device 1 AN Connection 1 	WAIY WAIY WAIY Con NAT V V V Mult Add Serv DNS DNS DNS	Parameter N. N IP interface in N Enable inection Type Tenabled /Ian ID(1~4094 Priority(0~7) tiCast VLAN(1~ ressing Type vice Type S Enabled S Server ion60 Vender C	ame ndex ne () () () () () () () () () () () () ()	Parameter Value ONT-IPTV enable IP_Bridged disable 30 4 1000 Static INTERNET enable	
	Import	xport	. 0	K (Cancel <u>A</u> pply	

- f. Configure multicast parameters.
 - a. In the navigation tree, choose **Services** > **IGMP**. Select **IGMP** and enter proper values.
 - WAN Port IGMP Switch: Enable
 - Proxy Switch: Disable
 - Snooping Switch: Enable

	rile		
Profile Name:	ONT-IPTV	* Vendor ID: HWT	(2011) 👻
Terminal Type:	247	▼ * Version: V1R0	2C06 ~ Later 🛛 🔻
 ⊇47 Config Inf Time Services ⊕ Voice ⊕ Portal ⊕ WAN Devic ↓ LANDevice ↓ ALG Ability ⊕ Security ⊕ Layer 3 Fo 	o. Service Se Se Se Service	Parameter Name WAN Port IGMP Switch Proxy Switch Snooping Switch Robustness General Query Interval(S) General Query Qesponse Specific Query Number Specific Query Number Specific Query Response	Parameter Value Enable Disable 2 125 100 2 10

The ONT multicast modes (IGMP proxy and IGMP snooping) conflict. Only one mode is supported at a time.

- g. Configure a routing policy.
 - a. In the navigation tree, choose Layer 3 Forwarding > Policy Route. Select Policy Route, right-click, and choose Add from the shortcut menu.

- b. Select **Policy Route 1** and enter proper values.
 - Physical Port Name: LAN3
 - WAN Interface Name: WAN1(ONT-IPTV)

Add ONT VAS Pro	file						X
Profile Name: Terminal Type:	ONT-IPTV 247	•	 Vendor ID: Version: 	HWTC(2011) !C06 ~ Lai	ter	• *
247 Config In Time Services WAN Devi LANDevic ALG Abilit Security Layer 3F(Policy Layer 3F(Policy Layer 3F(Policy Layer 3F(Double)	fo. ce e / orwarding Route Bicy Route 1	H H > [>] > [>]	Parameter N olicy Route Type hysical Port Nam endor ID (AN Interface Nar	ame Ie ne	Par SourceP LAN3 WAN1(O	ameter Va hyPort	v ▼
	Import	Ехро	rt 0	IK (Cancel		pply

To bind a LAN port to a WAN port, set **Physical Port Name** and **WAN Interface Name**. The preceding figure shows that WAN 1 is bound to LAN 3.

To bind a WAN port to multiple LAN ports, set **Physical Port Name** to **LAN1,...,LANx**. For example, to bind WAN 1 to LAN 1 and LAN 2, set **Physical Port Name** to **LAN1,LAN2**.

- h. Click **OK** to complete the configuration of the new profile.
- 8. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.

```
----End
```

Result

The user can watch program1 on TV.

3.3 Configuration by Using OLT Commands

This topic describes how to configure the Internet access service, VoIP service and IPTV service by using OLT commands.

3.3.1 Data Plan

This topic plans the data in a unified manner for connecting to the OLT in the FTTH GPON access mode for various example networks. The subsequent examples are configured based on the following data plan.

Data Plan

Table 3-4 provides the unified data plan for configuring the HSI, IPTV, and VoIP services in an FTTH network.

Service Classificati on	Item	Data	Remarks
Network data	FTTH	 OLT PON port: 0/1/1 ONT ID: 1-2 	-
Service VLAN	HSI service	SVLAN: 100CVLAN: 10	-
	IPTV service	 Multicast VLAN: 1000 SVLAN: 1000 CVLAN: 30 	Generally, multicast VLANs are divided according to multicast sources.
	VoIP service	SVLAN: 200CVLAN: 20	-
QoS (priority)	HSI service	Priority: 1; queue scheduling: WRR	• Generally, the QoS priorities
	IPTV service	Priority: 4; queue scheduling: WRR	are VoIP service > IPTV service > Internet access
	VoIP service	Priority: 6; queue scheduling: PQ	 service in a descending order. Generally, the priority is set on the ONT, and the OLT inherits the priority set on the ONT.

Table 3-4 Data plan for the FTTH GPON access

Service Classificati on	Item	Data	Remarks
QoS (DBA)	HSI service	 Profile type: Type4 Maximum bandwidth: 100 Mbit/s T-CONT ID: 4 	 DBA is used to control the upstream bandwidth of the ONT. DBA
	IPTV service	 Profile type: Type4 Maximum bandwidth: 60 Mbit/s T-CONT ID: 3 	profiles are bound to TCONTs. Different TCONTs are
	VoIP service	 Profile type: Type3 Assured bandwidth: 15 Mbit/s Maximum bandwidth: 30 Mbit/s T-CONT ID: 2 	 planned for different bandwidth assurance types. Generally, the service with a high priority adopts a fixed bandwidth or an assured bandwidth, and the service with a low priority adopts the maximum bandwidth or best effort.
QoS (CAR)	HSI service	Upstream and downstream bandwidth: 4 Mbit/s	• Traffic control can be
	IPTV service	No rate limitation in the upstream and downstream directions	the BRAS, or on the OLT or ONT by using port rate
	VoIP service	No rate limitation in the upstream and downstream directions	 limitation or using a traffic profile to limit the upstream and downstream traffic. Generally, in the case of FTTH, limit the rate on the OLT.
IPTV service data	Multicast protocol	OLT: IGMP proxyONT: IGMP snooping	-

Service Classificati on	Item	Data	Remarks
	Multicast version	IGMP V3	IGMP v3 and IGMP v2 are supported, and IGMP v3 is compatible with IGMP v2.
	Multicast program configuration mode	Static configuration mode	The OLT can also generate a multicast program library, that is, dynamically generate a program list according to the programs requested by users. In this mode, the program list need not be configured or maintained; however, the functions such as program management, user multicast bandwidth management, program preview, and program prejoin are not supported.
	IP address of the multicast server	10.10.10.10	-
	Multicast program	224.1.1.10	-
VoIP service data	MG interface (H. 248) NOTE The parameters of the MG interface must be the same as the parameters on the MGC. H.248 has many negotiation parameters, and the parameters here are mandatory.	IP address of the primary MGC to which the MG interface belongs: 200.200.200.200/24	When dual homing is configured, the IP address and the port
		Port ID of the primary MGC to which the MG interface belongs: 2944	MGC must also be configured.
		 MID format: domain name MG domain name: 6877687714852901 	Domain name is globally unique. This example uses ONT's SN as the domain name.
		TID: A0 and A1	The phone numbers of terminals A0 and A1 are 88001234 and 88001235.

Service Classificati on	Item	Data	Remarks
	SIP interface (SIP) NOTE The parameters of the SIP interface must be the same as the parameters on the softswitch. SIP has many negotiation parameters, and the parameters here are mandatory.	IP address of the primary softswitch to which the SIP interface belongs: 200.200.200.200/24	When dual homing is configured, the IP address and the port ID of the secondary
		Port ID of the primary softswitch to which the SIP interface belongs: 5060	softswitch must also be configured.
		Home domain of the SIP interface: softx3000.huawei.com	-
		Digitmap: x.S x.# (Default)	-
		User 1:	-
		• Phone number: 88001234	
		 Authentication user name: 88001234@softx3000.hua wei.com 	
		• Password: iadtest1	
		User 2:	
		• Phone number: 88001235	
		• Authentication user name: 88001235@softx3000.hua wei.com	
		• Password: iadtest2	

3.3.2 Configuring the GPON FTTH Layer 2 Internet Access Service on the OLT CLI

The OLT is connected to the remote ONT through a GPON port to provide users with the high-speed Internet access service.

Service Requirements

- The user PC is connected to the ONT through the LAN port in the PPPoE dialing mode. The ONT is connected to the OLT and then to the upper-layer network in the GPON mode to provide the high-speed Internet access service.
- The high-speed Internet access service is identified by two precisely-bound VLAN tags. On the ONT, each user is allocated with a CVLAN; on the OLT, each slot is allocated with an SVLAN.

• The high-speed Internet access service adopts a bandwidth-ensured mode with the maximum bandwidth 100 Mbit/s as the DBA profile and performs the 4 Mbit/s rate limitation on both the upstream and downstream directions.

Item	Data
OLT	Service VLAN ID: 100
	Service VLAN type: Smart
	Service VLAN attribute: stacking
	Upstream port: 0/19/0
ONT	ONT IDs: 1 and 2
	ID of the port on the ONT that is connected to the PC: 1
	Type of the port on the ONT that is connected to the PC: ETH
	VLAN ID of the port on the ONT that is connected to the PC: 10

Prerequisite

- The OLT is connected to the BRAS.
- Related configurations are performed on the BRAS according to the authentication and accounting requirements for dialup users. For details about the configuration, see the corresponding configuration guide.
- The VLAN of the LAN switch port connected to the OLT is the same as the upstream VLAN of the OLT.

Procedure

- Configure the OLT.
 - 1. Create a service VLAN and add an upstream port to it.
 - The VLAN ID is 100, and the VLAN is a smart VLAN, VLAN attribute is stacking. Add upstream port 0/19/0 to VLAN 100.

```
huawei(config)#vlan 100 smart
huawei(config)#vlan attrib 100 stacking
huawei(config)#port vlan 100 0/19 0
```

2. (Optional) Configure upstream link aggregation.

In this example, a single upstream port is used. In the case of multiple upstream ports, upstream link aggregation can be configured. For details, see Configuring Upstream Link Aggregation.

3. Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.
- a. Configure a DBA profile.

You can run the **display dba-profile** command to query the DBA profiles existing in the system. If the DBA profiles existing in the system do not meet the requirements, you need to run the **dba-profile add** command to add a DBA profile.

Set the DBA profile ID to 10, type to type4, and maximum bandwidth to 100 Mbit/s.

huawei(config)#dba-profile add profile-id 10 type4 max 102400

b. Configure an ONT line profile.

Create GPON ONT line profile 10 and bind T-CONT 4 to DBA profile 10.

huawei(config)#ont-lineprofile gpon profile-id 10 huawei(config-gpon-lineprofile-10)#tcont 4 dba-profile-id 10

Create GEM port 1 for carrying traffic streams of the ETH type and bind GEM port 1 to T-CONT 4. Set the QoS mode to priority-queue (default).

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gemcar or flow-car, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

huawei(config-gpon-lineprofile-10)#gem add 1 eth tcont 4

Configure the service mapping mode from the GEM port to the ONT to VLAN (default), and map CVLAN 10 to GEM port 1.

huawei(config-gpon-lineprofile-10)#mapping-mode vlan huawei(config-gpon-lineprofile-10)#gem mapping 1 0 vlan 10

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-lineprofile-10)#commit
huawei(config-gpon-lineprofile-10)#quit

c. Configure an ONT service profile.

The ID of the VLAN to which ETH port 1 belongs is 10.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

huawei(config)#ont-srvprofile gpon profile-id 10 huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1 huawei(config-gpon-srvprofile-10)#port vlan eth 1 10

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-srvprofile-10)#commit
huawei(config-gpon-srvprofile-10)#quit

- d. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.
 - Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.
- 4. Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

a. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
```

b. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-autofind** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#port 1 ont-auto-find enable

```
huawei(config-if-gpon-0/1)#display ont autofind 1
      //After this command is executed, the information about all ONTs
    connected to
    the GPON port through the optical splitter is displayed.
    _____
       Number
                          : 1
                       : 0/1/1
       F/S/P
       Ont SN
                         : 6877687714852900
       Password
                         :
: HWTC
       VenderID
       Ont Version : 120D0010
       Ont SoftwareVersion : V1R002C06
       Ont EquipmentID : 247
       Ont autofind time : 2010-12-10 14:59:10
          _____
    ___
                      : 2
: 0/1/1
: 6877687714852901
       Number
       F/S/P
       Ont SN
                         :
       Password
       VenderID : HWTC
Ont Version : 120D0010
       Ont SoftwareVersion : V1R002C06
       Ont EquipmentID : 247
       Ont autofind time : 2010-12-10 14:59:12
    _____
    ___
    huawei(config-if-gpon-0/1) #ont confirm 1 ontid 1 sn-auth
    6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10
    huawei(config-if-gpon-0/1) #ont confirm 1 ontid 2 sn-auth
    6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10
    If multiple ONTs of the same type are connected to a port and the same line profile or service
    profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered
    ONTs in batches to simplify the operation and increase the configuration efficiency. For
    example, the preceding command can be modified as follows:
    huawei(config-if-gpon-0/1) #ont confirm 1 all sn-auth omci ont-
    lineprofile-id 10 ont-srvprofile-id 10
    (Optional) Bind an alarm profile to the ONT.
С
    In this example, bind the default alarm profile, namely alarm profile 1 to the
    ONT.
    huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1
    huawei(config-if-gpon-0/1) #ont alarm-profile 1 2 profile-id 1
Confirm that the ONT goes online normally.
```

5.

After an ONT is added, run the **display ont info** command to query the current status of the ONT. Ensure that Control flag of the ONT is active, Run State is online, Config state is normal, and Match state is match.

huawei(config-if-gpon-0/1) #display ont info 1 1

```
_____
 F/S/P
                :
0/1/1
 ONT-ID
               :
1
 Control flag
               : active //Indicates that the ONT is
activated.
 Run state
                        //Indicates that the ONT goes online
               : online
normally.
```
Config state of the	: normal	//Indicates that the configuration status $% \left($
		ONT is normal.
Match state	: match	//Indicates that the capability profile
bound to		
		the ONT is consistent with the
actual capability		
		of the ONT.
//The rest of the	e response i	nformation is omitted.

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If **Control flag** is **deactive**, run the **ont activate** command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, **Run state** is **offline**, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.
- If the ONT state fails, that is, Config state is failed, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the display ont failed-configuration command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, Match state is mismatch, the port types and number of ports undermatch the actual port types and number of ports supported by the ONT. In this case, run the display ont capability command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:
 - Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
 - Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.
- 6. Specify the native VLAN for the ONT port.

ETH port 1 on the ONT is connected to the PC and the native VLAN is VLAN 10. huawei(config-if-gpon-0/1) **#ont port native-vlan 1 1 eth 1 vlan 10** huawei(config-if-gpon-0/1) **#ont port native-vlan 1 2 eth 1 vlan 10**

7. Configure a traffic profile.

You can run the **display traffic table ip** command to query the traffic profiles existing in the system. If the traffic profiles existing in the system do not meet the requirements, you need to run the **traffic table ip** command to add a traffic profile.

The profile ID is 8, the CIR is 4 Mbit/s, the priority is 1, and packets are scheduled according to the priority carried.

huawei(config-if-gpon-0/1)#quit
huawei(config)#traffic table ip index 8 cir 4096 priority 1 prioritypolicy tag-In-Package

8. Create service ports.

Set the service port indexes to 1 and 2, SVLAN ID to 100, GEM port ID to 1, and CVLAN ID to 10. Use traffic profile 8.

huawei(config)#service-port 1 vlan 100 gpon 0/1/1 ont 1 gemport 1 multiservice user-vlan 10 rx-cttr 8 tx-cttr 8 huawei(config)#service-port 2 vlan 100 gpon 0/1/1 ont 2 gemport 1 multiservice user-vlan 10 rx-cttr 8 tx-cttr 8

9. Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you do not need to configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

10. Save the data.

huawei(config)#**save**

Configure the ONT.

The ONT is connected to the upper-layer device in Layer 2 mode. Users perform PPPoE dialup on their PCs and no configuration is required on the ONT.

----End

Result

After physical port LAN1 on the ONT is connected to a PC, perform PPPoE dialup using software on the PC. After successful PPPoE dialup, the user can access the Internet following entering correct network addresses.

Configuration File

```
vlan 100 smart
vlan attrib 100 stacking
port vlan 100 0/19 0
dba-profile add profile-id 10 type4 max 102400
ont-lineprofile gpon profile-id 10
tcont 4 dba-profile-id 10
gem add 1 eth tcont 4
mapping-mode vlan
gem mapping 1 0 vlan 10
commit
quit
ont-srvprofile gpon profile-id 10
ont-port eth 4 pots 2 catv 1
port vlan eth 1 10
commit
quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10 descont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-
```

```
lineprofile-id 10 ont-srvprofile-id 10 descont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
ont port native-vlan 1 1 eth 1 vlan 10
ont port native-vlan 1 2 eth 1 vlan 10
quit
traffic table ip index 8 cir 4096 priority 1 priority-policy tag-In-Package
service-port 1 vlan 100 gpon 0/1/1 ont 1 gemport 1 multi-service user-vlan 10 rx-
cttr 8 tx-cttr 8
service-port 2 vlan 100 gpon 0/1/1 ont 2 gemport 1 multi-service user-vlan 10 rx-
cttr 8 tx-cttr 8
queue-scheduler wrr 10 10 20 20 40 0 0 0
cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
save
```

3.3.3 Configuring the GPON FTTH Layer 3 Internet Access Service on the OLT CLI

The OLT is connected to the remote ONT through a GPON port to provide users with the high-speed Internet access service.

Service Requirements

- Users' PCs are connected to the ONT using the LAN port. IP addresses of users' PCs are allocated by the DHCP IP address pool on the ONT. After PPPoE auto dialup is performed on the ONT, the ONT is connected to the upper-layer device in GPON mode to implement high-speed Internet access service.
- The high-speed Internet access service is identified by two precisely-bound VLAN tags. On the ONT, each user is allocated with a CVLAN; on the OLT, each slot is allocated with an SVLAN.
- The high-speed Internet access service adopts a bandwidth-ensured mode with the maximum bandwidth 100 Mbit/s as the DBA profile and performs the 4 Mbit/s rate limitation on both the upstream and downstream directions.

Item	Data
OLT	Service VLAN ID: 100
	Service VLAN type: Smart
	Service VLAN attribute: stacking
	Upstream port: 0/19/0
ONT	ONT IDs: 1 and 2
	ID of the port on the ONT that is connected to the PC: 1
	Type of the port on the ONT that is connected to the PC: ETH
	VLAN ID of the port on the ONT that is connected to the PC: 10
	User name for PPPoE dialup: iadtest@pppoe; password: iadtest

Prerequisite

- The OLT is connected to the BRAS.
- Related configurations are performed on the BRAS according to the authentication and accounting requirements for dialup users. For details about the configuration, see the corresponding configuration guide.
- The VLAN of the LAN switch port connected to the OLT is the same as the upstream VLAN of the OLT.

Procedure

- Configure the OLT.
 - 1. Create a service VLAN and add an upstream port to it.

The VLAN ID is 100, and the VLAN is a smart VLAN, VLAN attribute is stacking. Add upstream port 0/19/0 to VLAN 100.

huawei(config)#vlan 100 smart
huawei(config)#vlan attrib 100 stacking
huawei(config)#port vlan 100 0/19 0

2. (Optional) Configure upstream link aggregation.

In this example, a single upstream port is used. In the case of multiple upstream ports, upstream link aggregation can be configured. For details, see Configuring Upstream Link Aggregation.

3. Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.
- a. Configure a DBA profile.

You can run the **display dba-profile** command to query the DBA profiles existing in the system. If the DBA profiles existing in the system do not meet the requirements, you need to run the **dba-profile add** command to add a DBA profile.

Set the DBA profile ID to 10, type to type4, and maximum bandwidth to 100 Mbit/s.

huawei(config)#dba-profile add profile-id 10 type4 max 102400

b. Configure an ONT line profile.

Create GPON ONT line profile 10 and bind T-CONT 4 to DBA profile 10.

huawei(config)#ont-lineprofile gpon profile-id 10 huawei(config-gpon-lineprofile-10)#tcont 4 dba-profile-id 10 Create GEM port 1 for carrying traffic streams of the ETH type and bind GEM port 1 to T-CONT 4. Set the QoS mode to priority-queue (default).

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gemcar or flow-car, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

huawei(config-gpon-lineprofile-10) #gem add 1 eth tcont 4

Configure the service mapping mode from the GEM port to the ONT to VLAN (default), and map CVLAN 10 to GEM port 1.

```
huawei(config-gpon-lineprofile-10)#mapping-mode vlan
huawei(config-gpon-lineprofile-10)#gem mapping 1 0 vlan 10
```

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-lineprofile-10)#commit huawei(config-gpon-lineprofile-10)#quit

c. Configure an ONT service profile.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

huawei(config)#ont-srvprofile gpon profile-id 10 huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-srvprofile-10)#commit huawei(config-gpon-srvprofile-10)#quit

- d. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.

- Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.
- 4. Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

a. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
```

b. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-autofind** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1) #port 1 ont-auto-find enable
huawei(config-if-gpon-0/1)#display ont autofind 1
  //After this command is executed, the information about all ONTs
connected to
the GPON port through the optical splitter is displayed.
_____
____
  Number
                   : 1
                   : 0/1/1
  F/S/P
  Ont SN
                  : 6877687714852900
  Password
  VenderID : HWTC
Ont Version : 120D0010
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
Ont autofind time : 2010-12-10 14:59:10
_____
                : 2
: 0/1/1
: 6877687714852901
  Number
  F/S/P
  Ont SN
  Password
  VenderID
  VenderID : HWTC
Ont Version : 120D0010
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
  Ont autofind time : 2010-12-10 14:59:12
_____
___
huawei(config-if-gpon-0/1) #ont confirm 1 ontid 1 sn-auth
6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1) #ont confirm 1 ontid 2 sn-auth
6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10
```

If multiple ONTs of the same type are connected to a port and the same line profile or service profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered ONTs in batches to simplify the operation and increase the configuration efficiency. For example, the preceding command can be modified as follows: huawei (config-if-gpon-0/1) #ont confirm 1 all sn-auth omci ontlineprofile-id 10 ont-sryprofile-id 10

c. (Optional) Bind an alarm profile to the ONT.

In this example, bind the default alarm profile, namely alarm profile 1 to the ONT.

huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1
huawei(config-if-gpon-0/1)#ont alarm-profile 1 2 profile-id 1

5. Confirm that the ONT goes online normally.

After an ONT is added, run the **display ont info** command to query the current status of the ONT. Ensure that **Control flag** of the ONT is **active**, **Run State** is **online**, **Config state** is **normal**, and **Match state** is **match**.

huawei(config-if-gpon-0/1)#display ont info 1 1

```
_____
 F/S/P
                    :
0/1/1
 ONT-ID
                    •
1
 Control flag
                    : active
                               //Indicates that the ONT is
activated.
 Run state
                    : online
                               //Indicates that the ONT goes online
normally.
 Config state
                   : normal
                             //Indicates that the configuration status
of the
                                     ONT is normal.
 Match state
                              //Indicates that the capability profile
                   : match
bound to
                                     the ONT is consistent with the
actual capability
                                     of the ONT.
...//The rest of the response information is omitted.
```

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If **Control flag** is **deactive**, run the **ont activate** command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, Run state is offline, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.
- If the ONT state fails, that is, **Config state** is **failed**, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the **display ont failed-configuration** command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, **Match state** is **mismatch**, the port types and number of ports undermatch the actual port types and number of ports supported

by the ONT. In this case, run the **display ont capability** command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:

- Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
- Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.
- 6. Configure a traffic profile.

You can run the **display traffic table ip** command to query the traffic profiles existing in the system. If the traffic profiles existing in the system do not meet the requirements, you need to run the **traffic table ip** command to add a traffic profile.

The profile ID is 8, the CIR is 4 Mbit/s, the priority is 1, and packets are scheduled according to the priority carried.

```
huawei(config-if-gpon-0/1)#quit
huawei(config)#traffic table ip index 8 cir 4096 priority 1 priority-
policy tag-In-Package
```

7. Create service ports.

Set the service port indexes to 1 and 2, SVLAN ID to 100, GEM port ID to 1, and CVLAN ID to 10. Use traffic profile 8.

```
huawei(config)#service-port 1 vlan 100 gpon 0/1/1 ont 1 gemport 1 multi-
service user-vlan 10 rx-cttr 8 tx-cttr 8
huawei(config)#service-port 2 vlan 100 gpon 0/1/1 ont 2 gemport 1 multi-
service user-vlan 10 rx-cttr 8 tx-cttr 8
```

8. Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you need not configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

9. Save the data.

huawei(config)#**save**

• Configure the optical network terminal (ONT) on the Web page.

Layer 3 route mode is used for connecting an ONT to the upper-layer device. IP addresses of users' PCs are allocated by the DHCP IP address pool on the ONT. PPPoE auto dialup is performed on the ONT. Parameters of the WAN port must be configured on the ONT.

1. Log in to the Web configuration window.

- a. Configure the IP address of the PC network adapter to be in the same network segment as the IP address of the local maintenance Ethernet port of the ONT (default: **192.168.100.1**).
- b. Open the Web browser, and enter the IP address of the local maintenance Ethernet port of the ONT.
- c. On the login window, enter the user name (default: **telecomadmin**) and password (default: **admintelecom**) of the administrator. After the password authentication is passed, the Web configuration window is displayed.
- 2. Configure the working mode of a LAN port.
 - a. In the navigation tree, choose LAN > LAN Port Work Mode. Select the check box of LAN 1 and set LAN1 to work in the Layer 3 mode.

On this page, you can config ports will be assigned as H	gure the LAN ports to work in laye G ports.	er3 mode by selecting the corres	ponding check box.The layer3
🗹 LAN1	LAN2	LAN3	LAN4
			Apply Cancel

- b. Click **Apply** to apply the configuration.
- 3. Configure parameters of a WAN port.
 - a. In the navigation tree, choose WAN > WAN Configuration.
 - b. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of a WAN port as follows:
 - WAN Connection: Enable
 - Service List: INTERNET (For configuring the Internet access service, INTERNET or a combination containing INTERNET needs to be selected.)
 - Mode: Route
 - VLAN ID: 10 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p: 1
 - IP Acquisition Mode: PPPoE
 - NAT: Enable (NAT must be enabled to configure the Internet access service.)
 - User Name: iadtest@pppoe, Password: iadtest (The user name and password must be the same as the user name and password configured on the BRAS.)
 - Binding options: LAN1

AN > WAN Configuration				
On this page, you can con the upper-layer network eo	figure WAN paramet quipment, and the pa	ters. The ON arameters m	T home gateway u ust be consistent	uses the WAN interface to communicate with for both.
				New Delete
Connectio	n Name	VLA	N/Priority	IP Acquisition Mode
Enable WAN Connection:	V			
Mode:	Route	*		
Service List:	INTERNET	*		
VLAN ID:	10		(0-4094)	
802.1p:	1	*		
MultiCast VLAN ID:			1-4094)	
IP Acquisition Mode:	O DHCP O	Static 💿 P	PPoE	
Enable NAT:				
User Name:	iadtest@pppoe	*	(1-63)Characters	
Password:	•••••	•	(1-63)Characters	
Dial Method:	Auto	*		
Binding options:	LAN1	LAN2 SSID2	LAN3	LAN4 SSID4
	Apply Ca	ncel		

- c. Click **Apply** to apply the configuration.
- 4. Save the configuration.

In the navigation tree, choose **System Tools** > **Configuration File**. In the right pane, click **Save Configuration** to save the configuration.

You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Upload Configuration File

5. Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at **IP**.

On this page, you can	i query the con	nection status and li	ne status of the WA	N interface.			
WAN Name	Status	IP Acquisition Mode	IP Address	Subnet Mask	VLAN/Priority	MAC Address	Connect
1_INTERNET_R_VID_10	Disconnected	PPPoE	192.168.11.52	255.255.255.0	10/1	78:1D:BA:3C:9F:34	AlwaysOn

• Configure the ONT on the U2000.

Layer 3 route mode is used for connecting the ONT to the upper-layer device. IP addresses of users' PCs are allocated by the DHCP IP address pool on the ONT. PPPoE auto dialup is performed on the ONT. Parameters of the WAN port must be configured on the ONT.

The following uses batch configurations of creating a value-added service profile of the ONT as an example. To configure an ONT, on the GPON ONU tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.

- 1. Log in to the NMS (iManager U2000 V100R003C00) and start the FTP service.
- 2. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.

- b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
- c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-HSI
 - Vendor ID: HWTC(2011)
 - Terminal Type: 247
 - Version: V1R002C06-Later

dd UNI VAS Pr	otile						2
Profile Name:	ONT-HSI] *	Vendor ID:	HWTC(2	:011)	•
Terminal Type:	247	•	*	Version:	V1R002	C06 ~ Later	*
E-247 Config In ⊢ Time ⊕ Services ⊕ WAN Der ⊕ LANDevi ⊢ ALG Abili ⊕ Security ⊕ Layer 3 F	nto. ice by orwardling	Param	eter	Name		Parameter V	alue
		nport Exp	oort		ОК	Cancel	Apply

d. Configure the working mode of a LAN port.

In the navigation tree, choose LANDevice > LAN Interface 1 > LAN Interface > LAN Ethernet Configuration 1. Select LAN Ethernet Configuration 1 and set LAN port two three-port enable to enable (indicating that LAN 1 works in the Layer 3 mode).

- If LAN port two three-port enable is disable, the LAN port works in the Layer 2 mode.
- If LAN port two three-port enable is enable, the LAN port works in the Layer 3 mode.

LAN port two three-port enable is defaulted to disable.

By default, the system has one LAN Ethernet Configuration 1 node. To add nodes, select LAN Interface, right-click, and choose Add from the shortcut menu.

Add OHT VAS Pro	ofile					2
Profile Name:	ONT-HSI	*	Vendor ID:	HWTC(2011)	*
Terminal Type:	247	*	Version:	V1R002C08	i ~ Later	•
	fo. ice e Herface 1 N Interface <u>LAN Ethernet Configuration 1</u> y	LAN	Parameter Ethernet Conf port two three	Name iguration Ind port enable	Param 1 enable	eter Value
	Import	Expor	t)	ок)	Cancel	Apply

- e. Configure parameters of a WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add PPP Connection from the shortcut menu.
 - b. Select WAN PPP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-HSI
 - WAN Enable: enable
 - Connection Type: IP_Routed
 - NATEnable: Enable (NAT must be enabled to configure the Internet access service.)
 - Service Type: INTERNET (For configuring the Internet access service, INTERNET or a combination containing INTERNET needs to be selected.)
 - VLAN ID: 10 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 1

Profile Name: ONT-HSI + Vendor ID: HWTC(2011) Terminal Type: 247 • Vendor ID: HWTC(2011) 247 Config Info. • VIR002C06 ~ Later • 247 Time • Parameter Name Parameter Value WAN Device • WAN Device 1 • • WAN Connection 1 • WAN Connection 1 • • WAN PPP Interface • MATEnabled enable • • LANDevice 1 • • WAN PPP Interface • • • WAN Connection 1 • WAN PPP Interface • • • • • LANDevice 1 • • • • • • • • • WAN Connection 1 • <td< th=""><th>d ONT WAS Profile</th><th></th><th>2</th></td<>	d ONT WAS Profile		2
Parameter Name Parameter Value	Profile Name: ONT-HSI	* Vendor ID: HWTC((011) 🔹
→ 247 Config Info. → Time Parameter Name	Terminal Type: 247	▼ * Version: V1R002	C06 ~ Later 🔷 💌
Dial Interval(s)(180~3600) 180	erminal type: 247 = 247 Config Info. → Time ⊕ Services = WAN Device ⊕ WAN Device 1 ⊕ WAN Connection 1 ⊕ WAN Connection 1 ⊕ WAN PPP Interface ↓ WAN PPP Interface 1 ⊕ LANDevice 1 ⊕ LANDevice 1 ⊕ Layer 3 Forwarding	Parameter Name WAN PPP Interface Index WAN PPP Interface Index WAN Enable Connection Type NATEnabled Service Type II Vian ID(1~4094) IV Priority(0~7) MutilCast VLAN(1~4094) Dial Method Dial Interval(s)(180~3600)	Parameter Value Parameter Value 1 ONT-HSI enable IP_Routed INTERNET 10 1 Auto 180

- f. Configure a routing policy.
 - a. In the navigation tree, choose Layer 3 Forwarding > Policy Route. Select Policy Route, right-click, and choose Add.
 - b. Choose **Policy Route 1** and enter proper values.
 - Physical Port Name: LAN1
 - WAN Interface Name: WAN1(ONT-HSI)

Add OHT VAS Profile							×
Profile Name: ONT-HSI		*	Vendor ID:	HWTC(2	011)		*
Terminal Type: 247		*	Version:	V1R002	CO6 ~ Lat	er	▼*
247 Config Info. Time Services WAN Device LANDevice LA Oblity Security Security Policy Route Policy Route 1		Policy Physi Vend WAN	Parameter N y Route Type ical Port Name or ID Interface Nam	ame e ne	Pa SourceP LAN1 WAN1(O	rameter V hyPort	alue v
	Import	Export		ок	Canc	el 🗌	Apply

To bind a LAN port to a WAN port, set **Physical Port Name** and **WAN Interface Name**. The preceding figure shows that WAN 1 is bound to LAN 1.

To bind a WAN port to multiple LAN ports, set **Physical Port Name** to **LAN1,...,LANx**. For example, to bind WAN 1 to LAN 1 and LAN 2, set **Physical Port Name** to **LAN1,LAN2**.

- g. Click **OK** to complete the configuration of the new profile.
- 3. Bind the value-added service profile.

- a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- b. In the navigation tree, choose GPON > GPON Management.
- c. In the window on the right, choose **GPON ONU**.
- d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
- e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.
- 4. Configure the ONT value-added service.
 - a. On the **GPON ONU** tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
 - b. Configure the user name and password for PPPoE dialup.

In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection > WAN Connection 1 > WAN PPP Interface > WAN PPP Interface 1. Select WAN PPP Interface 1, and set User Name to iadtest@pppoe and Password to iadtest. The user name and password must be the same as those configured on the BRAS.

Configure VAS						
Profile Name:	ONT-HSI		Vendor ID:	HWTC((2011)	
Terminal Type:	247	-	Version:	V1R00	2C06	-
Activated Status:	Aactivated					
247 Config Into Time Services WAN Device WAN Device ALG Ability Security E Layer 3 For	Config Info. Time Services WAN Device 1 → WAN Connection 1 → WAN Connection 1 → WAN PPP Interface 1 LANDevice LALO Ability Security Layer 3 Forwarding		Parameter Na IPPP interface I Interface Nam Enabled Enabled Interface Name sword ice Type ID(1~4094) rity(0~7) Cast VLAN(1~4 Method Interval(s)(180-	ime index e 	Parameter Value 1 ONT-HSI enable enable enable iadtest@pppoe iNTERNET 10 1 Auto 180	
				[Switch to Curre	ent ONT Task
	Unbind	Import	Expor	t	ОК	Cancel

c. Click **OK**. In the dialog box that is displayed, click **OK**. The configurations take effect without the requirement of resetting the ONT.

----End

Result

The PC obtains the IP addresses automatically. After the PPPoE dialup is successfully performed on the ONT, the PC can automatically obtain the IP addresses allocated by the ONT through DHCP. Then, the Internet access service is provisioned after Websites are entered into Internet Explorer (IE) address bars of the PC.

Configuration File

```
vlan 100 smart
vlan attrib 100 stacking
port vlan 100 0/19 0
dba-profile add profile-id 10 type4 max 102400
ont-lineprofile gpon profile-id 10
tcont 4 dba-profile-id 10
gem add 1 eth tcont 4
mapping-mode vlan
gem mapping 1 0 vlan 10
commit
auit.
ont-srvprofile gpon profile-id 10
ont-port eth 4 pots 2 catv 1
commit
quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-
id 10 ont-srvprofile-id 10ont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
quit
traffic table ip index 8 cir 4096 priority 1 priority-policy tag-In-Package
service-port 1 vlan 100 qpon 0/1/1 ont 1 qemport 1 multi-service user-vlan 10 rx-
cttr 8 tx-cttr 8
service-port 2 vlan 100 gpon 0/1/1 ont 2 gemport 1 multi-service user-vlan 10 rx-
cttr 8 tx-cttr 8
queue-scheduler wrr 10 10 20 20 40 0 0 0
cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
save
```

3.3.4 Configuring the GPON FTTH VoIP Service (H.248 Protocol) on the OLT CLI

The OLT is connected to the remote ONT through a GPON port to provide users with the IPbased high-quality and low-cost VoIP service.

Service Requirements

- The ONT is connected to the MGC through H.248.
- The ONT obtains the IP address through DHCP.
- Two phone sets are connected to two TEL ports of the ONT respectively, and calls can be made between two phone sets.
- Users of phone sets under different ONTs can call and communicate with each other.
- The DBA mode of the VoIP service is assured bandwidth + maximum bandwidth, and no rate limitation is performed on the upstream and downstream traffic.

Item	Data
OLT	S-VLAN ID: 200
	S-VLAN type: smart VLAN
	Upstream port: 0/19/0
	C-VLAN ID: 20

Table 3-7 Data plan

Item	Data
ONT	ONT ID: 1 and 2
	IP address of the MGC server: 200.200.200/24
	Port ID of the MGC server: 2944
	MG registration mode: domain name
	MG domain name: 6877687714852901
	Terminal IDs of line 1 and line 2: A0 and A1

Prerequisite

- The interface data and the PSTN user data corresponding to the MG interface must be configured on the MGC.
- The OLT must be connected to the MGC. The IP address of the MGC server can be pinged from the OLT.
- For the ONT, to provision different voice services, you must select different software versions. Before configuration, ensure that the ONT's version is V100R002C07.

Procedure

- Configure the OLT.
 - Create a service VLAN and add an upstream port to it. The VLAN ID is 200, and the VLAN is a smart VLAN. Add upstream port 0/19/0 to

VLAN 200. huawei(config)#vlan 200 smart huawei(config)#port vlan 200 0/19 0

2. (Optional) Configure upstream link aggregation.

In this example, a single upstream port is used. In the case of multiple upstream ports, upstream link aggregation can be configured. For details, see Configuring Upstream Link Aggregation.

3. Enables ARP proxy.

For different users of the same SVLAN, because the service ports of the smart VLAN are isolated from each other, the voice media streams cannot interchange normally. Therefore, the ARP proxy function of the OLT needs to be enabled.

```
huawei(config)#arp proxy enable
huawei(config)#interface vlanif 200
huawei(config-if-vlanif200)#arp proxy enable
huawei(config-if-vlanif200)#quit
```

4. Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.

- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.
- a. Configure a DBA profile.

Run the **display dba-profile** command to query the existing DBA profiles in the system. If the existing DBA profiles in the system do not meet the requirement, run the **dba-profile add** command to create a DBA profile.

Set the DBA profile ID to 20, type to Type3, assured bandwidth to 15 Mbit/s, and maximum bandwidth to 30 Mbit/s.

huawei(config)#dba-profile add profile-id 20 type3 assure 15360 max 30720

b. Configure an ONT line profile.

Create GPON ONT line profile 10 and bind T-CONT 2 to DBA profile 20.

huawei(config)#ont-lineprofile gpon profile-id 10 huawei(config-gpon-lineprofile-10)#tcont 2 dba-profile-id 20

Create GEM port 2 for carrying traffic streams of the ETH type and bind GEM port 2 to T-CONT 2. Set the QoS mode to priority-queue (default).

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gemcar or flow-car, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

huawei(config-gpon-lineprofile-10)#gem add 2 eth tcont 2

Configure the mapping between the GEM port and the ONT-side service to the VLAN mapping mode (default) and map the service port of CVLAN 20 to GEM port 2.

huawei(config-gpon-lineprofile-10)#mapping-mode vlan huawei(config-gpon-lineprofile-10)#gem mapping 2 1 vlan 20

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-lineprofile-10)#commit
huawei(config-gpon-lineprofile-10)#quit

c. Configure an ONT service profile.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

huawei(config)#ont-srvprofile gpon profile-id 10 huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-srvprofile-10)#commit
huawei(config-gpon-srvprofile-10)#quit

- d. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.
 - Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.
- 5. Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

a. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
```

b. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-autofind** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

_____ : 1 : 0/1/1 : 6877687714852900 : Number F/S/P Ont SN Password Ont Version . 100 : 120D0010 Ont SoftwareVersion : V1R002C06 Ont EquipmentID : 247 Ont autofind time : 2010-12-10 14:59:10 _____ Number : 2 : 2 : 0/1/1 : 6877687714852901 F/S/P Ont SN Password : : HWTC VenderID Ont Version : 120D0010 Ont SoftwareVersion : V1R002C06 Ont EquipmentID : 247 Ont autofind time : 2010-12-10 14:59:12 _____ ___ huawei(config-if-gpon-0/1) #ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10 huawei(config-if-gpon-0/1) #ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10

If multiple ONTs of the same type are connected to a port and the same line profile or service profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered ONTs in batches to simplify the operation and increase the configuration efficiency. For example, the preceding command can be modified as follows: huawei(config-if-gpon-0/1)**#ont confirm 1 all sn-auth omci ont-**

lineprofile-id 10 ont-srvprofile-id 10c. (Optional) Bind an alarm profile to the ONT.

In this example, bind the default alarm profile, namely alarm profile 1 to the

ONT.

huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1 huawei(config-if-gpon-0/1)#ont alarm-profile 1 2 profile-id 1

6. Confirm that the ONT goes online normally.

After an ONT is added, run the **display ont info** command to query the current status of the ONT. Ensure that **Control flag** of the ONT is **active**, **Run State** is **online**, **Config state** is **normal**, and **Match state** is **match**.

huawei(config-if-gpon-0/1)#display ont info 1 1

```
F/S/P
                     :
0/1/1
 ONT-ID
                     •
1
 Control flag
                    : active //Indicates that the ONT is
activated.
 Run state
                    : online
                                //Indicates that the ONT goes online
normally.
                  : normal //Indicates that the configuration status
 Config state
of the
                                       ONT is normal.
 Match state
                               //Indicates that the capability profile
                   : match
bound to
```

the ONT is consistent with the of the ONT.

...//The rest of the response information is omitted.

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If **Control flag** is **deactive**, run the **ont activate** command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, **Run state** is **offline**, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.
- If the ONT state fails, that is, Config state is failed, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the display ont failed-configuration command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

actual capability

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, Match state is mismatch, the port types and number of ports undermatch the actual port types and number of ports supported by the ONT. In this case, run the display ont capability command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:
 - Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
 - Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.
- 7. Configure a traffic profile.

You can run the **display traffic table ip** command to query the traffic profiles existing in the system. If the traffic profiles existing in the system do not meet the requirements, you need to run the **traffic table ip** command to add a traffic profile.

The profile ID is 9, no rate limitation in the upstream and downstream directions, the priority is 6, and packets are scheduled according to the priority carried.

huawei(config-if-gpon-0/1)#quit
huawei(config)#traffic table ip index 9 cir off priority 6 priority-policy
tag-In-Package

8. Create service ports.

Set the service port indexes to 3 and 4, SVLAN ID to 200, GEM port ID to 2, and CVLAN ID to 20. Use traffic profile 9.

```
huawei(config)#service-port 3 vlan 200 gpon 0/1/1 ont 1 gemport 2 multi-
service user-vlan 20 rx-cttr 9 tx-cttr 9
huawei(config)#service-port 4 vlan 200 gpon 0/1/1 ont 2 gemport 2 multi-
service user-vlan 20 rx-cttr 9 tx-cttr 9
```

9. Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you do not need to configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

10. Save the data.

huawei(config)#**save**

• Configure an optical network terminal (ONT) on the Web page.

Some voice parameters cannot be configured on the Web page but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.1 Operation Guide on the XML Configuration File (on the Web Page)**.

- 1. Log in to the Web configuration window.
 - a. Configure the IP address of the PC network adapter to be in the same network segment as the IP address of the local maintenance Ethernet port of the ONT (default: **192.168.100.1**).
 - b. Open the Web browser, and enter the IP address of the local maintenance Ethernet port of the ONT.
 - c. On the login window, enter the user name (default: **telecomadmin**) and password (default: **admintelecom**) of the administrator. After the password authentication is passed, the Web configuration window is displayed.
- 2. Configure parameters of the voice WAN port.
 - a. In the navigation tree, choose WAN > WAN Configuration.
 - b. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of the WAN port as follows:
 - WAN Connection: Enable
 - Service List: VoIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)
 - Mode: Route
 - VLAN ID: 20 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p: 6
 - IP Acquisition Mode: DHCP

/VAN > W	AN Configuration			
Onf	this page, you can confi	gure WAN parameters. The	ONT home gateway uses	the WAN interface to communicate with
the	upper-layer network eq	uipment, and the parameter	rs must be consistent for b	oth.
				New Delete
	Conne	ction Name	VLAN/Priority	IP Acquisition Mode
	1_INTER	NET_R_VID_10	10/1	PPPoE
Enable	e WAN Connection:			
Mode:		Route	*	
Servic	e List	VOIP	*	
VLAN	ID:	20	*(0-4094)	
802.1	0:	6	~	
IP Acq	uisition Mode:	⊙ DHCP ○ Static 《	PPPOE	
Vendo	r ID:		(The vendor ID must be	0 - 63 characters in length.)
		Apply Cancel		

- c. Click **Apply** to apply the configuration.
- 3. Configure the parameters of the H.248-based voice interface.
 - a. In the navigation tree, choose Voice > VoIP Interface Configuration.
 - b. In the right pane, configure the parameters of the H.248-based voice interface as follows (other parameters use the default settings):
 - Set MGC Address below Primary Server to 200.200.200.200.
 - MID Format: DomainName
 - MG Domain: 6877687714852901
 - Signaling Port: 1_VOIP_R_VID_20
 - Region: CN China

- The parameters of the H.248-based voice interface must be consistent with the corresponding configuration on the media gateway controller (MGC).
- If dual-homing is configured, MGC Address below Secondary Server must be configured.
- MID Format can be set to Domain Name, IP, or Device. If MID Format is set to Domain Name or Device, the setting must be consistent with the corresponding configuration on the MGC.
- **Domain Name** is ONT's domain name registered on the MGC. It is globally unique. **Domain Name** in this example is ONT's SN.
- If Media Port is empty, the parameter value is the same as Signaling Port. The media streams are not isolated from signaling streams. If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create different WAN ports on the ONT, and bind the created WAN ports to Media Port and Signaling Port.
- **Profile Index** can be set to **Default**, **BT**, **FT**, **KPN**, **PCCW**, **ZTE**, or **BELL**. Choose the value based on the MGC type. **Profile Index** is set to **Default** (indicating interconnection with Huawei MGC) in this example. If the settings do not meet requirements, configure **UserDefine**. For details about how to configure this parameter, contact Huawei technical support.

oice > voiP Basic Contiguration							
Interface Basic Parameters							
On this page, you can set th	ne basic parameters for the voi	ice interface.					
Prince MOO Address	200 200 200 200						
Primary MGC Address:	200.200.200.200	(IP or Domain)					
Primary MGC Port	2944	*(1-65535)					
Standby MGC Address:		(IP or Domain)					
Standby MGC Port	2944	(1-65535)					
MG Domain:	6877687714852901						
Local Port	2944	*(1-65535)					
Device Name:							
MID Format:	DomainName 🔽						
Digitmap Match Mode:	Min 🖌						
RTP TID Prefix:	A100						
Start Number of RTP TID:	0						
Width of RTP TID Number:	6						
Olevalia e Dash	1_VOIP_R_VID_20 💌 (Se	lect the name of the WAN that will carry the voice signaling					
Signaling Port.	messages.)						
Madia Bort	1_VOIP_R_VID_20 🖌 (Select the name of the WAN that will carry the voice media. The						
media Fort.	media port name is same with signaling port name when it is empty.)						
Region:	CN - China	v					
	Apply Cancel						

- c. Click **Apply** to apply the configuration.
- 4. Configure parameters of the H.248-based voice users.
 - a. In the navigation tree, choose Voice > VoIP User Configuration.
 - b. In the right pane, configure the parameters of voice user 1 as follows:
 - Line Name: A0
 - Associated POTS: 1 (binding port TEL1 on the ONT)
 - Select Enable Line Name to enable the voice user configuration.
 - c. Click **Apply** to apply the configuration.
 - d. In the right pane, click **New** to add voice user 2, and configure the parameters of voice user 2 as follows:
 - Line Name: A1
 - Associated POTS: 2 (binding port TEL2 on the ONT)
 - Select Enable Line Name to enable the voice user configuration.
 - e. Click **Apply** to apply the configuration.

- The terminal IDs A0 and A1 must be consistent with the corresponding configuration on the MGC.
- If **Associated POTS** is **1**, port TEL1 on the ONT is bound. If **Associated POTS** is **2**, port TEL2 on the ONT is bound.

On this page, you c	an set the basic parameters	for the voice users.	
			New Delete
	Sequence	Line Name	Associated POTS
	1	A0	1
✓	2		2
Enable Line Name:			
Line Name:	A1	A.	
Associated POTS:	2 💌		
Associated POTS:	2 V	rel	

5. Save the configuration.

In the navigation tree, choose **System Tools** > **Configuration File**. In the right pane, click **Save Configuration** to save the configuration.

System Tools > Configuration File
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Browse Upload Configuration File

6. Restart the voice process.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, click **Restart VoIP**.

On this page, you can query the voice user list and status.								
Sequence	Line Name	Telephone Number	User Status	Call Status	Interface Status			
1	A0		Registering	Idle	Destadios			
2	A1		Registering	Idle	Restarting			
To restart the VoIP service, click "Restart VoIP".								
Restart	VoIP							

7. Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at **IP**.

 On this page, you can query the connection status and line status of the WAN Interface.

 WAN Name
 Status
 IP Acquisition Mode
 IP Address
 Statue
 MAC Address
 Connect

 1_VOIP_R_MD_200
 Connected DHCP
 192.168.11.52
 255.255.05
 20/6
 78:1D:BA:3C:9F:34
 Awayson

8. Check the registration status of the voice user.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, **User Status** is **Up**.

on uns pag	e, you can query	the voice user list and s	tatus.					
Sequence	Line Name	Telephone Number	User Status	Call Status	Interface Status			
1	A0		Up	Idle	Inconico			
2	A1 Up Idle							
To restart the VoIP service, click "Restart VoIP".								
Restart	/oIP							

• Configure the ONT on the U2000.

Some voice parameters cannot be configured on the NMS but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.2 Operation Guide on the XML Configuration File (on the U2000)**.

The following uses batch configurations of creating a value-added service profile of the ONT as an example. To configure an ONT, on the GPON ONU tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.

- 1. Log in to the NMS (iManager U2000 V100R003C00) and start the FTP service.
- 2. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.

- b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
- c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-VoIP
 - Vendor ID: HWTC(2011)
 - Terminal Type: 247
 - Version: V1R002C06-Later

Add ONT VAS Pro	ofile						
Profile Name:	ONT-VoIP		* Ver	ndor ID:	HWTC(2	011)	*
Terminal Type:	247	•	• Ver	rsion:	V1R002	C06 ~ Later	*
E-247 Config Ir ⊢ Time ⊕ Senices ⊕ WAN Dev ⊕ LANDevic ⊢ ALG Abili ⊕ Security ⊕ Layer 3 F	ifo. ice ie y onwarding	Parar	ieter Na	me		Parameter Va	alue
	Ir	nport E	goort		ок	Cancel	Apply

- d. Configure the parameters of the voice WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu.
 - b. Select WAN IP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-VoIP
 - WAN Enable: enable
 - Connection Type: IP_Routed
 - VLAN ID: 20 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 6
 - Addressing Type: DHCP
 - Service List: VOIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)

dd UNI YAS Fr	ofile			
Profile Name:	ONT-VoIP	* Vendor ID:	HWTC(2011)	*
Terminal Type:	247	▼ * Version:	V1R002C06 ~ Later	•
E⊢ 247 Config Ir	nfo.	Parameter Nam	e Parameter Value	
Time		WAN IP interface index	1	
E- WAN Do	ico	WAN Interface Name	ONT-VoIP	
E-WAN	Device 1	WAN Enable	enable	•
É- W	AN Connection	Connection Type	IP_Routed	•
Ē	- WAN Connection 1	NATEnabled	disable	•
	WAN IP Interface	Vian ID(1~4094)	20	
🕀 LANDevi	ce	Priority(0~7)	6	
— ALG Abili	ty	MultiCast VLAN(1~4094	4)	
E Security	enuerdiea	Addressing Type	DHCP	-
⊡ – Layer 3 P	urwarung	Service Type	VOIP	-
		DNS Enabled	enable	-
		DNS Server		
		Ontion60 Vender Class	s ID	
	Import	Export	OK Cancel <u>A</u> pply	

e. Configure the voice protocol parameters.

In the navigation tree, choose **Services** > **Voice Service** > **Voice Service** 1 > **Interface configuration** > **Interface 1**. Select **Interface 1** and select a proper value.

- Signaling Protocol: H248
- Region: China
- Associate WAN Interface: WAN1(ONT-VoIP) (binding the created voice WAN port)



If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create a WAN port named **WAN-RTP** on the ONT, and set this WAN port to a media WAN port. Specifically, choose **Interface 1 > RTP** and set **Associate WAN Interface** to **WAN2(WAN-RTP)**.

Add ONT VAS Pro	ofile						X
Profile Name:	ONT-VoIP *	v	'endor ID:	HWTC(2011)			*
Terminal Type:	247 💌 *	V	ersion:	V1R002C06	~ Later		▼*
□ 247 Config In □ Time □ Services □ Voice □ LaNDevic □ LaNDevic □ Layer 3 Foi □ Layer 3 Foi	fo. Service ice Service 1 Interface Configuration Interface 1 Service 1 Interface 1 Page SIP Redundancy Jitter Buffer Redundancy Jitter Buffer Redundancy Service		Param Base of Por Top of Port DSCP(0-6 Telephone Associate	eter Name Irt(0-65535) (0-65535) 3) Event Paylo WAN Interface	Parame 50000 50020 0 97 WAN2(WAN	Ler Value	3
	Import Expor	t		ок	Cancel	<u>A</u> ppl	у

f. Configure the MGC parameters.

In the navigation tree, choose **Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > H248**. Select **H248** and enter (or select) a proper value.

- Primary MGC: 200.200.200
- MID Format: Domain name

- If dual-homing is configured, Secondary MGC must be set.
- MID Format can be set to Domain Name, IP, or Device name.



- g. Configure the voice users.
 - a. In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > User. Select User, right-click, and choose Add from the shortcut menu.

- The HG8010 does not support voice services.
- The HG8110 supports one user.
- The HG8240/HG8245/HG8247 supports a maximum of two users.
- b. Click User 1 below User and set Interface ID to 1. Click User 2 below User and set Interface ID to 2.

If **Interface ID** is **1**, port TEL1 on the ONT is bound. If **Interface ID** is **2**, port TEL2 on the ONT is bound.

Add ONT VAS Pro	ofile					×
Profile Name:	ONT-VoIP	*	Vendor ID:	HWTC(2	011)	*
Terminal Type:	247	•	Version:	V1R002	CO6 ~ Later	*
Config In Config In	fo. Service ice Service 1 — Interface Configuration → Interface Configuration → Interface 1 ↔ SIP ↔ H248 ↔ RTP → Fax T38 → Fax T38 → Fax T38 → Fax T38 → Fax T38 → User → Duser → Dus	Pai User inde) Interface IC	rameter Name	2 2 2	Parameter	r Value
	Import	Expor	t	ок	Cancel	Apply

- h. Click **OK** to complete the configuration of the new profile.
- 3. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.
- 4. Configure the ONT value-added service.
 - a. On the **GPON ONU** tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
 - b. Configure the domain name of the MG.

In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > H248. Select H248 and set Domain name to 6877687714852901.

Domain Name is ONT's domain name registered on the MGC. It is globally unique. **Domain Name** in this example is ONT's SN.

Configure VAS						×
Profile Name:	ONT-VoIP		Vendor ID:	HWT	0(2011)	-
Terminal Type:	247 💌		Version:	V1R0	V1R002C06	
Activated Status:	Aactivated					
247 Config Info Time Services Ovice Ovice	activated vice Service 1 S		rameter Name 3C 9C port(0~6553 MGC MGC port(0~65 (0~65535) ame ne 13)	5535)	Parameter Value 200.200.200.200 2944 2944 2944 6877687714852901 Domain name 0	
					Switch to Current ONT	Task
	Unbind	Import	Export	t	OK Canc	el

c. Configure the terminal ID for the H.248 voice user.

In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > User.

a. Click User 1 > H248 and set TID to A0.

romo riamo.	ONT-VOIP		Vendor ID:	HWTC(201	1)	
Terminal Type:	247	-	Version:	V1R002C0	16	-
Activated Status:	Aactivated					
- 247 Config Info - Time - Services - Voice E - Voice - V). ervice :e Service 1 Interface 1 Inter	Ires	Parame	ter Name	Parameter Value	3

b. Click User 2 > H248 and set TID to A1.



The terminal IDs A0 and A1 must be consistent with the corresponding configuration on the MGC.

d. Click **OK**. In the dialog box that is displayed, click **OK**. The configurations take effect without the requirement of resetting the ONT.

----End

Result

Connect two phone sets to two TEL ports of different ONTs, and calls can be made between two phone sets.

Configuration File

```
vlan 200 smart
port vlan 200 0/19 0
arp proxy enable
interface vlanif 200
arp proxy enable
quit
dba-profile add profile-id 20 type3 assure 16384 max 26624
ont-lineprofile gpon profile-id 10
tcont 2 dba-profile-id 20
gem add 2 eth tcont 2
mapping-mode vlan
gem mapping 2 1 vlan 20
commit
quit
ont-srvprofile gpon profile-id 10
ont-port eth 4 pots 2 catv 1
commit
quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-
```

```
srvprofile-id 10
ont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
quit
traffic table ip index 9 cir off priority 6 priority-policy tag-In-Package
service-port 3 vlan 200 gpon 0/1/1 ont 1 gemport 2 multi-service user-vlan 20 rx-
cttr 9 tx-cttr 9
service-port 4 vlan 200 gpon 0/1/1 ont 2 gemport 2 multi-service user-vlan 20 rx-
cttr 9 tx-cttr 9
queue-scheduler wrr 10 10 20 20 40 0 0 0
cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
save
```

3.3.5 Configuring the GPON FTTH VoIP Service (SIP Protocol) on the OLT CLI

The OLT is connected to the remote ONT through a GPON port to provide users with the IPbased high-quality and low-cost VoIP service.

Service Requirements

- The ONT is connected to the SIP server through SIP.
- The ONT obtains the IP address through DHCP.
- Two phone sets are connected to two TEL ports of the ONT respectively, and calls can be made between two phone sets.
- Users of phone sets under different ONTs can call and communicate with each other.
- The DBA mode of the VoIP service is assured bandwidth + maximum bandwidth, and no rate limitation is performed on the upstream and downstream traffic.

Item	Data
OLT	S-VLAN ID: 200
	S-VLAN type: smart VLAN
	Upstream port: 0/19/0
	C-VLAN ID: 20

Item	Data
ONT	ONT IDs: 1 and 2
	IP address of the SIP server: 200.200.200/24
	Port ID of the SIP server: 5060
	SIP registration domain name: softx3000.huawei.com
	Digitmap: x.S x.# (Default)
	SIP user phone number and password:
	• User 1:
	- Directory Number: 88001234
	 Auth User Name: 88001234@softx3000.huawei.com
	- Auth Password: iadtest1
	• User 2:
	- Directory Number: 88001235
	- Auth User Name: 88001235softx3000.huawei.com
	- Auth Password: iadtest2

Prerequisite

- The SIP interface data and the PSTN user data corresponding to the MG interface must be configured on the SIP server.
- The OLT must be connected to the SIP server. The IP address of the SIP server can be pinged from the OLT.
- For the ONT, to provision different voice services, you must select different software versions. Before configuration, ensure that the ONT's version is V100R002C06.

Procedure

- Configure the OLT.
 - 1. Create a service VLAN and add an upstream port to it.

The VLAN ID is 200, and the VLAN is a smart VLAN. Add upstream port 0/19/0 to VLAN 200.

```
huawei(config)#vlan 200 smart
huawei(config)#port vlan 200 0/19 0
```

2. (Optional) Configure upstream link aggregation.

In this example, a single upstream port is used. In the case of multiple upstream ports, upstream link aggregation can be configured. For details, see Configuring Upstream Link Aggregation.

3. Enables ARP proxy.

For different users of the same SVLAN, because the service ports of the smart VLAN are isolated from each other, the voice media streams cannot interchange normally. Therefore, the ARP proxy function of the OLT needs to be enabled.

huawei(config)#**arp proxy enable** huawei(config)#interface vlanif 200 huawei(config-if-vlanif200)#arp proxy enable
huawei(config-if-vlanif200)#quit

4. Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.
- a. Configure a DBA profile.

Run the **display dba-profile** command to query the existing DBA profiles in the system. If the existing DBA profiles in the system do not meet the requirement, run the **dba-profile add** command to create a DBA profile.

Set the DBA profile ID to 20, type to Type3, assured bandwidth to 15 Mbit/s, and maximum bandwidth to 30 Mbit/s.

huawei(config)#dba-profile add profile-id 20 type3 assure 15360 max 30720

b. Configure an ONT line profile.

Create GPON ONT line profile 10 and bind T-CONT 2 to DBA profile 20.

huawei(config)#ont-lineprofile gpon profile-id 10 huawei(config-gpon-lineprofile-10)#tcont 2 dba-profile-id 20

Create GEM port 2 for carrying traffic streams of the ETH type and bind GEM port 2 to T-CONT 2. Set the QoS mode to priority-queue (default).

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gemcar or flow-car, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

huawei(config-gpon-lineprofile-10)#gem add 2 eth tcont 2

Configure the mapping between the GEM port and the ONT-side service to the VLAN mapping mode (default) and map the service port of CVLAN 20 to GEM port 2.

huawei(config-gpon-lineprofile-10)#mapping-mode vlan huawei(config-gpon-lineprofile-10)#gem mapping 2 1 vlan 20

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-lineprofile-10)#commit
huawei(config-gpon-lineprofile-10)#quit

c. Configure an ONT service profile.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

```
huawei(config)#ont-srvprofile gpon profile-id 10
huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1
```

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-srvprofile-10)#commit huawei(config-gpon-srvprofile-10)#quit

- d. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.
 - Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.
- 5. Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

a. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
```

b. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-autofind** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1) #port 1 ont-auto-find enable
huawei(config-if-gpon-0/1)#display ont autofind 1
  //After this command is executed, the information about all ONTs
connected to
the GPON port through the optical splitter is displayed.
_____
____
                   : 1
  Number
                  : 0/1/1
  F/S/P
                  : 6877687714852900
  Ont SN
  Password
  VenderID : HWTC
Ont Version : 120D0010
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
  Ont autofind time : 2010-12-10 14:59:10
_____
                   : 2
  Number
  F/S/P
                   : 0/1/1
  Ont SN
                  : 6877687714852901
  Password
                  :
  VenderID : HWTC
Ont Version : 120D0010
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
Ont autofind time : 2010-12-10 14:59:12
_____
huawei(config-if-gpon-0/1) #ont confirm 1 ontid 1 sn-auth
6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1) #ont confirm 1 ontid 2 sn-auth
```

6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10

If multiple ONTs of the same type are connected to a port and the same line profile or service profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered ONTs in batches to simplify the operation and increase the configuration efficiency. For example, the preceding command can be modified as follows: huawei(config-if-gpon-0/1)#ont confirm 1 all sn-auth omci ont-lineprofile-id 10 ont-srvprofile-id 10

c. (Optional) Bind an alarm profile to the ONT.

In this example, bind the default alarm profile, namely alarm profile 1 to the ONT.

```
huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1
huawei(config-if-gpon-0/1)#ont alarm-profile 1 2 profile-id 1
```

6. Confirm that the ONT goes online normally.

After an ONT is added, run the **display ont info** command to query the current status of the ONT. Ensure that **Control flag** of the ONT is **active**, **Run State** is **online**, **Config state** is **normal**, and **Match state** is **match**.

huawei(config-if-gpon-0/1)#display ont info 1 1

F/S/P	:	
0/1/1		
ONT-ID	:	
1		
Control flag	: active	//Indicates that the ONT is
activated.		
Run state	: online	//Indicates that the ONT goes online
normally.		
Config state	: normal	//Indicates that the configuration status
of the		
		ONT is normal.
Match state	: match	//Indicates that the capability profile
bound to		
		the ONT is consistent with the
actual capability		
		of the ONT.
//The rest of the	response ir	formation is omitted.

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If **Control flag** is **deactive**, run the **ont activate** command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, **Run state** is **offline**, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.
- If the ONT state fails, that is, Config state is failed, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the display ont failed-configuration command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, Match state is mismatch, the port types and number of ports undermatch the actual port types and number of ports supported by the ONT. In this case, run the display ont capability command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:
 - Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
 - Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.
- 7. Configure a traffic profile.

Run the **display traffic table ip** command to query the existing traffic profiles in the system. If the existing traffic profiles in the system do not meet the requirements, run the **traffic table ip** command to create a traffic profile.

The profile ID is 9, no rate limitation in the upstream and downstream directions, the priority is 6, and packets are scheduled according to the priority carried.

huawei(config-if-gpon-0/1)#quit

huawei(config)#traffic table ip index 9 cir off priority 6 priority-policy
tag-In-Package

8. Create service ports.
Set the service port indexes to 3 and 4, SVLAN ID to 200, GEM port ID to 2, and CVLAN ID to 20. Use traffic profile 9.

```
huawei(config-if-gpon-0/1)#quit
huawei(config)#service-port 3 vlan 200 gpon 0/1/1 ont 1 gemport 2 multi-
service user-vlan 20 rx-cttr 9 tx-cttr 9
huawei(config)#service-port 4 vlan 200 gpon 0/1/1 ont 2 gemport 2 multi-
service user-vlan 20 rx-cttr 9 tx-cttr 9
```

9. Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you do not need to configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

```
huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
```

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

- 10. Save the data.
 - huawei(config)#**save**
- Configure the optical network terminal (ONT) on the Web page.

Some voice parameters cannot be configured on the Web page but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.1 Operation Guide on the XML Configuration File (on the Web Page)**.

- 1. Log in to the Web configuration window.
 - a. Configure the IP address of the PC network adapter to be in the same network segment as the IP address of the local maintenance Ethernet port of the ONT (default: **192.168.100.1**).
 - b. Open the Web browser, and enter the IP address of the local maintenance Ethernet port of the ONT.
 - c. On the login window, enter the user name (default: **telecomadmin**) and password (default: **admintelecom**) of the administrator. After the password authentication is passed, the Web configuration window is displayed.
- 2. Configure parameters of the voice WAN port.
 - a. In the navigation tree, choose WAN > WAN Configuration.
 - b. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of the WAN port as follows:
 - WAN Connection: Enable
 - Service List: VoIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)
 - Mode: Route

- VLAN ID: 20 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
- 802.1p: 6

- IP Acquisition Mode: DHCP

AN > WAN Contiguration			
On this page, you can con the upper-layer network e	figure WAN parameters. The quipment, and the paramete	ONT home gateway uses rs must be consistent for b	the WAN interface to communicate with oth.
			New Delete
Conn	ection Name	VLAN/Priority	IP Acquisition Mode
1_INTER	NET_R_VID_10	10/1	PPPoE
Enable WAN Connection:			
Mode:	Route	~	
Service List	VOIP	~	
VLAN ID:	20	*(0-4094)	
802.1p:	6	v	
IP Acquisition Mode:	💿 DHCP 🔘 Static	O PPPoE	
Vendor ID:		(The vendor ID must b	e 0 – 63 characters in length.)
	Apply Cancel		

- c. Click **Apply** to apply the configuration.
- 3. Configure parameters of the SIP-based voice interface.
 - a. In the navigation tree, choose Voice > VoIP Interface Configuration.
 - b. In the right pane, configure parameters of the SIP-based voice interface as follows (other parameters use the default settings):
 - Set Proxy Server Address below Primary Server to 200.200.200.200.
 - Home Domain: softx3000.huawei.com
 - Signaling Port: 1_VOIP_R_VID_20
 - Region: CN China

- The parameters of the SIP-based voice interface must be consistent with the corresponding configuration on the softswitch.
- If dual-homing is configured, **Proxy Server Address** below **Secondary Server** must be configured.
- If **Signaling Port** is empty, the parameter value is the same as **Media Port**. If the upperlayer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create different WAN ports on the ONT, and bind the created WAN ports to **Media Port** and **Signaling Port**.

ice > VoIP Basic Configurati	on	
Interface Basic Parameters		
On this page, you can se	t the basic parameters for the v	oice interface.
Primary Proxy Address:	200.200.200.200	*(IP or Domain)
Primary Proxy Port	5060	*(1-65535)
Standby Proxy Address:		(IP or Domain)
Standby Proxy Port:	5060	(1-65535)
Home Domain:	softx3000.huawei.com	(IP or Domain)
Local Port	5060	*(1-65535)
Digitmap:	x.S x.#	
Digitmap Match Mode:	Max 🗸	
Registration Period:	600	(Uint:s)(1~65534)
Rignaling Port	1_VOIP_R_VID_20 🔽 (8	elect the name of the WAN that will carry the voice signaling
orginaling Fort.	messages.)	
Media Port:	1_VOIP_R_VID_20 🔽 (S	select the name of the WAN that will carry the voice media. The
	media port is same with si	ignaling port when it is empty.)
Region:	CN - China	v
	Apply Cancel	

- c. Click Apply to apply the configuration.
- 4. Configure parameters of the SIP-based voice users.
 - a. In the navigation tree, choose Voice > VoIP User Configuration.
 - b. In the right pane, configure parameters of voice user 1 as follows:
 - Register User Name: 80001234
 - Auth User Name: 80001234@softx3000.huawei.com
 - Password: iadtest1
 - Associated POTS: 1 (binding port TEL1 on the ONT)
 - Select **Enable** to enable the voice user configuration.
 - c. Click **Apply** to apply the configuration.
 - d. In the right pane, click **New** to add voice user 2, and configure parameters of voice user 2 as follows:
 - Register User Name: 80001235
 - Auth User Name: 80001235@softx3000.huawei.com
 - Password: iadtest2
 - Associated POTS: 2 (binding port TEL2 on the ONT)
 - Select **Enable** to enable the voice user configuration.
 - e. Click **Apply** to apply the configuration.

- The parameters of the SIP-based voice user must be consistent with the corresponding configuration on the softswitch.
- If **Associated POTS** is **1**, port TEL1 on the ONT is bound. If **Associated POTS** is **2**, port TEL2 on the ONT is bound.

User Basic Pa	Jser Basic Parameters										
On this pa	ge, you can set th	e basic parameters fo	ir the voice users.								
				N	lew Delete						
	Sequence	Register User Name	Auth User Name	Password	Associated POTS						
	1	80001234	80001234@sofb:3000.huawei.com	******	1						
✓	2		-	*******	2						
Enable User:		V									
Register Use	r Name:	80001235	* (Telphone Number)								
Associated P	OTS:	2 🗸									
Auth User Na	me:	80001235@softx30	00.huawi (The length must be betw	een 0-64.)							
Password:		•••••	(The length must be betw	een 0-64.)							
		Apply Cance	L								

5. Save the configuration.

In the navigation tree, choose **System Tools** > **Configuration File**. In the right pane, click **Save Configuration** to save the configuration.

You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Upload Configuration File

6. Restart the voice process.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, click **Restart VoIP**.

us - von ning	iniabon		
On this name	you can query the wrice user list and status		
on this page	, you can quely the voice user het and status.		
Sequence	Register User Name(Telephone Number)	User Status	Call Status
1	80001234	Registering	Idle
2	80001235	Registering	Idle
To restart the	VoIP service, click "Restart VoIP".		
Restart Vo	IP		

7. Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at **IP**.

On this page, you can query the connection status and line status of the WAN interface.							
WAN Name	Status	IP Acquisition Mode	IP Address	Subnet Mask	VLAN/Priority	MAC Address	Connect
1_VOIP_R_VID_20	Connected	DHCP	192.168.11.52	255.255.255.0	20/6	78:1D:BA:3C:9F:34	AlwaysOn

8. Check the registration status of the voice user.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, **User Status** is **Up**.

Sequence	Register User Name(Telephone Number)	User Status	Call Status
	80001234	Up	Idle
	80001235	Up	Idle

• Configure the ONT on the U2000.

Some voice parameters cannot be configured on the NMS but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.2 Operation Guide on the XML Configuration File (on the U2000)**.

The following uses batch configurations of creating a value-added service profile of the ONT as an example. To configure an ONT, on the GPON ONU tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.

- 1. Log in to the NMS (iManager U2000 V100R003C00) and start the FTP service.
- 2. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-VoIP
 - Vendor ID: HWTC(2011)
 - Terminal Type: 247
 - Version: V1R002C06-Later

Add ONT VAS Profile	e				×
Profile Name: ONT	F-VolP	*	Vendor ID:	HWTC(2011)	*
Terminal Type: 247	,	*	Version:	V1R002C06 ~ Later	•
P 247 Config Info.	rding	arameter	Name	Parameter V	alue
	Import	Export		OK Cancel	Apply

- d. Configure the parameters of the voice WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu.
 - b. Select WAN IP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-VoIP
 - WAN Enable: enable
 - Connection Type: IP_Routed

- VLAN ID: 20 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
- Priority: 6
- Addressing Type: DHCP
- Service List: VOIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)

Add OHT VAS Profile		×
Profile Name: ONT-VolP	* Vendor ID: HWTC	¢(2011)
Terminal Type: 247	▼ * Version: V1R0	J2C06 ~ Later 🛛 👻 *
Config Info. Time Services WAN Device WAN Device WAN Device WAN Connection WAN Connection WAN Connection WAN UP Interface LANDevice LALG Ability Security Layer 3 Forwarding	Parameter Name WAN IP Interface Index WAN Interface Name WAN Enable Connection Type NATEnabled ✓ Vian ID(1~4094) ✓ Pronty(0~7) MuttiCast VLAN(1~4094) Addressing Type Service Type DNS Enabled DNS Server Option60 Vender Class ID	Parameter Value 1 ONT-VoIP enable IP_Routed Z0 6 DHCP VOIP enable VOIP
Import	Export OK	Cancel <u>A</u> pply

e. Configure voice protocol parameters.

In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1. Select Interface 1 and select a proper value.

- Signaling Protocol: SIP
- Region: China
- Associate WAN Interface: WAN1(ONT-VoIP) (binding the created voice WAN port)



If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create a WAN port named **WAN-RTP** on the ONT, and set this WAN port to a media WAN port. Specifically, choose **Interface 1 > RTP** and set **Associate WAN Interface** to **WAN2(WAN-RTP)**.

Add ONT VAS Pro	ofile						X
Profile Name:	ONT-VoIP *	v	'endor ID:	HWTC(2011)			*
Terminal Type:	247 💌 *	V	ersion:	V1R002C06	~ Later		▼*
□ 247 Config In □ Time □ Services □ Voice □ LaNDevic □ LaNDevic □ Layer 3 Foi □ Layer 3 Foi	fo. Service ice Service 1 — Interface Configuration → Interface 1 ↔ SIP → Redundancy → Jitter Buffer → RTP Extended Configuration → Fax/Modem ↔ User - Physical Interface e y sorwarding		Param Base of Por Top of Port DSCP(0-6 Telephone Associate	eter Name Irt(0-65535) (0-65535) 3) Event Paylo WAN Interface	Parame 50000 50020 0 97 WAN2(WAN	Ler Value	3
	Import Expor	t		ок	Cancel	<u>A</u> ppl	у

f. Configure SIP protocol parameters.

In the navigation tree, choose **Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > SIP**. Select **SIP** and enter (or select) a proper value.

- Proxy Server: 200.200.200
- Home Domain: softx3000.huawei.com

If dual-homing is configured, Secondary Proxy Server must be set.

Add OHT VAS Pro	ofile					
Profile Name:	ONT-VolP		 Vendor ID: 	HWT	C(2011)	•
Profile Name: Terminal Type: 247 Config In → Time → Voice → LANDevic → LaNDevic → Laver 3 Foi	Interface Configuration Configurat	P Proxy	Version: arameter Name Server Server Port(0~66 ndary Proxy Server Domain nt(0~65535) tion Period(1~65 r Retry Interval(1~ 63)	V1R0	002C06 ~ Later Parameter 200.200.200.200 5060 5060 5060 600 30 0	.com
	Import	Expo	t) 🔽 O	ĸ	Cancel	Apply

g. Configure the voice users.

a. In the navigation tree, choose Services > Voice Service > Voice Service 1 > Interface configuration > Interface 1 > User. Select User, right-click, and choose Add from the shortcut menu.

- The HG8010 does not support voice services.
- The HG8110 supports one user.
- The HG8240/HG8245/HG8247 supports a maximum of two users.
- b. Click User 1 below User and set Interface ID to 1. Click User 2 below User and set Interface ID to 2.

If **Interface ID** is **1**, port TEL1 on the ONT is bound. If **Interface ID** is **2**, port TEL2 on the ONT is bound.

Add ONT WAS Pro	ofile					×
Profile Name:	ONT-VoIP	*	Vendor ID:	HWTC(201	1)	▼ *
Terminal Type:	247	•	Version:	V1R002C0	6 ~ Later	*
E 247 Config In ⊢ Time B Services C Voices C Voice P Voice	fo. Service Jice Service 1 Interface Configuration → Interface 1 → SIP → H248 → RTP → Fax T38 → FaxModem → User 1 → User 2 → Physical Interface Ice te y orwardling	Pa User inde Interface I Priority	rameter Name x D Enable		Parameter Value	•
	Import	Ехро	rt	ок	Cancel <u>A</u> p	ply

- h. Click **OK** to complete the configuration of the new profile.
- 3. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.
- 4. Configure ONT value-added services.
 - a. On the **GPON ONU** tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
 - b. Configure parameters of the SIP-based voice users.

The parameters of the SIP-based voice user must be consistent with the corresponding configuration on the softswitch.

a. In the navigation tree, choose Services > Voice Service > Voice Service
 1 > Interface configuration > Interface1 > User > User 1. Select User
 1 and set Directory Number to 88001234.

Configure VAS					×
Profile Name:	ONT-VoIP		Vendor ID:	HWTC(2011)	•
Terminal Type:	247	-	Version:	V1R002C06	•
Activated Status:	Aactivated				
E- 247 Config Info).	Param	eter Name	Pa	arameter Value
- Time		Userindex		1	
E-Voice S	ervice	User Enabled		Disabled	
E- Void	ce Service 1	Directory Numb	er	88001234	
- P	Interface Configuration	Interface ID		1	
	E-Interface 1	Priority Enable			
→ IGMP → Portal → WAN Device → ALG Ability → Layer 3 For <	e n246			Swit	ch to Current ONT Task
	Unbind		Expor	t C	K Cancel

- b. Select SIP below User 1 and enter a proper value.
 - Auth User Name: 88001234@softx3000.huawei.com
 - Auth Password: iadtest1



- c. Set parameters of User 2 using the same method.
 - Directory Number: 88001235

- Auth User Name: 88001235@softx3000.huawei.com
- Auth Password: iadtest2
- c. Click **OK**. In the dialog box that is displayed, click **OK**. The configurations take effect without the requirement of resetting the ONT.

----End

Result

Connect two phone sets to two TEL ports of different ONTs, and calls can be made between two phone sets.

Configuration File

```
vlan 200 smart
port vlan 200 0/19 0
arp proxy enable
interface vlanif 200
arp proxy enable
quit
dba-profile add profile-id 20 type3 assure 16384 max 26624
ont-lineprofile gpon profile-id 10
tcont 2 dba-profile-id 20
gem add 2 eth tcont 2 priority-queue 6
mapping-mode vlan
gem mapping 2 1 vlan 20
commit
auit.
ont-srvprofile gpon profile-id 10
ont-port eth 4 pots 2 catv 1
commit
quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
quit
traffic table ip index 9 cir off priority 6 priority-policy tag-In-Packag
service-port 3 vlan 200 gpon 0/1/1 ont 1 gemport 2 multi-service user-vlan 20 rx-
cttr 9 tx-cttr 9
service-port 4 vlan 200 gpon 0/1/1 ont 2 gemport 2 multi-service user-vlan 20 rx-
cttr 9 tx-cttr 9
queue-scheduler wrr 10 10 20 20 40 0 0 0
cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
save
```

3.3.6 Configuring the GPON FTTH Layer 2 Multicast Service on the OLT CLI

The OLT is connected to the remote ONT through a GPON port to provide users with the IPTV service.

Service Requirements

- The ONT is connected to the OLT in Layer 2 mode.
- The OLT adopts IGMP proxy multicast protocol.

- Multicast programs are configured statically and multicast users are authenticated.
- The IGMP version of the multicast VLAN is IGMP V3.
- The user accesses the device through GPON, and has the right to order programs from the multicast source.

Item	Data
OLT	Service VLAN ID: 1000
	Service VLAN type: smart VLAN
	Upstream port: 0/19/0
	Multicast protocol: IGMP Proxy
	Multicast version: IGMP V3
	IP address of the multicast server: 10.10.10.10
	Multicast program: 224.1.1.10
ONT	ONT IDs: 1 and 2
	ID of the port on the ONT that is connected to the STB: 3
	Type of the port on the ONT that is connected to the STB: ETH
	VLAN ID of the port on the ONT that is connected to the STB: 30

Table 3-9 Data plan

Prerequisite

- The license for the multicast program or the multicast user must already be requested and installed.
- The OLT is connected to the BRAS and the multicast source.
- The VLAN of the LAN switch port connected to the OLT is the same as the upstream VLAN of the OLT.

Procedure

- Configure the OLT.
 - 1. Create a service VLAN and add an upstream port to it.
 - The VLAN ID is 1000, and the VLAN is a smart VLAN, Add upstream port 0/19/0 to VLAN 1000.

```
huawei(config)#vlan 1000 smart
huawei(config)#port vlan 1000 0/19 0
```

2. (Optional) Configure upstream link aggregation.

In this example, a single upstream port is used. In the case of multiple upstream ports, upstream link aggregation can be configured. For details, see Configuring Upstream Link Aggregation.

3. Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.
- a. Configure a DBA profile.

Run the **display dba-profile** command to query the existing DBA profiles in the system. If the existing DBA profiles in the system do not meet the requirement, run the **dba-profile add** command to create a DBA profile.

Set the DBA profile ID to 30, type to type4, and maximum bandwidth to 60 Mbit/s.

huawei(config)#dba-profile add profile-id 30 type4 max 61440

b. Configure an ONT line profile.

Create GPON ONT line profile 10 and bind T-CONT 3 to DBA profile 30.

huawei(config)#ont-lineprofile gpon profile-id 10 huawei(config-gpon-lineprofile-10)#tcont 3 dba-profile-id 30

Create GEM port 3 for carrying traffic streams of the ETH type and bind GEM port 3 to T-CONT 3. Set the QoS mode to priority-queue (default).

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gemcar or flow-car, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

huawei(config-gpon-lineprofile-10)#gem add 3 eth tcont 3

Configure the service mapping mode from the GEM port to the ONU to VLAN (default), and map CVLAN 30 to GEM port 3.

huawei(config-gpon-lineprofile-10)#mapping-mode vlan huawei(config-gpon-lineprofile-10)#gem mapping 3 2 vlan 30

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-lineprofile-10)#commit
huawei(config-gpon-lineprofile-10)#quit

c. Configure an ONT service profile.

Set the VLAN ID of ETH port 3 to 30.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

huawei(config)#ont-srvprofile gpon profile-id 10 huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1 huawei(config-gpon-srvprofile-10)#port vlan eth 3 30

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-srvprofile-10)#commit
huawei(config-gpon-srvprofile-10)#quit

- d. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.
 - Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.
- 4. Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

a. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
```

b. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-autofind** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#port 1 ont-auto-find enable

```
huawei(config-if-gpon-0/1)#display ont autofind 1
      //After this command is executed, the information about all ONTs
    connected to
    the GPON port through the optical splitter is displayed.
    _____
       Number
                          : 1
                       : 0/1/1
       F/S/P
       Ont SN
                         : 6877687714852900
       Password
                         :
: HWTC
       VenderID
       Ont Version : 120D0010
       Ont SoftwareVersion : V1R002C06
       Ont EquipmentID : 247
       Ont autofind time : 2010-12-10 14:59:10
          _____
    ___
                      : 2
: 0/1/1
: 6877687714852901
       Number
       F/S/P
       Ont SN
                         :
       Password
       VenderID : HWTC
Ont Version : 120D0010
       Ont SoftwareVersion : V1R002C06
       Ont EquipmentID : 247
       Ont autofind time : 2010-12-10 14:59:12
     _____
    ___
    huawei(config-if-gpon-0/1) #ont confirm 1 ontid 1 sn-auth
    6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10
    huawei(config-if-gpon-0/1) #ont confirm 1 ontid 2 sn-auth
    6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10
    If multiple ONTs of the same type are connected to a port and the same line profile or service
    profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered
    ONTs in batches to simplify the operation and increase the configuration efficiency. For
    example, the preceding command can be modified as follows:
    huawei(config-if-gpon-0/1) #ont confirm 1 all sn-auth omci ont-
    lineprofile-id 10 ont-srvprofile-id 10
    (Optional) Bind an alarm profile to the ONT.
С
    In this example, bind the default alarm profile, namely alarm profile 1 to the
    ONT.
    huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1
    huawei(config-if-gpon-0/1) #ont alarm-profile 1 2 profile-id 1
Confirm that the ONT goes online normally.
After an ONT is added, run the display ont info command to query the current status
```

5.

of the ONT. Ensure that Control flag of the ONT is active, Run State is online, Config state is normal, and Match state is match.

huawei(config-if-gpon-0/1) #display ont info 1 1

```
F/S/P
                      :
0/1/1
 ONT-ID
                     :
1
 Control flag
                     : active //Indicates that the ONT is
activated.
 Run state
                                 //Indicates that the ONT goes online
                     : online
normally.
```

Config state of the	: normal	//Indicates that the configuration status $% \left($
Match state	: match	ONT is normal. //Indicates that the capability profile
bound to		the ONT is consistent with the
actual capability		of the ONT
$\ldots //$ The rest of the	response i	nformation is omitted.

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If **Control flag** is **deactive**, run the **ont activate** command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, **Run state** is **offline**, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.
- If the ONT state fails, that is, Config state is failed, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the display ont failed-configuration command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, Match state is mismatch, the port types and number of ports undermatch the actual port types and number of ports supported by the ONT. In this case, run the display ont capability command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:
 - Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
 - Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.
- 6. Specify the native VLAN for the ONT port.

ETH port 3 on the ONT is connected to the STB and the native VLAN of the port is VLAN 30.

```
huawei(config-if-gpon-0/1)#ont port native-vlan 1 1 eth 3 vlan 30 huawei(config-if-gpon-0/1)#ont port native-vlan 1 2 eth 3 vlan 30
```

7. Configure a traffic profile.

You can run the **display traffic table ip** command to query the traffic profiles existing in the system. If the traffic profiles existing in the system do not meet the requirements, you need to run the **traffic table ip** command to add a traffic profile.

The profile ID is 10, no rate limitation in the upstream and downstream directions, the priority is 4, and packets are scheduled according to the priority carried.

huawei(config-if-gpon-0/1)#quit huawei(config)#traffic table ip index 10 cir off priority 4 prioritypolicy tag-In-Package

8. Create service ports.

Set the service port indexes to 5 and 6, SVLAN ID to 1000, GEM port ID to 3, and CVLAN ID to 30. Use traffic profile 10.

huawei(config)#service-port 5 vlan 1000 gpon 0/1/1 ont 1 gemport 3 multiservice user-vlan 30 rx-cttr 10 tx-cttr 10 huawei(config)#service-port 6 vlan 1000 gpon 0/1/1 ont 2 gemport 3 multiservice user-vlan 30 rx-cttr 10 tx-cttr 10

9. Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you do not need to configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

```
huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
```

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

10. Create a multicast VLAN and set the IGMP version.

Set the IGMP version of the multicast VLAN to IGMP v3.

huawei(config)#multicast-vlan 1000

huawei(config-mvlan1000)#igmp version v3
This operation will delete all programs in current multicast vlan
Are you sure to change current IGMP version? (y/n)[n]: y

11. Select the IGMP mode.

Select the IGMP proxy mode.

huawei(config-mvlan1000)#igmp mode proxy
Are you sure to change IGMP mode?(y/n)[n]:y

12. Add an IGMP upstream port.

The IGMP upstream port is port 0/19/0 and works in the default mode, and protocol packets are transmitted to all the IGMP upstream ports in the multicast VLAN.

huawei(config-mvlan1000)#igmp uplink-port 0/19/0 huawei(config-mvlan1000)#btv huawei(config-btv)#igmp uplink-port-mode default Are you sure to change the uplink port mode?(y/n)[n]:y

13. (Optional) Set the multicast global parameters.

In this example, the default settings are used for all the multicast global parameters.

14. Configure the program library.

Configure the IP address of the multicast program to 224.1.1.10, program name to program1, IP address of the program source to 10.10.10.10.

huawei(config-btv)#multicast-vlan 1000 huawei(config-mvlan1000)#igmp program add name program1 ip 224.1.1.10 sourceip 10.10.10.10

15. Configure the right profile.

Configure the profile name to profile0, with the right of watching program 1.

huawei(config-mvlan1000)#btv
huawei(config-btv)#igmp profile add profile-name profile0

huawei(config-btv)#igmp profile profile-name profile0 program-name program1 watch

16. Configure the multicast users.

Configure users of service ports 5 and 6 as multicast users and bind right profile profile0 to the service ports.

```
huawei(config-btv)#igmp policy service-port 5 normal
huawei(config-btv)#igmp policy service-port 6 normal
huawei(config-btv)#igmp user add service-port 5 auth
huawei(config-btv)#igmp user add service-port 6 auth
huawei(config-btv)#igmp user bind-profile service-port 5 profile-name
profile0
huawei(config-btv)#igmp user bind-profile service-port 6 profile-name
profile0
huawei(config-btv)#multicast-vlan 1000
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 5
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 6
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 6
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 6
```

17. Save the data.

huawei(config)#**save**

Configure the ONT.

The ONT is connected to the upper-layer device in Layer 2 mode and no configuration is required.

----End

Result

The user can watch program1 on the TV.

Configuration File

```
vlan 1000 smart
port vlan 1000 0/19 0
dba-profile add profile-id 30 type4 max 61440
ont-lineprofile gpon profile-id 10
tcont 3 dba-profile-id 30
gem add 3 eth tcont 3
mapping-mode vlan
gem mapping 3 2 vlan 30
commit
quit
ont-srvprofile gpon profile-id 10
ont-port eth 4 pots 2 catv 1
port vlan eth 3 30
commit
quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
ont port native-vlan 1 1 eth 3 vlan 30
ont port native-vlan 1 2 eth 3 vlan 30
quit
traffic table ip index 10 cir off priority 4 priority-policy tag-In-Package
service-port 5 vlan 1000 gpon 0/1/1 ont 1 gemport 3 multi-service user-vlan 30 rx-
cttr 10
tx-cttr 10
service-port 6 vlan 1000 gpon 0/1/1 ont 2 gemport 3 multi-service user-vlan 30 rx-
```

```
cttr 10
tx-cttr 10
queue-scheduler wrr 10 10 20 20 40 0 0 0
cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
multicast-vlan 1000
igmp mode proxy
igmp version v3
igmp uplink-port 0/19/0
btv
igmp uplink-port-mode default
multicast-vlan 1000
igmp program add name program1 ip 224.1.1.10 sourceip 10.10.10.10
btv
igmp profile add profile-name profile0
igmp profile profile-name profile0 program-name program1 watch
igmp policy service-port 5 normal
igmp policy service-port 6 normal
igmp user add service-port 5 auth
igmp user add service-port 6 auth
igmp user bind-profile service-port 5 profile-name profile0
igmp user bind-profile service-port 6 profile-name profile0
multicast-vlan 1000
igmp multicast-vlan member service-port 5
igmp multicast-vlan member service-port 6
quit
save
```

3.3.7 Configuring the GPON FTTH Layer 3 Bridge Multicast Service on the OLT CLI

The OLT is connected to the remote ONT through a GPON port to provide users with the IPTV service.

Service Requirements

- The ONT is connected to the OLT in the Layer 3 bridge mode.
- The ONT adopts IGMP Snooping multicast protocol.
- The OLT adopts IGMP proxy multicast protocol.
- Multicast programs are configured statically and multicast users are authenticated.
- The IGMP version of the multicast VLAN is IGMP V3.
- The user accesses the device through GPON, and has the right to order programs from the multicast source.

Item	Data
OLT	Service VLAN ID: 1000
	Service VLAN type: smart VLAN
	Upstream port: 0/19/0
	Multicast protocol: IGMP Proxy
	Multicast version: IGMP V3
	IP address of the multicast server: 10.10.10.10
	Multicast program: 224.1.1.10

Table 3-10 Data plan

Item	Data
ONT	ONT IDs: 1 and 2
	Multicast protocol: IGMP Snooping
	ID of the port on the ONT that is connected to the STB: 3
	Type of the port on the ONT that is connected to the STB: ETH
	VLAN ID of the port on the ONT that is connected to the STB: 30

Prerequisite

- The license for the multicast program or the multicast user must already be requested and installed.
- The OLT is connected to the BRAS and the multicast source.
- The VLAN of the LAN switch port connected to the OLT is the same as the upstream VLAN of the OLT.

Procedure

- Configure the OLT.
 - 1. Create a service VLAN and add an upstream port to it.

The VLAN ID is 1000, and the VLAN is a smart VLAN, Add upstream port 0/19/0 to VLAN 1000.

```
huawei(config)#vlan 1000 smart
huawei(config)#port vlan 1000 0/19 0
```

2. (Optional) Configure upstream link aggregation.

In this example, a single upstream port is used. In the case of multiple upstream ports, upstream link aggregation can be configured. For details, see Configuring Upstream Link Aggregation.

3. Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.

a. Configure a DBA profile.

Run the **display dba-profile** command to query the existing DBA profiles in the system. If the existing DBA profiles in the system do not meet the requirement, run the **dba-profile add** command to create a DBA profile.

Set the DBA profile ID to 30, type to type4, and maximum bandwidth to 60 Mbit/s.

huawei(config)#dba-profile add profile-id 30 type4 max 61440

b. Configure an ONT line profile.

Create GPON ONT line profile 10 and bind T-CONT 3 to DBA profile 30.

huawei(config)#ont-lineprofile gpon profile-id 10 huawei(config-gpon-lineprofile-10)#tcont 3 dba-profile-id 30

Create GEM port 3 for carrying traffic streams of the ETH type and bind GEM port 3 to T-CONT 3. Set the QoS mode to priority-queue (default).

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gemcar or flow-car, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

huawei(config-gpon-lineprofile-10)#gem add 3 eth tcont 3

Configure the service mapping mode from the GEM port to the ONU to VLAN (default), and map CVLAN 30 to GEM port 3.

huawei(config-gpon-lineprofile-10)#mapping-mode vlan huawei(config-gpon-lineprofile-10)#gem mapping 3 2 vlan 30

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-lineprofile-10)#commit
huawei(config-gpon-lineprofile-10)#quit

c. Configure an ONT service profile.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8447. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

huawei(config)#ont-srvprofile gpon profile-id 10 huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

huawei(config-gpon-srvprofile-10)#commit huawei(config-gpon-srvprofile-10)#quit

- d. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.
 - Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.
- 4. Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

a. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

huawei(config)#interface gpon 0/1 huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10 huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10

b. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-autofind** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

```
huawei(config) #interface gpon 0/1
huawei(config-if-gpon-0/1) #port 1 ont-auto-find enable
huawei(config-if-gpon-0/1)#display ont autofind 1
  //After this command is executed, the information about all ONTs
connected to
the GPON port through the optical splitter is displayed.
_____
                  : 1
  Number
               : ⊥
: 0/1/1
  F/S/P
                 : 6877687714852900
  Ont SN
  Password
  VenderID : HWTC
Ont Version : 120D0010
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
  Ont autofind time : 2010-12-10 14:59:10
_____
  Number
                  : 2
  F/S/P
                  : 0/1/1
```

```
Ont SN
                     : 6877687714852901
  Password
                     :
                    : HWTC
  VenderID
  Ont Version
                    : 120D0010
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
                    : 2010-12-10 14:59:12
  Ont autofind time
     _____
___
huawei(config-if-gpon-0/1) #ont confirm 1 ontid 1 sn-auth
6877687714852900 omci ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1) #ont confirm 1 ontid 2 sn-auth
6877687714852901 omci ont-lineprofile-id 10 ont-srvprofile-id 10
```

If multiple ONTs of the same type are connected to a port and the same line profile or service profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered ONTs in batches to simplify the operation and increase the configuration efficiency. For example, the preceding command can be modified as follows: huawei(config-if-gpon-0/1)#ont confirm 1 all sn-auth omci ont-lineprofile-id 10 ont-srvprofile-id 10

c. (Optional) Bind an alarm profile to the ONT.

In this example, bind the default alarm profile, namely alarm profile 1 to the ONT.

huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1
huawei(config-if-gpon-0/1)#ont alarm-profile 1 2 profile-id 1

5. Confirm that the ONT goes online normally.

After an ONT is added, run the **display ont info** command to query the current status of the ONT. Ensure that **Control flag** of the ONT is **active**, **Run State** is **online**, **Config state** is **normal**, and **Match state** is **match**.

huawei(config-if-gpon-0/1)#display ont info 1 1

F/S/P	:	
0/1/1		
ONT-TD	:	
1		
Control flag	: active	//Indicates that the ONT is
activated.		
Run state	: online	//Indicates that the ONT goes online
normally.		, second s
Config state	: normal	//Indicates that the configuration status
of the		,,
		ONT is normal
Match state	· match	//Indicates that the canability profile
haten state	. matcen	//indicates that the capability profile
bound co		
		the ONT is consistent with the
actual capability		
		of the ONT.
$\ldots // {\tt The \ rest \ of \ the}$	response i	nformation is omitted.

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If Control flag is deactive, run the ont activate command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, **Run state** is **offline**, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.

- If the ONT state fails, that is, **Config state** is **failed**, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the **display ont failed-configuration** command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, Match state is mismatch, the port types and number of ports undermatch the actual port types and number of ports supported by the ONT. In this case, run the display ont capability command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:
 - Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
 - Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.
- 6. Configure a traffic profile.

You can run the **display traffic table ip** command to query the traffic profiles existing in the system. If the traffic profiles existing in the system do not meet the requirements, you need to run the **traffic table ip** command to add a traffic profile.

The profile ID is 10, no rate limitation in the upstream and downstream directions, the priority is 4, and packets are scheduled according to the priority carried.

huawei(config-if-gpon-0/1)#quit
huawei(config)#traffic table ip index 10 cir off priority 4 prioritypolicy tag-In-Package

7. Create service ports.

Set the service port indexes to 5 and 6, SVLAN ID to 1000, GEM port ID to 3, and CVLAN ID to 30. Use traffic profile 10.

huawei(config)#service-port 5 vlan 1000 gpon 0/1/1 ont 1 gemport 3 multiservice user-vlan 30 rx-cttr 10 tx-cttr 10 huawei(config)#service-port 6 vlan 1000 gpon 0/1/1 ont 2 gemport 3 multiservice user-vlan 30 rx-cttr 10 tx-cttr 10

8. Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you do not need to configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

9. Create a multicast VLAN and set the IGMP version.

Set the IGMP version of the multicast VLAN to IGMP v3.

```
huawei(config)#multicast-vlan 1000
huawei(config-mvlan1000)#igmp version v3
This operation will delete all programs in current multicast vlan
Are you sure to change current IGMP version? (y/n)[n]: y
```

10. Select the IGMP mode.

Select the IGMP proxy mode.

huawei(config-mvlan1000)#igmp mode proxy
Are you sure to change IGMP mode?(y/n)[n]:y

11. Add an IGMP upstream port.

The IGMP upstream port is port 0/19/0 and works in the default mode, and protocol packets are transmitted to all the IGMP upstream ports in the multicast VLAN.

huawei(config-mvlan1000)#igmp uplink-port 0/19/0 huawei(config-mvlan1000)#btv huawei(config-btv)#igmp uplink-port-mode default Are you sure to change the uplink port mode?(y/n)[n]:y

12. (Optional) Set the multicast global parameters.

In this example, the default settings are used for all the multicast global parameters.

13. Configure the program library.

Configure the IP address of the multicast program to 224.1.1.10, program name to program1, IP address of the program source to 10.10.10.10.

```
huawei(config-btv)#multicast-vlan 1000
huawei(config-mvlan1000)#igmp program add name program1 ip 224.1.1.10
sourceip 10.10.10.10
```

14. Configure the right profile.

Configure the profile name to profile0, with the right of watching program 1.

```
huawei(config-mvlan1000)#btv
huawei(config-btv)#igmp profile add profile-name profile0
huawei(config-btv)#igmp profile profile-name profile0 program-name
program1 watch
```

15. Configure the multicast users.

Configure users of service ports 5 and 6 as multicast users and bind right profile profile0 to the service ports.

```
huawei(config-btv)#igmp policy service-port 5 normal
huawei(config-btv)#igmp policy service-port 6 normal
huawei(config-btv)#igmp user add service-port 5 auth
huawei(config-btv)#igmp user add service-port 6 auth
huawei(config-btv)#igmp user bind-profile service-port 5 profile-name
profile0
huawei(config-btv)#igmp user bind-profile service-port 6 profile-name
profile0
huawei(config-btv)#multicast-vlan 1000
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 5
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 6
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 6
huawei(config-mvlan1000)#igmp multicast-vlan member service-port 6
```

16. Save the data.

huawei(config)#**save**

• Configure an optical network terminal (ONT) on the Web page.

Layer 3 bridge mode is used for connecting an ONT to the upper-layer device and parameters of a WAN port must be configured.

- 1. Log in to the Web configuration window.
 - a. Configure the IP address of the PC network adapter to be in the same network segment as the IP address of the local maintenance Ethernet port of the ONT (default: **192.168.100.1**).
 - b. Open the Web browser, and enter the IP address of the local maintenance Ethernet port of the ONT.
 - c. On the login window, enter the user name (default: **telecomadmin**) and password (default: **admintelecom**) of the administrator. After the password authentication is passed, the Web configuration window is displayed.
- 2. Configure the working mode of a LAN port.
 - In the navigation tree, choose LAN > LAN Port Work Mode. Select the check box of LAN3 and set LAN3 to work in the Layer 3 mode.

On this page, you can configure the LAN ports to work in layer3 mode by selecting the correspond ports will be assigned as HG ports.	ing check box.The layer3
LAN1 LAN2 LAN3 LAN4	
	Apply Cancel

- b. Click **Apply** to apply the configuration.
- 3. Configure parameters of a WAN port.
 - a. In the navigation tree, choose WAN > WAN Configuration.
 - b. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of a WAN port as follows:
 - WAN Connection: Enable
 - Mode: Bridge
 - VLAN ID: 30 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p:4
 - MultiCast VLAN ID: 1000 (The multicast VLAN ID of the ONT must be the same as the multicast VLAN ID configured on the OLT.)
 - Bridge Type: IP_Bridged
 - Binding options: LAN3

AN > WAN Configuration					
On this page, you can co the upper-layer network (nfigure WAN paramete equipment, and the par	rs. The ONT rameters mu	home gateway u ist be consistent	ises the WAN interfai for both.	ce to communicate with
					New Delete
Connec	tion Name	VL/	AN/Priority	IP Acc	uisition Mode
1_V0IP	_R_VID_20		20/6		DHCP
Enable WAN Connection:					
Mode:	Bridge	~			
Service List:	INTERNET	~			
VLAN ID:	30	*	(0-4094)		
802.1p:	4	*			
MultiCast VLAN ID:		(1	-4094)		
Bridge Type:	IP_Bridged	*			
Binding options:	LAN1	LAN2 SSID2	LAN3	LAN4	
	Apply Car	icel			

- c. Click **Apply** to apply the configuration.
- 4. Enable DHCP replay.

- a. In the navigation tree, choose LAN > DHCP Server Configuration.
- b. In the right pane, click the check box of **Enable DHCP L2Relay**.

If **Bridge Type** of the WAN port is set to **PPPoE_Bridged**, DHCP relay does not need to be enabled. If **Bridge Type** is set to **IP_Bridged**, DHCP relay must be enabled.

Primary Address Pool	
Enable primary DHCP server:	
Enable DHCP L2Relay:	
LAN Host IP Address:	192.168.100.1
Subnet Mask:	255.255.265.0
Start IP Address:	192.168.100.2 * (IP address must be in the same subnet with Lan Host)
End IP Address:	192.168.100.254 *
Leased Time:	3 day 🗸

- c. Click **Apply** to apply the configuration.
- 5. Save the configuration.

In the navigation tree, choose **System Tools** > **Configuration File**. In the right pane, click **Save Configuration** to save the configuration.

You can click "Save Configuration" to save the current configuration to the flash memory.					
Save Configuration					
You can click "Download Configuration File" to bac	k up the current co	nfiguration.			
Download Configuration File					
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.					
Configuration File:	Browse	Upload Configuration File			

• Configure the ONT on the U2000.

Layer 3 bridge mode is used for connecting the ONT to the upper-layer device and parameters of a WAN port must be configured.

The following uses batch configurations of creating a value-added service profile of the ONT as an example. To configure an ONT, on the GPON ONU tab page, select an ONT, right-click, and choose **Configure Value-Added Service** from the shortcut menu.

- 1. Log in to the NMS (iManager U2000 V100R003C00) and start the FTP service.
- 2. Configure the value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the tab page that is displayed, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-IPTV
 - Vendor ID: HWTC(2011)
 - Terminal Type: 247
 - Version: V1R002C06-Later



- d. Configure the working mode of a LAN port.
 - a. In the navigation tree, choose LANDevice > LAN Interface 1 > LAN Interface.
 - b. Select LAN Interface, right-click, and choose Add. Add LAN Ethernet Configuration 2 and LAN Ethernet Configuration 3.
 - c. Select LAN Ethernet Configuration 3 and set LAN Port two three-port enable to enable. This indicates that LAN 3 works in Layer 3 mode.

- If LAN Port two three-port enable is disable, the LAN port works in the Layer 2 mode.
- If LAN Port two three-port enable is enable, the LAN port works in the Layer 3 mode.

LAN Port two three-port enable is defaulted to disable.

By default, the system has one LAN Ethernet Configuration 1 node. To add multiple nodes, select LAN Interface, right-click, and choose Add from the shortcut menu.

Add OHT VAS Pro	ofile				2
Profile Name:	ONT-IPTV	*	Vendor ID:	HWTC(2011)	· · · · · ·
Terminal Type:	247	*	Version:	V1R002C06	~ Later 🔹 🔻
-247 Config In Time -Time -Services WNN Devic -LANDevic -LANDevic -LANC Abilit -ALG Abilit -Security -Layer 3 Fo	rfo. ice ie nterface 1 UN Interface UAN Ethernet Configuration 1 UAN Ethernet Configuration 2 UAN Ethernet Configuration 3 y orwarding	LAN	Parameter Ethernet Cont port two three	Name figuration ind -port enable	Parameter Value 3 enable
	Import	oort		K Ca	incel <u>Apply</u>

- e. Configure parameters of a WAN port.
 - a. In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu.
 - b. Select WAN IP Interface 1 and enter (or select) a proper value.
 - WAN Interface Name: ONT-IPTV
 - WAN Enable: enable
 - Connection Type: IP_Bridged
 - VLAN ID: 30 (The VLAN ID of the ONT must be the same as the userside VLAN ID configured on the OLT.)
 - Priority: 4
 - MultiCast VLAN ID: 1000 (The multicast VLAN ID of the ONT must be the same as the multicast VLAN ID configured on the OLT.)

Add OHT WAS Pro	file					x
Profile Name:	ONT-IPTV	*	Vendor ID:	HWTC(2011)	▼ *
Terminal Type:	247	*	Version:	V1R002	2C06 ~ Later	*
Terminal Type: 247		WAIY WAIY WAIY Con NAT V V V Mult Add Serv DNS DNS DNS	Version: United Parameter Name WAN IP Interface Index WAN Interface Name WAN Enable Connection Type NATEnabled I Vian ID(1~4094) I Priority(0~7) MuttiCast VLAN(1~4094) Addressing Type Service Type DNS Enabled DNS Server Option60 Vender Class ID		Parameter Value 1 ONT-IPTV enable IP_Bridged disable 30 4 1000 Static INTERNET enable	
	Import	xport	. 0	K (Cancel <u>A</u> pply	

- f. Configure multicast parameters.
 - a. In the navigation tree, choose **Services** > **IGMP**. Select **IGMP** and enter proper values.
 - WAN Port IGMP Switch: Enable
 - Proxy Switch: Disable
 - Snooping Switch: Enable

Add OHT VAS Pro	file					2
Profile Name:	ONT-IPTV	*	Vendor ID:	HWTC(2	2011)	•
Terminal Type:	247	*	Version:	V1R002	CO6 ~ Later	*
 → 247 Config Ini → Time → Services ⊕ Voice: → Portal ⊕ WAN Devic → ALG Ability ⊕ Security ⊕ Layer 3 Fc 	ro. Service e / /	WAN Prox Shou Gen Spec Spec Spec	Parameter N I Port IOMP Sv y Switch oping Switch ustness eral Query Inte eral Query Qe ciffic Query Nur ciffic Query Nur ciffic Query Re	erval(s) sponse mber rrval(0.1 sponse	Parame Enable Disable 2 125 100 2 10 10	ster Value
	Import	Export		IK (Cancel	Apply

The ONT multicast modes (IGMP proxy and IGMP snooping) conflict. Only one mode is supported at a time.

- g. Configure a routing policy.
 - a. In the navigation tree, choose Layer 3 Forwarding > Policy Route. Select Policy Route, right-click, and choose Add from the shortcut menu.

- b. Select **Policy Route 1** and enter proper values.
 - Physical Port Name: LAN3
 - WAN Interface Name: WAN1(ONT-IPTV)

Add OHT VAS Pro	file						×
Profile Name:	ONT-IPTV		 Vendor ID: 	HWTC(2011)		*
Terminal Type:	247	•	* Version:	V1R002	2C06 ~ Lat	er	*
☐ 247 Config In ☐ Time ⊕ Services ⊕ WAN Devi ⊕ LANDevic ☐ ALC Abilit ⊕ Security ⊖ Layer 3 FC ☐ Policy ☐ Policy ☐ Policy	fo. ce e y waarding Route Nicy Route 1		Parameter N. olicy Route Type nysical Port Nam andor ID AN Interface Nar	ame e ne	Para SourcePf LAN3 WAN1 (Of	ameter Valı nyPort	* *
	Import	Expor	t 0	к (Cancel		pply

To bind a LAN port to a WAN port, set **Physical Port Name** and **WAN Interface Name**. The preceding figure shows that WAN 1 is bound to LAN 3.

To bind a WAN port to multiple LAN ports, set **Physical Port Name** to **LAN1,...,LANx**. For example, to bind WAN 1 to LAN 1 and LAN 2, set **Physical Port Name** to **LAN1,LAN2**.

- h. Click **OK** to complete the configuration of the new profile.
- 3. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK** to complete profile binding.

```
----End
```

Result

The user can watch program1 on the TV.

Configuration File

vlan 1000 smart port vlan 1000 0/19 0

```
dba-profile add profile-id 30 type4 max 61440
ont-lineprofile gpon profile-id 10
 tcont 3 dba-profile-id 30
 gem add 3 eth tcont 3
mapping-mode vlan
 gem mapping 3 2 vlan 30
 commit
 quit
ont-srvprofile gpon profile-id 10
 ont-port eth 4 pots 2 catv 1
 commit
 quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
quit
traffic table ip index 10 cir off priority 4 priority-policy tag-In-Package
service-port 5 vlan 1000 gpon 0/1/1 ont 1 gemport 3 multi-service user-vlan 30 rx-
cttr 10
tx-cttr 10
service-port 6 vlan 1000 gpon 0/1/1 ont 2 gemport 3 multi-service user-vlan 30 rx-
cttr 10
 tx-cttr 10
queue-scheduler wrr 10 10 20 20 40 0 0 0
\texttt{cos-queue-map} \ \texttt{cos0} \ \texttt{0} \ \texttt{cos1} \ \texttt{1} \ \texttt{cos2} \ \texttt{2} \ \texttt{cos3} \ \texttt{3} \ \texttt{cos4} \ \texttt{4} \ \texttt{cos5} \ \texttt{5} \ \texttt{cos6} \ \texttt{6} \ \texttt{cos7} \ \texttt{7}
multicast-vlan 1000
igmp mode proxy
igmp version v3
igmp uplink-port 0/19/0
bt v
igmp uplink-port-mode default
multicast-vlan 1000
igmp program add name program1 ip 224.1.1.10 sourceip 10.10.10.10
btv
igmp profile add profile-name profile0
igmp profile profile-name profile0 program-name program1 watch
igmp policy service-port 5 normal
igmp policy service-port 6 normal
igmp user add service-port 5 auth
igmp user add service-port 6 auth
igmp user bind-profile service-port 5 profile-name profile0
igmp user bind-profile service-port 6 profile-name profile0
multicast-vlan 1000
igmp multicast-vlan member service-port 5
igmp multicast-vlan member service-port 6
auit
save
```

3.4 Configuration on the Web Page

This topic describes how to configure Internet access service, VoIP service and Wi-Fi service on the Web page.

3.4.1 Preparations

Before configuring services on the Web page, plan data of the entire network in a unified manner and enable Layer 2 service channels between the OLT and ONT.

Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)

To configure GPON ONT-side services, enable Layer 2 service channels between the OLT and the GPON ONT.

Prerequisite

You need to enter the OLT CLI to perform the following operations that are based on the OLT CLI.

Data Plan

Table 3-11 shows the data plan for enabling Layer 2 service channels between the OLT and the GPON ONT:

Service Classificat ion	Item	Data	Remarks		
Network data	FTTH	 OLT PON port: 0/1/1 ONT ID: 1-2 	-		
Service VLAN	HSI service	SVLAN: 100CVLAN: 10	-		
	VoIP service	SVLAN: 200CVLAN: 20			
	Wi-Fi service	SVLAN: 400CVLAN: 40			
	U2560 management channel	SVLAN: 500CVLAN: 50			
QoS (Priority)	HSI service	Priority: 1; queue scheduling: WRR	• Generally, the QoS priorities is		
	VoIP service	Priority: 6; queue scheduling: PQ	NMS service and VoIP service > Internet access		
	Wi-Fi service	Priority: 1; queue scheduling: WRR	service in a descending order.		
	U2560 management channel	Priority: 7; queue scheduling: PQ	• Generally, the priority is set on the ONT, and the OLT inherits the priority set on the ONT.		

Table 3-11 Data plan

Service Classificat ion	Item	Data	Remarks
QoS (DBA)	HSI service	 Profile type: Type4 Maximum bandwidth: 100 Mbit/s T-CONT ID: 1 	• DBA is used to control the upstream bandwidth of the ONT. DBA
	VoIP service	 Profile type: Type3 Assured bandwidth: 15 Mbit/s Maximum bandwidth: 30 Mbit/s T-CONT ID: 2 	profiles are bound to TCONTs. Different TCONTs are planned for different bandwidth
	Wi-Fi service	 Profile type: Type4 Maximum bandwidth: 200 Mbit/s T-CONT ID: 3 	 Generally, the service with a high priority adopts a fixed
	U2560 management channel	 Profile type: Type2 Assured bandwidth: 15 Mbit/s T-CONT ID: 4 	bandwidth or an assured bandwidth, and the service with a low priority adopts the maximum bandwidth or best effort.
QoS (CAR)	HSI service	Upstream and downstream bandwidth: 4 Mbit/s	• Traffic control can be
	VoIP service	No rate limitation in the upstream and downstream directions	implemented on the BRAS, or on the OLT or ONT by using port rate
	Wi-Fi service	Upstream and downstream bandwidth: 6 Mbit/s	limitation or using a traffic profile to limit
	U2560 management channel	No rate limitation in the upstream and downstream directions	 the upstream and downstream traffic. Generally, in the case of FTTH, limit the rate on the OLT; in the case of FTTB/ FTTC, limit the rate on the ONT.

Flow Chart

Table 3-11 shows the flow chart for enabling Layer 2 service channels between the OLT and the GPON ONT:

Figure 3-7 Flow chart



Procedure

Step 1 Create SVLANs and add an upstream port to them.

The VLAN type is Smart and the VLAN IDs are 100, 200, 400 and 500, VLAN 100 is for HSI service; VLAN 200 is for VoIP service; VLAN 400 is for Wi-Fi service and VLAN 500 is for the U2560 management channel. The VLAN for the Internet access service is a stacking VLAN. Add the upstream port 0/19/0 to the VLAN.

huawei(config)#vlan 100,200,400,500 smart huawei(config)#vlan attrib 100 stacking huawei(config)#port vlan 100,200,400,500 0/19 0

Step 2 Enables ARP proxy.

For different users of the same SVLAN, because the service ports of the smart VLAN are isolated from each other, the voice media streams cannot interchange normally. Therefore, the ARP proxy function of the OLT needs to be enabled.

```
huawei(config)#arp proxy enable
huawei(config)#interface vlanif 200
huawei(config-if-vlanif200)#arp proxy enable
huawei(config-if-vlanif200)#quit
```

Step 3 Configure GPON ONT profiles.

GPON ONT profiles include the DBA profile, line profile, service profile, and alarm profile.

- DBA profile: A DBA profile describes the GPON traffic parameters. A T-CONT is bound to a DBA profile for dynamic bandwidth allocation, improving the upstream bandwidth usage rate.
- Line profile: A line profile describes the binding between the T-CONT and the DBA profile, the QoS mode of the traffic stream, and the mapping between the GEM port and the ONT-side service.
- Service profile: A service profile provides the service configuration channel for the ONT that is managed through OMCI.
- Alarm profile: An alarm profile contains a series of alarm thresholds to measure and monitor the performance of activated ONT lines. When a statistical value reaches the threshold, the host is notified and an alarm is reported to the log host and the NMS.
- 1. Configure a DBA profile.

Run the **display dba-profile** command to query the existing DBA profiles in the system. If the existing DBA profiles in the system do not meet the requirement, run the **dba-profile add** command to create a DBA profile.

- HSI service: Set the DBA profile ID to 10, type to type4, and maximum bandwidth to 100 Mbit/s.
- VoIP service: Set the DBA profile ID to 20, type to Type3, assured bandwidth to 15 Mbit/s, and maximum bandwidth to 30 Mbit/s.
- Wi-Fi service: Set the DBA profile ID to 30, type to type4, and maximum bandwidth to 200 Mbit/s.
- U2560 management channel: Set the DBA profile ID to 40, type to Type2, assured bandwidth to 15 Mbit/s.

```
huawei(config)#dba-profile add profile-id 10 type4 max 102400
huawei(config)#dba-profile add profile-id 20 type3 assure 30720 max 102400
huawei(config)#dba-profile add profile-id 30 type4 max 204800
huawei(config)#dba-profile add profile-id 40 type2 assure 30720
```

2. Configure an ONT line profile.

Create GPON ONT line profile 10.

- HSI service: Bind the T-CONT which ID is 1 to DBA profile 10.
- VoIP service: Bind the T-CONT which ID is 2 to DBA profile 20.
- Wi-Fi service: Bind the T-CONT which ID is 3 to DBA profile 30.
- U2560 management channel: Bind the T-CONT which ID is 4 to DBA profile 40.

```
huawei(config)#ont-lineprofile gpon profile-id 10
huawei(config-gpon-lineprofile-10)#tcont 1 dba-profile-id 10
huawei(config-gpon-lineprofile-10)#tcont 2 dba-profile-id 20
huawei(config-gpon-lineprofile-10)#tcont 3 dba-profile-id 30
huawei(config-gpon-lineprofile-10)#tcont 4 dba-profile-id 40
```

Add GEM ports which are used to carry service streams of the ETH type and bind the GEM ports to T-CONTs. Set the QoS mode to priority-queue (default).

- HSI service: Add a GEM port which ID is 1 and bind the GEM port to T-CONT 1.
- VoIP service: Add a GEM port which ID is 2 and bind the GEM port to T-CONT 2.

- Wi-Fi service: Add a GEM port which ID is 3 and bind the GEM port to T-CONT 3.
- U2560 management channel: Add a GEM port which ID is 4 and bind the GEM port to T-CONT 4.

- a. To change the QoS mode, run the **qos-mode** command to configure the QoS mode to gem-car or flowcar, and run the **gem add** command to configure the ID of the traffic profile bound to the GEM port.
- b. When the QoS mode is PQ, the default queue priority is 0; when the QoS is flow-car, traffic profile 6 is bound to the port by default (no rate limitation); when the QoS mode is gem-car, traffic profile 6 is bound to the port by default (no rate limitation).

```
huawei(config-gpon-lineprofile-10)#gem add 1 eth tcont 1
huawei(config-gpon-lineprofile-10)#gem add 2 eth tcont 2
huawei(config-gpon-lineprofile-10)#gem add 3 eth tcont 3
huawei(config-gpon-lineprofile-10)#gem add 4 eth tcont 4
```

Configure the mapping between the GEM port and the ONT-side service to the VLAN mapping mode (default) and map the service port of CVLAN 20 to the GEM port.

- HSI service: Map user-side VLAN 10 to GEM port 1.
- VoIP service: Map user-side VLAN 20 to GEM port 2.
- Wi-Fi service: Map user-side VLAN 40 to GEM port 3.
- U2560 management channel: Map user-side VLAN 50 to GEM port 4.

```
huawei(config-gpon-lineprofile-10)#mapping-mode vlan
huawei(config-gpon-lineprofile-10)#gem mapping 1 1 vlan 10
huawei(config-gpon-lineprofile-10)#gem mapping 2 2 vlan 20
huawei(config-gpon-lineprofile-10)#gem mapping 3 3 vlan 40
huawei(config-gpon-lineprofile-10)#gem mapping 4 4 vlan 50
```

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

```
huawei(config-gpon-lineprofile-10)#commit
huawei(config-gpon-lineprofile-10)#quit
```

3. Configure an ONT service profile.

The ID of the VLAN to which ETH port 1 belongs is 10.

The number of ports configured in the service profile must be the same as the actual number of ONT ports. The flowing table lists the port capabilities ofHG8010/HG8110/HG8240/HG8245/HG8247/HG8247. The HG8247 is used as an example.

Product	Number of ETH Ports	Number of POTS Ports	Number of CATV Ports
HG8010	1	-	-
HG8110	1	1	-
HG8240	4	2	-
HG8245	4	2	-
HG8247	4	2	1
HG8447	4	4	1

The **port vlan** command is use for specifying a port VLAN and managing the attribute of the UNI port on the ONT remotely. This command is applicable for only the L2 service (L2 Internet access service) when the ONT functions as a bridge device. When the ONT functions as a gateway device, the configuration of the port VLAN is implemented on the ONT Web page, NMS, or U2560 server.

```
huawei(config)#ont-srvprofile gpon profile-id 10
huawei(config-gpon-srvprofile-10)#ont-port eth 4 pots 2 catv 1
huawei(config-gpon-srvprofile-10)#port vlan eth 1 10
```

After the configurations are complete, run the **commit** command to make the configured parameters take effect.

```
huawei(config-gpon-srvprofile-10)#commit
huawei(config-gpon-srvprofile-10)#quit
```

- 4. (Optional) Configure an alarm profile.
 - The ID of the default GPON alarm profile is 1. The thresholds of all the alarm parameters in the default alarm profile are 0, which indicates that no alarm is reported.
 - In this example, the default alarm profile is used, and therefore the configuration of the alarm profile is not required.
 - Run the **gpon alarm-profile add** command to configure an alarm profile, which is used for monitoring the performance of an activated ONT line.

Step 4 Add an ONT on the OLT.

The ONT is connected to the GPON port of the OLT through optical fibers. The service can be configured only after an ONT is successfully added on the OLT.

Two ONTs are connected to GPON port 0/1/1. The ONT IDs are 1 and 2, the SNs are 6877687714852900 and 6877687714852901, the management mode is OMCI, and ONT line profile 10 and service profile 10 are bound to the two ONTs.

1. Add an ONT offline.

If the password or SN of an ONT is obtained, you can run the **ont add** command to add the ONT offline.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1)#ont add 1 1 sn-auth 6877687714852900 omci ont-
lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont add 1 2 sn-auth 6877687714852901 omci ont-
lineprofile-id 10 ont-srvprofile-id 10
```

2. Automatically find an ONT.

If the password or SN of an ONT is unknown, run the **port** *portid* **ont-auto-find** command in the GPON mode to enable the ONT auto-find function of the GPON port. Then, run the **ont confirm** command to confirm the ONT.

```
huawei(config)#interface gpon 0/1
huawei(config-if-gpon-0/1) #port 1 ont-auto-find enable
huawei(config-if-gpon-0/1) #display ont autofind 1
  //After this command is executed, the information about all ONTs connected
the GPON port through the optical splitter is displayed.
  _____
                 : 1
  Number
  F/S/P
                 : 0/1/1
                  : 6877687714852900
  Ont SN
  Password
                  :
                 : HWTC
  VenderID
                 : 120D0010
  Ont Version
  Ont SoftwareVersion : V1R002C06
  Ont EquipmentID : 247
  Ont autofind time : 2010-12-10 14:59:10
  _____
```

```
      Number
      : 2

      F/S/P
      : 0/1/1

      Ont SN
      : 6877687714852901

      Password
      :

      VenderID
      : HWTC

      Ont Version
      : 120D0010

      Ont SoftwareVersion
      : V1R002C06

      Ont EquipmentID
      : 247

      Ont autofind time
      : 2010-12-10 14:59:12
```

huawei(config-if-gpon-0/1)#ont confirm 1 ontid 1 sn-auth 6877687714852900 omci

```
ont-lineprofile-id 10 ont-srvprofile-id 10
huawei(config-if-gpon-0/1)#ont confirm 1 ontid 2 sn-auth 6877687714852901 omci
ont-lineprofile-id 10 ont-srvprofile-id 10
```


If multiple ONTs of the same type are connected to a port and the same line profile or service profile is bound to the ONTs, you can add ONTs in batches by confirming the auto discovered ONTs in batches to simplify the operation and increase the configuration efficiency. For example, the preceding command can be modified as follows: huawei(config-if-gpon-0/1) **#ont confirm 1 all sn-auth omci ont-lineprofile-id**

```
huawei(config-if-gpon-0/1)#ont confirm 1 all sn-auth omci ont-lineprofile-id
10 ont-srvprofile-id 10
```

3. (Optional) Bind an alarm profile to the ONT.

In this example, bind the default alarm profile, namely alarm profile 1 to the ONT.

huawei(config-if-gpon-0/1)#ont alarm-profile 1 1 profile-id 1 huawei(config-if-gpon-0/1)#ont alarm-profile 1 2 profile-id 1

Step 5 Confirm that the ONT goes online normally.

After an ONT is added, run the **display ont info** command to query the current status of the ONT. Ensure that **Control flag** of the ONT is **active**, **Run State** is **online**, **Config state** is **normal**, and **Match state** is **match**.

```
huawei(config-if-gpon-0/1) #display ont info 1 1
```

F/S/P ONT-ID	: 0/1/1 : 1	
Control flag	: active	//Indicates that the ONT is
activated.		
Run state	: online	//Indicates that the ONT goes online
normally.		
Config state	: normal	//Indicates that the configuration status of
the		
		ONT is normal.
Match state	: match	//Indicates that the capability profile bound
to		
		the ONT is consistent with the actual
capability		
		of the ONT.
//The rest of the	he response info	ormation is omitted.

If the ONT state fails, the ONT fails to be in the up state, or the ONT does not match, check the ONT state by referring to the above-mentioned descriptions.

- If **Control flag** is **deactive**, run the **ont activate** command in the GPON port mode to activate the ONT.
- If the ONT fails to be in the up state, that is, **Run state** is **offline**, the physical line may be broken or the optical transceiver may be damaged. You need to check both the material and the line.
- If the ONT state fails, that is, **Config state** is **failed**, the ONT capability set outmatches the actual ONT capabilities (For details about the ONT actual capabilities, see Reference of GPON ONT Capability Sets). In this case, run the **display ont failed-configuration** command in the diagnosis mode to check the failed configuration item and the failure cause. Then, rectify the fault according to actual conditions.

If an ONT supports only four queues, the values of 4–7 of the priority-queue parameter in the **gem add** command are invalid. After configuration recovers, Config state will be failed.

- If the ONT does not match, that is, **Match state** is **mismatch**, the port types and number of ports undermatch the actual port types and number of ports supported by the ONT. In this case, run the **display ont capability** command to query the actual capability of the ONT, and then select one of the following modes to modify the ONT configuration:
 - Create a proper ONT profile according to the actual capability of the ONT, and then run the **ont modify** command to modify the configuration data of the ONT.
 - Modify the ONT profile according to the actual capability of the ONT and save the modification. Then, the ONT automatically recovers the configuration successfully.

Step 6 Specify the native VLAN for the ONT port.

ETH port 1 on the ONT is connected to the PC and the native VLAN is VLAN 10.

The **ont port native-vlan** command is used for configuring the native VLAN of an ETH port. When a packet is transmitted to the ONT, a VLAN tag is added to the packet; when a packet is transmitted out of the ONT, the VLAN tag is removed from the packet. This command is applicable for only the L2 service (L2 Internet access service) when the ONT functions as a bridge device. When the ONT functions as a gateway device, the configuration of the port VLAN is implemented on the ONT Web page, NMS, or U2560 server.

huawei(config-if-gpon-0/1) #ont port native-vlan 1 1 eth 1 vlan 10 huawei(config-if-gpon-0/1) #ont port native-vlan 1 2 eth 1 vlan 10

Step 7 Configure traffic profiles.

You can run the **display traffic table ip** command to query the traffic profiles existing in the system. If the traffic profiles existing in the system do not meet the requirements, you need to run the **traffic table ip** command to add a traffic profile.

- HSI service: The profile ID is 8, the CIR is 4 Mbit/s, the priority is 1, and packets are scheduled according to the priority carried.
- VoIP service: The profile ID is 9, no rate limitation in the upstream and downstream directions, the priority is 6, and packets are scheduled according to the priority carried.
- Wi-Fi service: The profile ID is 10, the CIR is 6 Mbit/s, the priority is 1, and packets are scheduled according to the priority carried.
- U2560 management channel: The profile ID is 11, no rate limitation in the upstream and downstream directions, the priority is 7, and packets are scheduled according to the priority carried.

```
huawei(config-if-gpon-0/1)#quit
huawei(config)#traffic table ip index 8 cir 4096 priority 1 priority-policy tag-In-
Package
huawei(config)#traffic table ip index 9 cir off priority 6 priority-policy tag-In-
Package
huawei(config)#traffic table ip index 10 cir 6144 priority 1 priority-policy tag-In-
Package
huawei(config)#traffic table ip index 11 cir off priority 7 priority-policy tag-In-
Package
```

Step 8 Create service ports.

- HSI service: Set the service port indexes to 1 and 2, SVLAN ID to 100, GEM port ID to 1, and CVLAN ID to 10. Use traffic profile 8.
- VoIP service: Set the service port indexes to 3 and 4, SVLAN ID to 200, GEM port ID to 2, and CVLAN ID to 20. Use traffic profile 9.

- Wi-Fi service: Set the service port indexes to 5 and 6, SVLAN ID to 400, GEM port ID to 3, and CVLAN ID to 40. Use traffic profile 10.
- U2560 management channel: Set the service port indexes to 7 and 8, SVLAN ID to 500, GEM port ID to 4, and CVLAN ID to 50. Use traffic profile 11.

```
huawei(config)#service-port 1 vlan 100 gpon 0/1/1 ont 1 gemport 1 multi-service
user-vlan 10 rx-cttr 8 tx-cttr 8
huawei(config) #service-port 2 vlan 100 gpon 0/1/1 ont 2 gemport 1 multi-service
user-vlan 10 rx-cttr 8 tx-cttr 8
huawei(config)#service-port 3 vlan 200 gpon 0/1/1 ont 1 gemport 2 multi-service
user-vlan 20 rx-cttr 9 tx-cttr 9
huawei(config) #service-port 4 vlan 200 gpon 0/1/1 ont 2 gemport 2 multi-service
user-vlan 20 rx-cttr 9 tx-cttr 9
huawei(config)#service-port 5 vlan 400 gpon 0/1/1 ont 1 gemport 3 multi-service
user-vlan 40 rx-cttr 10 tx-cttr 10
huawei(config)#service-port 6 vlan 400 gpon 0/1/1 ont 2 gemport 3 multi-service
user-vlan 40 rx-cttr 10 tx-cttr 10
huawei(config)#service-port 7 vlan 500 gpon 0/1/1 ont 1 gemport 4 multi-service
user-vlan 50 rx-cttr 11 tx-cttr 11
huawei(config)#service-port 8 vlan 500 gpon 0/1/1 ont 2 gemport 4 multi-service
user-vlan 50 rx-cttr 11 tx-cttr 11
```

Step 9 Configure the queue scheduling mode.

Use the 3PQ+5WRR queue scheduling. Queues 0-4 adopt the WRR mode, with the weights of 10, 10, 20, 20, and 40 respectively; queues 5-7 adopt the PQ mode.

Queue scheduling is a global configuration. You need to configure queue scheduling only once on the OLT, and then the configuration takes effect globally. In the subsequent phases, you do not need to configure queue scheduling repeatedly when configuring other services.

huawei(config)#queue-scheduler wrr 10 10 20 20 40 0 0 0

Configure the mapping between queues and 802.1p priorities. Priorities 0-7 map queues 0-7 respectively.

```
huawei(config)#cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
```

For the service board that supports only four queues, the mapping between 802.1p priorities and queue IDs is as follows: priorities 0 and 1 map queue 1; priorities 2 and 3 map queue 2; priorities 4 and 5 map queue 3; priorities 6 and 7 map queue 4.

Step 10 Save the data.

huawei(config)#**save**

----End

Configuration File

```
vlan 100,200,400,500 smart
vlan attrib 100 stacking
port vlan 100,200,400,500 0/19 0
arp proxy enable
interface vlanif 200
arp proxy enable
quit
dba-profile add profile-id 10 type4 max 102400
dba-profile add profile-id 20 type3 assure 30720 max 102400
dba-profile add profile-id 30 type4 max 204800
dba-profile add profile-id 40 type2 assure 30720
ont-lineprofile gpon profile-id 10
tcont 1 dba-profile-id 10
tcont 2 dba-profile-id 20
tcont 3 dba-profile-id 30
```

```
tcont 4 dba-profile-id 40
gem add 1 eth tcont 1
gem add 2 eth tcont 2
gem add 3 eth tcont 3
gem add 4 eth tcont 4
mapping-mode vlan
gem mapping 1 1 vlan 10
gem mapping 2 2 vlan 20
gem mapping 3 3 vlan 40
gem mapping 4 4 vlan 50
commit
quit
ont-srvprofile gpon profile-id 10
ont-port eth 4 pots 2 catv 1
port vlan eth 1 10
commit
quit
interface gpon 0/1
port 1 ont-auto-find enable
display ont autofind 1
ont confirm 1 ontid 1 sn-auth 6877687714852900 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont confirm 1 ontid 2 sn-auth 6877687714852901 omci ont-lineprofile-id 10 ont-
srvprofile-id 10
ont alarm-profile 1 1 profile-id 1
ont alarm-profile 1 2 profile-id 1
ont port native-vlan 1 1 eth 1 vlan 10
ont port native-vlan 1 2 eth 1 vlan 10
quit
traffic table ip index 8 cir 4096 priority 1 priority-policy tag-In-Package
traffic table ip index 9 cir off priority 6 priority-policy tag-In-Package
traffic table ip index 10 cir 6144 priority 1 priority-policy tag-In-Package
traffic table ip index 11 cir off priority 7 priority-policy tag-In-Package
service-port 1 vlan 100 gpon 0/1/1 ont 1 gemport 1 multi-service user-vlan 10 rx-
cttr 8 tx-cttr 8
service-port 2 vlan 100 gpon 0/1/1 ont 2 gemport 1 multi-service user-vlan 10 rx-
cttr 8 tx-cttr 8
service-port 3 vlan 200 gpon 0/1/1 ont 1 gemport 2 multi-service user-vlan 20 rx-
cttr 9 tx-cttr 9
service-port 4 vlan 200 gpon 0/1/1 ont 2 gemport 2 multi-service user-vlan 20 rx-
cttr 9 tx-cttr 9
service-port 5 vlan 400 gpon 0/1/1 ont 1 gemport 3 multi-service user-vlan 40 rx-
cttr 10 tx-cttr 10
service-port 6 vlan 400 gpon 0/1/1 ont 2 gemport 3 multi-service user-vlan 40 rx-
cttr 10 tx-cttr 10
service-port 7 vlan 500 gpon 0/1/1 ont 1 gemport 4 multi-service user-vlan 50 rx-
cttr 11 tx-cttr 11
service-port 8 vlan 500 gpon 0/1/1 ont 2 gemport 4 multi-service user-vlan 50 rx-
cttr 11 tx-cttr 11
queue-scheduler wrr 10 10 20 20 40 0 0 0
cos-queue-map cos0 0 cos1 1 cos2 2 cos3 3 cos4 4 cos5 5 cos6 6 cos7 7
save
```

3.4.2 Data Plan

This topic plans the data in a unified manner for various example networks of connecting ONTs in the FTTH GPON access mode. Subsequent examples are configured based on the following data plan.

Table 3-12 shows the unified data plan for the HSI service, VoIP service and Wi-Fi service in an FTTH network.

Configurat ion Item	Data Item	Detailed Data	Remarks
WAN port data	HSI service (Layer 3 routing)	 Service type: Internet Connection mode: routing VLAN ID: 10 IP address obtainment mode: PPPoE (user name: iadtest@pppoe, password: iadtest) 802.1p: 1 NAT function: enable Bound port: LAN1 (LAN1 is a Layer 3 LAN) 	• For configuring HSI service or Wi-Fi service, Internet or a combination containing Internet must be selected as the service type. For configuring VoIP service, VoIP or a combination containing VoIP must be selected as the service type.
	VoIP service	 Service type: VoIP Connection mode: routing VLAN ID: 20 IP address obtaining mode: DHCP 802.1p: 6 	 The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT. PPPoE must use the same user name and password as the upper-
	Wi-Fi service (Layer 3 bridge)	 Service type: Internet (not configurable) Connection mode: bridge VLAN ID: 40 802.1p: 1 Bound port: SSID1 	 The HSI service involves the Layer 2, Layer 3 bridge and Layer 3 routing modes. In the Layer 2 mode, all configurations are required only on the
	Wi-Fi service (Layer 3 routing)	 Service type: Internet Connection mode: routing VLAN ID: 40 IP address Obtainment mode: PPPoE (user name: iadtest@pppoe, password: iadtest) 802.1p: 1 NAT function: enable Bound port: SSID1 	 OLT. The application mode of the Layer 3 bridge mode is similar to the Layer 2 mode. It is recommended that you use the Layer 2 mode. The Wi-Fi service does not support the Layer 2 mode.

Table 3-12 Data plan for connecting ONTs in the FTTH GPON access mode

Configurat ion Item	Data Item	Detailed Data	Remarks
VoIP service data	SIP parameters	• IP address of the primary server: 200.200.200.200	The software version that supports SIP is
		• Port ID of the primary server: 5060	V100R002C06.
		• Home domain name: softx3000.huawei.com	
		• Digitmap: x.S x.# (Default)	
		• User 1:	
		- Phone number: 88001234	
		 Authentication user name: 88001234@softx3000.h uawei.com 	
		- Password: iadtest1	
		• User 2:	
		 Phone number: 88001235 	
		 Authentication user name: 88001235@softx3000.h uawei.com 	
		- Password: iadtest2	
	H.248 parameters	 Primary MGC address: 200.200.200.200 	The software version that supports H.248 is
		• Primary MGC port: 2944	V100R002C07.
		• MID format: domain name	
		 MG domain name: 6877687714852901 	
		• TID: A0 and A1	
Wi-Fi service	SSID1	ChinaNet-huawei	-
501 1100	Security mode	WPA Pre-Shared Key	
	WPA	• TKIP&AES	
	encryption mode	• Key: chinahuawei	

3.4.3 Locally Logging in to the Web Interface

This topic describes the data plan and procedure for logging in to the Web configuration interface.

Context

Before setting up the configuration environment, ensure that data information listed in Table **3-13** is available.

Item	Description		
User name and password	Default settings:		
	• Administrator:		
	- User name: telecomadmin		
	- Password: admintelecom		
	• Common user:		
	- User name: root		
	- Password: admin		
LAN IP address and subnet mask	Default settings:		
	• IP address: 192.168.100.1		
	• Subnet mask: 255.255.255.0		
IP address and subnet mask of the PC	Configure the IP address of the PC to be in the same subnet as the LAN IP address of the HG8010/HG8110/HG8240/HG8245/ HG8247/HG8447.		
	For example:		
	• IP address: 192.168.100.100		
	• Subnet mask: 255.255.255.0		

Table 3-13 Data plan

Procedure

- Step 1 Use a network cable to connect the LAN port of the HG8010/HG8110/HG8240/HG8245/ HG8247/HG8447 to a PC.
- **Step 2** Ensure that the Internet Explorer (IE) of the PC does not use the proxy server. The following section considers IE 6.0 as an example to describe how to check whether the IE uses the proxy server.
 - 1. Start the IE, and choose **ToolsInternet Options** from the main menu of the IE window. Then, the **Internet Options** interface is displayed.
 - 2. In the **Internet Options** interface, click the **Connections** tab, and then click **LAN** settings.
 - 3. In the Proxy server area, ensure that the Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections). check box is not selected (that is, without the " \checkmark " sign). If the check box is selected, deselect it, and then click OK.
- Step 3 Set the IP address and subnet mask of the PC. For details, see Table 3-13.
- Step 4 Log in to the Web configuration interface.

1. Enter http://192.168.100.1 in the address bar of IE (192.168.100.1 is the default IP address of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447), and then press Enter to display the login interface, as shown in Figure 3-8.

Figure 3-8 Login interface



2. In the login interface, enter the use name and password, and select your preferred language. For details about default settings of the user name and password, see **Table 3-13**. After the password authentication is passed, the Web configuration interface is displayed.

```
----End
```

3.4.4 Configuring the Internet Access Service on the Web Page

This topic provides an example of how to configure the Internet access service on the Web page.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- You have established the environment for logging in to the Web page for service configuration and have successfully logged in to the Web page. For details, see **3.4.3** Locally Logging in to the Web Interface.
- The user-side PC must be connected with the LAN port of an ONT by using network cables.

Context

The Internet access service includes the Layer 2 Internet access service and Layer 3 Internal access service.

- Layer 2 Internet access service: The PPPoE dialup is performed on the PC. The IP address is allocated by the upper-layer BRAS. The ONT is connected to the OLT and then to the upper-layer network in the Layer 2 mode to provide the high-speed Internet access service.
- Layer 3 Internet access service: The PPPoE auto dialup is performed on the ONT. The IP address is allocated by the DHCP IP address pool on the ONT. The ONT is connected to the OLT and then to the upper-layer network in the Layer 3 mode to provide the high-speed Internet access service.

You do not need to configure the Layer 2 Internet access service on the ONT, but you need to only enable the Layer 2 service channels between the OLT and ONT. This topic describes only how to configure the Layer 3 Internet access service.

Procedure

Step 1 Configure the working mode of a LAN port.

 In the navigation tree, choose LAN > LAN Port Work Mode. Select the check box of LAN 1 and set LAN1 to work in the Layer 3 mode.

LA	N > LAN Port Work Mode			
	On this page, you can config ports will be assigned as H	ure the LAN ports to work in lay 3 ports.	er3 mode by selecting the corres	ponding check box.The layer3
	🗹 LAN1	LAN2	LAN3	LAN4
				Apply Cancel

2. Click **Apply** to apply the configuration.

Step 2 Configure parameters of a WAN port.

- 1. In the navigation tree, choose WAN > WAN Configuration.
- 2. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of a WAN port as follows:
 - WAN Connection: Enable
 - Service List: INTERNET (For configuring the Internet access service, **INTERNET** or a combination containing **INTERNET** needs to be selected.)
 - Mode: Route
 - VLAN ID: 10 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p: 1
 - IP Acquisition Mode: PPPoE
 - NAT: Enable (NAT must be enabled to configure the Internet access service.)
 - User Name: iadtest@pppoe, Password: iadtest (The user name and password must be the same as the user name and password configured on the BRAS.)
 - Binding options: LAN1

VAN ≻ WAN Configuration						
On this page, you can confi the upper-layer network eq	gure WAN param uipment, and the p	eters. The ON parameters m	T home gateway u ust be consistent	uses the WAN int for both.	erface to communicate with	1
					New Delete	
Connection	Name	VLA	N/Priority	IP	Acquisition Mode	
	_					
Enable WAN Connection:						
Mode:	Route	*				
Service List:	INTERNET	*				
VLAN ID:	10		*(0-4094)			
802.1p:	1	*				
MultiCast VLAN ID:		(1-4094)			
IP Acquisition Mode:	О рнср 🔘	Static 💿 P	PPoE			
Enable NAT:						
User Name:	iadtest@pppoe	• *	(1-63)Characters			
Password:	•••••	*	(1-63)Characters			
Dial Method:	Auto	*				
Binding options:	LAN1	LAN2	LAN3	LAN4		
	Apply C	ancel				

- 3. Click **Apply** to apply the configuration.
- Step 3 Save the configuration.

Choose System Tools > Configuration File from the navigation tree. In the right pane, click Save Configuration.

System roots - Comiguration rife
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Upload Configuration File

Step 4 Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at IP.

St	atus > WAN Information							
	On this page, you can	query the conr	nection status and lir	ne status of the WAN	N interface.			
	WAN Name	Status	IP Acquisition Mode	IP Address	Subnet Mask	VLAN/Priority	MAC Address	Connect
	1_INTERNET_R_VID_10	Disconnected	PPPoE	192.168.11.52	255.255.255.0	10/1	78:1D:BA:3C:9F:34	AlwaysOn

----End

Result

- Layer 2 Internet access service: The PPPoE dialup is performed on the PC. After the dialup is successfully performed, the user can access the Internet.
- Layer 3 Internet access service: The PC is configured to obtain the IP addresses automatically. After the PPPoE dialup is successfully performed on the ONT, the PC can automatically obtain the IP addresses allocated by the ONT, and the user can access the Internet.

3.4.5 Configuring the SIP-based Voice Service on the Web Page

This topic provides an example of how to configure the SIP-based voice service on the Web page.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- You have established the environment for logging in to the Web page for service configuration and have successfully logged in to the Web page. For details, see **3.4.3** Locally Logging in to the Web Interface.
- Two telephone sets must be available and each must be connected to ports TEL1 and TEL2 respectively on the ONT.

Context

Some voice parameters cannot be configured on the Web page but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.1 Operation Guide on the XML Configuration File (on the Web Page)**.

Procedure

Step 1 Configure parameters of the voice WAN port.

- 1. In the navigation tree, choose WAN > WAN Configuration.
- 2. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of the WAN port as follows:
 - WAN Connection: Enable
 - Service List: VoIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)
 - Mode: Route

- VLAN ID: 20 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
- 802.1p: 6
- IP Acquisition Mode: DHCP

	1			
WAN > W/	AN Configuration			
Ont	his page, you can config	ure WAN parameters. The	ONT home gateway uses th	e WAN interface to communicate with
the	upper-layer network equi	pment, and the parameter	s must be consistent for bot	n.
				New Delete
	Connec	tion Name	VLAN/Priority	IP Acquisition Mode
	1_INTERN	ET_R_VID_10	10/1	PPPoE
Enable	WAN Connection:	✓		
Mode:		Route	*	
Service	e List:	VOIP	~	
VLAN I	D:	20	*(0-4094)	
802.1p	:	6	~	
IP Acqu	uisition Mode:	💿 DHCP 🔘 Static 🔇	PPPoE	
Vendo	r ID:		(The vendor ID must be) – 63 characters in length.)
		Apply Cancel		

3. Click **Apply** to apply the configuration.

Step 2 Configure parameters of the SIP-based voice interface.

- 1. In the navigation tree, choose Voice > VoIP Interface Configuration.
- 2. In the right pane, configure parameters of the SIP-based voice interface as follows (other parameters use the default settings):
 - Set Proxy Server Address below Primary Server to 200.200.200.200.
 - Home Domain: softx3000.huawei.com
 - Signaling Port: 1_VOIP_R_VID_20
 - Region: CN China

- The parameters of the SIP-based voice interface must be consistent with the corresponding configuration on the softswitch.
- If dual-homing is configured, Proxy Server Address below Secondary Server must be configured.
- If **Signaling Port** is empty, the parameter value is the same as **Media Port**. If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create different WAN ports on the ONT, and bind the created WAN ports to **Media Port** and **Signaling Port**.

/oice > VolP Basic Configuratio	n				
oice - voir Basic Conliguiatio	11				
Interface Basic Parameters					
On this page, you can set	the basic parameters for the v	pice interface.			
Primary Proxy Address:	200.200.200.200	*(IP or Domain)			
Primary Proxy Port:	5060	*(1-65535)			
Standby Proxy Address:		(IP or Domain)			
Standby Proxy Port:	5060	(1-65535)			
Home Domain:	sofb:3000.huawei.com	(IP or Domain)			
Local Port:	5060	^(1-65535)			
Digitmap:	x.S x.#				
Digitmap Match Mode:	Max 🐱				
Registration Period:	600	(Uint:s)(1~65534)			
Signaling Port:	1_VOIP_R_VID_20 🗸 (S	elect the name of the WAN that will carry the voice signaling			
orginaling fort.	messages.)				
Media Port:	1_VOIP_R_VID_20 🔽 (S	elect the name of the WAN that will carry the voice media. The			
	media port is same with si	media port is same with signaling port when it is empty.)			
Region:	CN - China	✓			
	Apply Cancel				

3. Click **Apply** to apply the configuration.

Step 3 Configure parameters of the SIP-based voice users.

- 1. In the navigation tree, choose Voice > VoIP User Configuration.
- 2. In the right pane, configure parameters of voice user 1 as follows:
 - Register User Name: 80001234
 - Auth User Name: 80001234@softx3000.huawei.com
 - Password: iadtest1
 - Associated POTS: 1 (binding port TEL1 on the ONT)
 - Select **Enable** to enable the voice user configuration.
- 3. Click **Apply** to apply the configuration.
- 4. In the right pane, click **New** to add voice user 2, and configure parameters of voice user 2 as follows:
 - Register User Name: 80001235
 - Auth User Name: 80001235@softx3000.huawei.com
 - Password: iadtest2
 - Associated POTS: 2 (binding port TEL2 on the ONT)
 - Select **Enable** to enable the voice user configuration.
- 5. Click **Apply** to apply the configuration.

- The parameters of the SIP-based voice user must be consistent with the corresponding configuration on the softswitch.
- If **Associated POTS** is **1**, port TEL1 on the ONT is bound. If **Associated POTS** is **2**, port TEL2 on the ONT is bound.

User Basic Pa	rameters					
On this pa	ge, you can set the	e basic parameters fo	or the voic	e users.		
					N	ew Delete
	Sequence	Register User Name		Auth User Name	Password	Associated POTS
	1	80001234	80001234@softx3000.huawei.com		*******	1
✓	2				*******	2
Enable User:						
Register User Name: 8000		80001235 * (Telphone Number)				
Associated POTS: 2						
Auth User Name: 80001235@sc			3000.huawi (The length must be between 0-64.)			
Password:		•••••		(The length must be betwe	een 0-64.)	
		Apply Cance	1			

Step 4 Save the configuration.

Choose **System Tools** > **Configuration File** from the navigation tree. In the right pane, click **Save Configuration**.

System Tools > Configuration File
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Browse Upload Configuration File

Step 5 Restart the voice process.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, click **Restart VoIP**.

On this page, you can query the voice user list and status.									
Sequence	Register User Name(Telephone Number)	User Status	Call Status						
1	80001234	Registering	Idle						
2	80001235	Registering	Idle						
2 80001235 Registering Idle To restart the VoIP service, click "Restart VoIP". Restart VoIP									

Step 6 Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at IP.

S	Status > WAN Information									
	On this page, you can query the connection status and line status of the WAN interface.									
	WAN Name	Status	IP Acquisition Mode	IP Address	Subnet Mask	VLAN/Priority	MAC Address	Connect		
	1_VOIP_R_VID_20	Connected	DHCP	192.168.11.52	255.255.255.0	20/6	78:1D:BA:3C:9F:34	AlwaysOn		

Step 7 Check the registration status of the voice user.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, **User Status** is **Up**.

Status ≻ VoIP Inf	Status > VoIP Information									
On this page, you can query the voice user list and status.										
Sequence	Register User Name(Telephone Number)	User Status	Call Status							
1	80001234	Up	Idle							
2	80001235	Up	Idle							
To restart the VoIP service, click "Restart VoIP".										
Restart V	DIP									

----End

Result

- User 1 with telephone number **88001234** can call user 2 with telephone number **88001235**, and the communication between them is normal. The communication is also normal for user 2's calling user 1.
- Check whether the voice communication between users using different ONTs is normal.

3.4.6 Configuring the H.248-based Voice Service on the Web Page

This topic provides an example of how to configure the H.248-based voice service on the Web page.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- You have established the environment for logging in to the Web page for service configuration and have successfully logged in to the Web page. For details, see **3.4.3** Locally Logging in to the Web Interface.
- Two telephone sets must be available and each must be connected to ports TEL1 and TEL2 respectively on the ONT.

Context

Some voice parameters cannot be configured on the Web page but can be configured by importing an XML configuration file. For details about how to import an XML configuration file, see **3.6.1 Operation Guide on the XML Configuration File (on the Web Page)**.

Procedure

Step 1 Configure parameters of the voice WAN port.

- 1. In the navigation tree, choose WAN > WAN Configuration.
- 2. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of the WAN port as follows:
 - WAN Connection: Enable
 - Service List: VoIP (For configuring the VoIP service, VoIP or a combination containing VoIP needs to be selected.)
 - Mode: Route
 - VLAN ID: 20 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p: 6
 - IP Acquisition Mode: DHCP

WAN > WA	N Configuration									
On this page, you can configure WAN parameters. The ONT home gateway uses the WAN interface to communicate with the upper-layer network equipment, and the parameters must be consistent for both.										
					New Delete					
	Connect	tion Name	VLAN/Priority	IP Acquis	ition Mode					
	1_INTERNET_R_VID_10		10/1	PF	PoE					
Enable	WAN Connection:									
Mode:		Route	~							
Service	List:	VOIP	~							
VLAN II	D:	20	*(0-4094)							
802.1p	:	6	~							
IP Acqu	iisition Mode:	⊙ DHCP ○ Static (PPPoE							
Vendor	ID:		(The vendor ID must be () – 63 characters in	length.)					
		Apply Cancel								

3. Click **Apply** to apply the configuration.

Step 2 Configure the parameters of the H.248-based voice interface.

- 1. In the navigation tree, choose Voice > VoIP Interface Configuration.
- 2. In the right pane, configure the parameters of the H.248-based voice interface as follows (other parameters use the default settings):
 - Set MGC Address below Primary Server to 200.200.200.200.
 - MID Format: DomainName
 - MG Domain: 6877687714852901
 - Signaling Port: 1_VOIP_R_VID_20
 - Region: CN China

- The parameters of the H.248-based voice interface must be consistent with the corresponding configuration on the media gateway controller (MGC).
- If dual-homing is configured, MGC Address below Secondary Server must be configured.
- MID Format can be set to Domain Name, IP, or Device. If MID Format is set to Domain Name or Device, the setting must be consistent with the corresponding configuration on the MGC.
- **Domain Name** is ONT's domain name registered on the MGC. It is globally unique. **Domain Name** in this example is ONT's SN.
- If **Media Port** is empty, the parameter value is the same as **Signaling Port**. The media streams are not isolated from signaling streams. If the upper-layer network requires isolation of media streams from signaling streams, create different traffic streams for the media streams and signaling streams on the OLT, create different WAN ports on the ONT, and bind the created WAN ports to **Media Port** and **Signaling Port**.
- **Profile Index** can be set to **Default**, **BT**, **FT**, **KPN**, **PCCW**, **ZTE**, or **BELL**. Choose the value based on the MGC type. **Profile Index** is set to **Default** (indicating interconnection with Huawei MGC) in this example. If the settings do not meet requirements, configure **UserDefine**. For details about how to configure this parameter, contact Huawei technical support.

Voice > VoIP Basic Configuration

Interface Basic Parameters						
On this page, you can set t	he basic parameters for the vo	ice interface.				
Primary MGC Address:	200.200.200.200	*(IP or Domain)				
Primary MGC Port:	2944	*(1-65535)				
Standby MGC Address:		(IP or Domain)				
Standby MGC Port:	2944	(1-65535)				
MG Domain:	6877687714852901					
Local Port:	2944	*(1-65535)				
Device Name:						
MID Format:	DomainName 🔽					
Digitmap Match Mode:	Min 🐱					
RTP TID Prefix:	A100					
Start Number of RTP TID:	0					
Width of RTP TID Number:	6					
Signaling Port:	1_VOIP_R_VID_20 💙 (Se messages.)	lect the name of the WAN that will carry the voice signaling				
Media Port:	1_VOIP_R_VID_20 💙 (Se media port name is same w	1_VOIP_R_VID_20 (Select the name of the WAN that will carry the voice media. The media port name is same with signaling port name when it is empty.)				
Region:	CN - China	v				
	Apply Cancel					

3. Click **Apply** to apply the configuration.

Step 3 Configure parameters of the H.248-based voice users.

- 1. In the navigation tree, choose Voice > VoIP User Configuration.
- 2. In the right pane, configure the parameters of voice user 1 as follows:
 - Line Name: A0
 - Associated POTS: 1 (binding port TEL1 on the ONT)
 - Select Enable Line Name to enable the voice user configuration.
- 3. Click **Apply** to apply the configuration.

- 4. In the right pane, click **New** to add voice user 2, and configure the parameters of voice user 2 as follows:
 - Line Name: A1
 - Associated POTS: 2 (binding port TEL2 on the ONT)
 - Select Enable Line Name to enable the voice user configuration.
- 5. Click **Apply** to apply the configuration.

- The terminal IDs A0 and A1 must be consistent with the corresponding configuration on the MGC.
- If **Associated POTS** is **1**, port TEL1 on the ONT is bound. If **Associated POTS** is **2**, port TEL2 on the ONT is bound.

User Basic Parameters									
On this page, you can set the basic parameters for the voice users.									
					New Delete				
		Sequence	Line Name	A	ssociated POTS				
	1		A0	1					
V	2			2					
Enable Line Name:									
Line Name:		A1	*						
Associated POTS: 2 V									
		Apply Cancel							

Step 4 Save the configuration.

Choose System Tools > Configuration File from the navigation tree. In the right pane, click Save Configuration.

system Loois > Configuration File							
You can aligh "Says Configuration" to age the current configuration to the flock memory							
You can click "Save Configuration" to save the current configuration to the flash memory.							
Save Configuration							
You can click "Download Configuration File" to back up the current configuration.							
Download Configuration File							
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.							
Configuration File: Upload Configuration File							

Step 5 Restart the voice process.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, click **Restart VoIP**.

Status > VoIP Information									
On this page, you can query the voice user list and status.									
Sequence Line Name Telephone Number User Status Call Status Interface Status									
1	AO		Registering	Idle	Destorting				
2	A1		Registering	Idle	Restanting				
To restart the VoIP service, click "Restart VoIP".									
Restart	Restart VolP								

Step 6 Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at IP.

On this page, you	On this page, you can query the connection status and line status of the WAN interface.							
WAN Name Status IP Acquisition Mode IP Address Subnet Mask VLAN/Priority MAC Address Co							Connect	
			n maarooo	ouniter maon	·	mac addi coo	connoct	

Step 7 Check the registration status of the voice user.

In the navigation tree, choose **Status** > **VoIP Information**. In the right pane, **User Status** is **Up**.

Status > VoIP Information										
On this page, you can query the voice user list and status.										
Sequence	Line Name	Telephone Number	User Status	Call Status	Interface Status					
1	AO		Up	Idle	Incomico					
2	A1		Up _	Idle	Inservice					
To restart the VoIP service, click "Restart VoIP".										
Restart VolP										

----End

Result

• User 1 with telephone number **88001234** can call user 2 with telephone number **88001235**, and the communication between them is normal. The communication is also normal for user 2's calling user 1.

The termination IDs of line 1 and line 2 configured on the MGC correspond to telephone numbers **88001234** and **88001235** respectively.

• Check whether the voice communication between users using different ONTs is normal.

3.4.7 Configuring the Wi-Fi Access Service on the Web Page

This topic provides an example of how to configure the Wi-Fi access service on the Web page.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- You have established the environment for logging in to the Web page for service configuration and have successfully logged in to the Web page. For details, see **3.4.3** Locally Logging in to the Web Interface.
- A portable computer with the Wi-Fi function must be available.

Context

The Wi-Fi wireless access service includes the Layer 3 bridge Wi-Fi service and the Layer 3 route Wi-Fi service.

- Layer 3 Wi-Fi service: Search for the SSID is performed on the PC. After the user passes the verification, the PPPoE auto dialup is performed on the PC. The IP address is allocated by the upper-layer BRAS. The ONT is connected to the OLT and then to the upper-layer network in the Layer 3 mode to provide the high-speed Internet access service.
- Layer 3 route Wi-Fi service: Search for the SSID is performed on the PC. After the user passes the verification, the PPPoE auto dialup is performed on the PC. The ONT is connected to the OLT and then to the upper-layer network in the Layer 3 mode to provide the high-speed Internet access service.

Procedure

- Layer 3 bridge Wi-Fi service
 - 1. Configure the Wi-Fi parameters.
 - a. In the navigation tree, choose Wi-Fi > Wi-Fi Basic Configuration.
 - b. Select **Enable Wireless** to enable the Wi-Fi function. Then, set the parameters as follows:
 - SSID: ChinaNet-huawei
 - Authentication Mode: WPA Pre-Shared Key
 - Encryption Mode: TKIP&AES
 - WPA PreSharedKey: chinahuawei

VLAN > 1	WLAN Config	guration							
On this page, you can set the WLAN parameters, including the WLAN switch, SSID configuration, and channel selection.									
🗹 En	able WLAN								
Basic (Configration							New Delete	
:	SSID Index	SSID Name	SSID State	Asso	ciate	d Device Number	Broadcast SSID	Security Configuration	
	1	WirelessNet	Enable	32			Enable	Unconfigured	
SSID C	onfiguration	in Detail							
SSID	Name:		WirelessNet		*				
Enabl	e SSID:				_				
Assoc	iated Device	Number:	32		*				
Broad	icast SSID:		~						
WMM	Enable:								
Authe	ntication Mod	de:	Open 🔽						
Encry	ption Mode:		None		*				
			Apply	Cancel					
Advand	ce Configrati	ion							
Trans	mitting Powe	er:	100%		~				
Regul	latory Domai	n:	CHINA		*				
Chan	nel:		Auto		~				
Chan	nel Width:		20MHz		~				
Mode:			802.11b/g/n		\sim				
DTIM	Period:		1			(1-255, default: 1)			
Веасс	on Period:		100			ms (20-1000ms, d	lefault: 100)		
RTS T	hreshold:		2346			Byte(s) (1-2346 by	te, default: 2346)		
Frag 1	Threshold:		2346			Byte(s) (256-2346	byte, default: 2346)		
			Apply	Cancel					

- c. Click **Apply** to apply the configuration.
- 2. Configure the parameters of the Layer 3 bridge WAN port.
 - a. In the navigation tree, choose WAN > WAN Configuration.
 - b. In the right pane, click **New**. In the dialog box that is displayed, configure parameters of the WAN port as follows:
 - WAN Connection: Enable
 - Mode: Bridge
 - VLAN ID: 40 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p: 1
 - Bridge Type: PPPoE_Bridged
 - Binding options: SSID1

WAN > WAN Configuration

On this page, you can configure WAN parameters. The ONT home gateway uses the WAN interface to communicate with the upper-layer network equipment, and the parameters must be consistent for both.

					New	Kelliove
Connection N	ame	VLAN	/Priority	IP /	ode	
		-				
NewWanConnction						
WAN Connection:	NewWanConne	ction	Enable			
Service List:	INTERNET	~				
Mode:	Bridge 💌					
VLAN ID:	40 [1-4	1094]				
802.1p:	1 🕶					
MultiCast VLAN ID:		[1	-4094]			
Bridge Type:	PPPoE_Bridg	jed 🔽				
Binding options:	□ LAN1 ✓ SSID1	LAN2 SSID2	LAN3	LAN4 SSID4		
					Apply Ca	ancel

When you use Wi-Fi access service in the PPPoE mode, if DHCP is used, you need to set **Bridge Type** to **IP_Bridged** and enable the DHCP relay function. For procedure details, see **5.3.3 DHCP Server Configuration**.

- c. Click **Apply** to apply the configuration.
- 3. Save the configuration.

Choose **System Tools** > **Configuration File** from the navigation tree. In the right pane, click **Save Configuration**.

System Tools > Configuration File
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Upload Configuration File

4. Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **User Status** is **Connected**.

WAN > WAN Configuration			
On this page,you can confi equipment through the WA consistent with those of the	gure WAN parameters.The N interface. During the con a upper-layer network equi	ONT home gateway con nmunication, the parame pment.	mmunicates with the upper-layer network ter settings of the WAN interface must be
			New Delete
Connection	Name	VLAN/Priority	IP Acquisition Mode
Enable WAN Connection:			
Service List:	INTERNET	~	
Mode:	Route	*	
VLAN ID:	300	*(1-4094)	
802.1p:	1	~	
MultiCast VLAN ID:		(1-4094)	
IP Acquisition Mode:	🔿 DHCP 🔘 Static	PPPoE	
Enable NAT:			
User Name:	iadtest@pppoe	*(1-63)Characters	
Password:	•••••	*(1-63)Characters	
Dial Method	Auto	~	
Binding options:	LAN1 LAI	N2 LAN3	LAN4 SSID4
	Apply Cancel		

- Layer 3 route Wi-Fi service
 - 1. Configure the Wi-Fi parameters.
 - a. In the navigation tree, choose Wi-Fi > Wi-Fi Basic Configuration.
 - b. Select **Enable Wireless** to enable the Wi-Fi function. Then, set the parameters as follows:
 - SSID: ChinaNet-huawei
 - Authentication Mode: WPA Pre-Shared Key
 - Encryption Mode: TKIP&AES
 - WPA PreSharedKey: chinahuawei

VLAN >	 WLAN Config 	guration						
0	n this page, yo	ou can set the	WLAN parame	eters, inc	ludin	g the WLAN switch,	SSID configuration,	and channel selection.
⊡ E	nable WLAN							
Basic	Configration							New Delete
	SSID Index	SSID Name	SSID State	Asso	ciate	d Device Number	Broadcast SSID	Security Configuration
	1	WirelessNet	Enable	32			Enable	Unconfigured
SSID	Configuration	in Detail						
SSIE) Name:		WirelessNet		*			
Enal	ble SSID:							
Asso	ociated Device	Number:	32		*			
Broa	idcast SSID:		V					
WMN	/ Enable:							
Auth	entication Mod	de:	Open		*			
Encr	yption Mode:		None		*			
			Apply	Cancel				
Adva	nce Configrati	ion						
Tran	smitting Powe	er:	100%		~			
Reg	ulatory Domai	n:	CHINA		~			
Cha	nnel:		Auto		~			
Cha	nnel Width:		20MHz		~			
Mod	e:		802.11b/g/n		\sim			
DTIN	1 Period:		1			(1-255, default: 1)		
Bea	con Period:		100] ms (20-1000ms, d	lefault: 100)	
RTS	Threshold:		2346			Byte(s) (1-2346 by	te, default: 2346)	
Frag	Threshold:		2346			Byte(s) (256-2346	byte, default: 2346)	
			Apply	Cancel				

- c. Click **Apply** to apply the configuration.
- 2. Configure the parameters of the Layer 3 route WAN port.
 - a. In the navigation tree, choose WAN > WAN Configuration.
 - b. In the right pane, click **New**. In the dialog box that is displayed, configure the parameters of the Layer 3 route WAN port as follows:
 - WAN Connection: Enable
 - Service List: INTERNET (For configuring the Internet access service, INTERNET or a combination containing INTERNET needs to be selected.)
 - Mode: Route
 - VLAN ID: 40 (The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT.)
 - 802.1p:1
 - IP Acquisition Mode: PPPoE
 - NAT: Enable
 - User Name: iadtest@pppoe, Password: iadtest (The user name and password must be the same as the user name and password configured on the BRAS.)
 - Binding options: SSID1

Status ≻ WAN Information							
WAN Name	Status	IP Acquisition Mode	IP Address	Subnet Mask	VLAN/ Priority	MAC Address	Connect
1_INTERNET_R_VID_300	connected	PPPoE	192.168.1.98	255.255.255.0	300/1	00:00:00:00:00:03	AlwaysOn

- c. Click Apply to apply the configuration.
- 3. Save the configuration.

Choose System Tools > Configuration	File from the navigation tree. In the right
pane, click Save Configuration.	

System Tools > Configuration File
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Upload Configuration File

4. Check the ONT connection status.

In the navigation tree, choose **Status** > **WAN Information**. In the right pane, **Status** is **Connected** and the obtained IP address is displayed at **IP**.

On this page, you can check the connection status and line status of the WAN interface.

WAN St	tatus IP Acqu	isition Mode IP	Subnet Mask	VLAN/Priority	MAC
1_INTERNET_R_VID_40 Con	nected P	PPoE 192.168.11	52 255.255.255.0	40/1	28:6E:D4:0D:BC:ED

----End

Result

- Layer 3 bridge Wi-Fi service: SSID radio signals can be searched on the PC. After the user enter the authentication key and pass the authentication, the user can access the Internet.
- Layer 3 route Wi-Fi service: SSID radio signals can be searched on the PC. After the user enter the authentication key and pass the authentication, the PC can obtain the IP address allocated by the DHCP IP address pool on the ONT. After the PPPoE dialup is successfully performed on the ONT, the user can access the Internet.

The security mode and encryption configured on a Wi-Fi terminal must be the same as those of an ONT. If you cannot find the following encryption modes: TKIP&AES, and AES. The reason may lie in an old Wi-Fi driver version. If so, replace the old version with a new one.

3.5 Configuring the Service by Using U2560

This topic describes how to configure the Internet access service, VoIP service and Wi-Fi service by using U2560.

3.5.1 Preparations

Before configuring services on the U2560, plan data of the entire network in a unified manner and add the ONT to the U2560.

Commissioning Interoperation Between the U2560 and the ONT Through the Web Page

To configure and issue ONT services using the U2560, you need to add the ONT on the U2560 so that the U2560 can manage the ONT.

Prerequisite

Before adding an ONT to the U2560, ensure that Layer 2 service channels between the OLT and the ONT are enabled and the management traffic stream on the U2560 are created. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.

Data Plan

Table 3-14 provides the data plan for commissioning interoperation between the U2560 and the ONT through the Web page.

Table 3-14 Data plan for commissioning interoperation between the U2560 and the ONT through the Web page

Parameter	Data	Description
Service type of the WAN interface	TR069	When configuring the U2560 management channel, you need to select only TR069 or a combination with TR069. In this example, TR069 is selected.
Connection mode	Route	-
VLAN ID of the WAN interface	50	The VLAN ID of the WAN interface must be the same as the CVLAN ID configured on the OLT.
Mode of obtaining an IP address	DHCP	 There are three modes to obtain an IP address: DHCP: Obtain an IP address dynamically. Static: Configure an IP address manually. PPPoE: Access in the PPPoE dialup mode. In this example, the DHCP mode is configured. You can also select the static or PPPoE mode according to the data plan of the upper-layer network.
ACS URL	http:// 10.11.11.1:9070	It can be the IP address, port ID, domain name of the ACS server.
Periodical notification interval	43200	It is the default value of the system.

Parameter	Data	Description
ACS user name	hgw	It is the default value of the system.
ACS password	hgw	It is the default value of the system.
User name of a requested connection	server	It must be the same as that planned on the U2560.
Password of a requested connection	server	It must be the same as that planned on the U2560.

Flowchart

Figure 3-9 shows the flowchart for commissioning interoperation between the U2560 and the ONT through the Web page.

Figure 3-9 Flowchart for commissioning interoperation between the U2560 and the ONT through the Web page



Procedure

Step 1 Configure the parameters of the WAN interface.

- 1. In the navigation tree on the left, choose WAN > WAN Configuration.
- 2. In the pane on the right, click **New**. In the dialog box that is displayed, configure the parameters of the WAN interface as follows:
 - WAN Connection: Enable

- Service List: TR069
- Mode: Route
- VLAN ID: 50
- 802.1p: 6
- IP Acquisition Mode: DHCP

_			
WAN > WAN Configuration			
On this page,you can confi	gure WAN paramet	ters.The ONT home gatew	ay communicates with the upper-layer network
consistent with those of the	N Interface. During 9 upper-layer netwo	the communication, the pa ork equipment.	arameter settings of the WAN Intenace must be
			New Delete
Connection	Name	VLAN/Priority	IP Acquisition Mode
Enable WAN Connection:			
Service List:	TR069	~	
Mode:	Route	~	
VEAN ID:	220	#/1_4004D	
VLANID.	320	~(1-4094)	
802.1p:	0	*	
IP Acquisition Mode:	💿 DHCP 🔘	Static 🔘 PPPoE	
Vendor ID:		(The vendor IC	D must be 0 – 63 characters in length.)
	Apply Ca	ancel	

3. Click **Apply** to apply the configuration.

Step 2 Configure the TR-069 parameters.

- 1. In the navigation tree on the left, choose System Tools > TR-069.
- 2. In the pane on the right, set the TR-069 client parameters (other parameters use the default values) as follows:
 - ACS URL: http://10.11.11.1:9070
 - Connection Request User Name: server
 - Connection Request Password: server

System Tools > TR-069

ACS parameters config		
If the TR069 auto-provisioning fun	ction is enabled, you can	set the ACS parameters of the terminal.
Enable Period Inform:	v	
Period Inform Interval:	43200	*[1 - 2147483647](s)
Period Inform Time:		yyyy-mm-ddThh:mm:ss(For example:2009-12-20T12:23:34)
ACS URL:	http://10.11.11.1:9070	A
ACS User Name:	hgw	A
ACS Password:	•••	*(The length of password is between 1 and 256)
Connection Request User Name:	server	A
Connection Request Password:	•••••	*(The length of password is between 1 and 256)
	Apply Cancel	

3. Click **Apply** to apply the configuration.

Step 3 Save the configuration.

Choose **System Tools** > **Configuration File** from the navigation tree. In the right pane, click **Save Configuration**.

System Tools > Configuration File
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Browse Upload Configuration File

Step 4 Confirm the ONT.

Log in to the U2560 and then choose **Subnet view** > **TR-069 Subnet** from **WLAN and Home Network View** in the navigation tree on the left. In the pane on the right, right-click and choose **Refresh** from the shortcut menu. The reported ONT list is displayed. Then, select the ONT list, right-click, and choose **Confirm** from the shortcut menu.

----End

Result

On the U2560, you can configure ONT services. For details, see the configuration examples.

3.5.2 Data Plan

This topic plans the data in a unified manner for various example networks of connecting ONTs in the FTTH GPON access mode. Subsequent examples are configured based on the following data plan.

Table 3-15 shows the unified data plan for the HSI service, VoIP service and Wi-Fi service in an FTTH network.

Configurat ion Item	Data Item	Detailed Data	Remarks
WAN port data	HSI service (Layer 3 routing)	 Service type: Internet Connection mode: routing VLAN ID: 10 IP address obtainment mode: PPPoE (user name: iadtest@pppoe, password: iadtest) 802.1p: 1 NAT function: enable Bound port: LAN1 (LAN1 is a Layer 3 LAN) 	• For configuring HSI service or Wi-Fi service, Internet or a combination containing Internet must be selected as the service type. For configuring VoIP service, VoIP or a combination containing VoIP must be selected as the service type.
	VoIP service	 Service type: VoIP Connection mode: routing VLAN ID: 20 IP address obtaining mode: DHCP 802.1p: 6 	 The VLAN ID of the ONT must be the same as the user-side VLAN ID configured on the OLT. PPPoE must use the same user name and password as the upper-
	Wi-Fi service (Layer 3 bridge)	 Service type: Internet (not configurable) Connection mode: bridge VLAN ID: 40 802.1p: 1 Bound port: SSID1 	 The HSI service involves the Layer 2, Layer 3 bridge and Layer 3 routing modes. In the Layer 2 mode, all configurations are required only on the
	Wi-Fi service (Layer 3 routing)	 Service type: Internet Connection mode: routing VLAN ID: 40 IP address Obtainment mode: PPPoE (user name: iadtest@pppoe, password: iadtest) 802.1p: 1 NAT function: enable Bound port: SSID1 	 OLT. The application mode of the Layer 3 bridge mode is similar to the Layer 2 mode. It is recommended that you use the Layer 2 mode. The Wi-Fi service does not support the Layer 2 mode.

Table 3-15 Data plan for connecting ONTs in the FTTH GPON access mode

Configurat ion Item	Data Item	Detailed Data	Remarks	
VoIP service data	SIP parameters	• IP address of the primary server: 200.200.200.200	The software version that supports SIP is	
		• Port ID of the primary server: 5060	V100R002C06.	
		• Home domain name: softx3000.huawei.com		
		• Digitmap: x.S x.# (Default)		
		• User 1:		
		- Phone number: 88001234		
		 Authentication user name: 88001234@softx3000.h uawei.com 		
		- Password: iadtest1		
		• User 2:		
		 Phone number: 88001235 		
		 Authentication user name: 88001235@softx3000.h uawei.com 		
		- Password: iadtest2		
	H.248 parameters	 Primary MGC address: 200.200.200.200 	The software version that supports H.248 is	
		• Primary MGC port: 2944	V100R002C07.	
		• MID format: domain name		
		 MG domain name: 6877687714852901 		
		• TID: A0 and A1		
Wi-Fi service	SSID1	ChinaNet-huawei	-	
	Security mode	WPA Pre-Shared Key		
	WPA	• TKIP&AES		
	encryption mode	• Key: chinahuawei		

3.5.3 Configuring the Internet Access Service Through the U2560

This topic provides an example of how to configure the Internet access service through the U2560.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- The ONT is auto discovered on the U2560. For details, see **Commissioning Interoperation Between the U2560 and the ONT Through the Web Page**.
- The user-side PC must be connected with the LAN port of an ONT by using network cables.

Context

The Internet access service includes the Layer 2 Internet access service and Layer 3 Internal access service.

- Layer 2 Internet access service: The PPPoE dialup is performed on the PC. The IP address is allocated by the upper-layer BRAS. The ONT is connected to the OLT and then to the upper-layer network in the Layer 2 mode to provide the high-speed Internet access service.
- Layer 3 Internet access service: The PPPoE auto dialup is performed on the ONT. The IP address is allocated by the DHCP IP address pool on the ONT. The ONT is connected to the OLT and then to the upper-layer network in the Layer 3 mode to provide the high-speed Internet access service.

You do not need to configure the Layer 2 Internet access service on the ONT, but you need to only enable the Layer 2 service channels between the OLT and ONT. This topic describes only how to configure the Layer 3 Internet access service.

Every data change must be saved. You can click **Save** in a window to save data changes. If you navigate to another node without saving data changes, a dialog box will be displayed prompting you to save the data changes. In this case, click **YES** in the dialog box. New data will be automatically applied to the ONTs after the data changes are saved.

When configuring services on the U2560, do not modify the WAN interface connecting the U2560 and the ONT. Otherwise, the U2560 loses communication with the ONT.

Procedure

- **Step 1** Log in to the U2560 and choose **Subnet View** > **TR069 Subnet** from the navigation tree. In the terminal list, right-click an ONT and choose **Tools** > **Configure in Real Time** from the shortcut menu.
- Step 2 In the Configure in Real Time dialog box, set Root Node to Internet gateway device.

Step 3 Configure the working mode of a LAN port.

Choose InternetGatewayDevice > LANDevice > 1 > LANEthernetInterfaceConfig > 1 from the navigation tree. In the right pane, set X_HW_L3Enable to 1, indicating that port LAN1 works in the L3 mode.

Root Node Internet gateway devic				
Internet gateway device Internet Gateway Device LANDevice 1 X_HW_Wan Enable + WLANConfiguration + UANHost Configuration + LANHost Configuration + Hosts - LANEthernetInterfa + 1 + 2 + 3 + 4 + X_HW_LANGlobalCc + WANDevice + Services + X_HW_Security + X_HW_Security + X_HW_APMPolicy + DeviceInfo Add				
Refresh Modify Cancel Save				

- When **X_HW_L3Enable** is set to **0**, it indicates that the corresponding LAN port works in the L2 mode.
- When **X_HW_L3Enable** is set to **1**, it indicates that the corresponding LAN port works in the L3 mode.

By default, X_HW_L3Enable is set to 0.

Step 4 Configure the parameters of the WAN interface.

- 1. Choose InternetGatewayDevice > WANDevice > 1 > WANConnectionDevice from the navigation tree. Click Add in the lower left part to create an instance.
- 2. Choose **2** > **WANPPPConnection** from the navigation tree and click **Add** in the lower left part. Choose the new **1** branch from the navigation tree. In the right pane, set parameters as follows:
 - Set **Enable** to **1**, indicating that the WAN connection is enabled.
 - Set **Connection Type** to **IP_Routed**, indicating that the connection type of the WAN interface is in routing mode.
 - Set NATEnable to 1, indicating that the NAT function is enabled.
 - Set Username to iadtest@pppoe and Password to iadtest, indicating that the PPPoE user name is iadtest@pppoe and the password is iadtest.
 - Set X_HW_SERVICELIST to INTERNET, indicating that the WAN interface provides Internet access.
 - Set X_HW_VLAN to 10, indicating the VLAN ID of the WAN interface is 10.
 - Set X_HW_PRI to 1, indicating the priority level of the WAN interface is 1.

- If the WAN interface obtains IP addresses in static or DHCP mode, choose **WANIPConnection** to set the parameters of the WAN interface.
- If the WAN interface obtains IP addresses in PPPoE mode, choose **WANPPPConnection** to set the parameters of the WAN interface.

Configure in Real Time					
Root Node Internet gateway device 🗸					
InternetGatewayDevice		Parameter		Value	
LANDevice		Enable	1		
± 1		ConnectionStatus	Unconfig	ured	
		ConnectionType	IP_Route	ed	
WANConnectionNu		DefaultGateway			
WANConnectionDev		Name	wan2	wan2	
= 2		NATEnabled	1		
⊕ WANIPConne		Username	iadtest@	iadtest@pppoe	
WANPPPConr		Password	iadtest		
E Capitan		ExternalIPAddress			
+ X HW DHCPSLVSERVER		DNSEnabled	1	1	
. Time		DNSServers			
Layer3Forwarding		MACAddress	28:6E:D4	4:0D:BC:EC	
		PortMappingNumberOfEnt	tries 0		
		X_HW_SERVICELIST	INTERNE	INTERNET	
X_HW_BatteryInfo		X_HW_VLAN	10		
	~	X_HW_PRI	1		
		X_HW_MultiCastVLAN	4294967	295	
Add Delete					
Refresh Modify		<			>
			ОК	Cancel	Save

Step 5 Bind a LAN port.

Choose **1X_HW_LANBIND** from the navigation tree. In the right pane, set **Lan1Enable** to **1** to bind the WAN interface to LAN port 1.

Configure in Real Time					
Root Node Internet gateway device					
WANPPPConnection	-	Parameter		Value	
Enable		Lan1Enable	1		
ConnectionStatus		Lan2Enable	0		
ConnectionType		Lan3Enable	0		
DefaultGateway		Lan4Enable	0		
NATEnabled		SSID1Enable	0		
Username		SSID2Enable	0		
Password ExternalIDAddress		SSID3Enable	0		
DNSEnabled DNSServers MACAddress PortMappingNumberC X HW, SERVICELIST		SSID4Enable	0		
			_		
X_HW_VLAN	X_HW_VLAN				
X_HW_PRI					
X_HVV_MULICASUVLAN	X_HW_MultiCastVLAN				
TX HW LANBIND					
IS IS					
DHCPSI VSERVER	≤				
Add Delete					
Refresh Modify		<			>
			ОК	Cancel	Save

Step 6 Click OK after the configuration.

----End

Result

- Layer 2 Internet access service: The PPPoE dialup is performed on the PC. After the dialup is successfully performed, the user can access the Internet.
- Layer 3 Internet access service: The PC is configured to obtain the IP addresses automatically. After the PPPoE dialup is successfully performed on the ONT, the PC can automatically obtain the IP addresses allocated by the ONT, and the user can access the Internet.

3.5.4 Configuring SIP-based Voice Service Through the U2560

This topic provides an example of how to configure the SIP-based voice service through the U2560.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- The ONT is auto discovered on the U2560. For details, see **Commissioning Interoperation Between the U2560 and the ONT Through the Web Page**.
• Two telephone sets must be available and each must be connected to ports TEL1 and TEL2 respectively on the ONT.

Context

Every data change must be saved. You can click **Save** in a window to save data changes. If you navigate to another node without saving data changes, a dialog box will be displayed prompting you to save the data changes. In this case, click **YES** in the dialog box. New data will be automatically applied to the ONTs after the data changes are saved.



When configuring services on the U2560, do not modify the WAN interface connecting the U2560 and the ONT. Otherwise, the U2560 loses communication with the ONT.

Procedure

- Step 1 Log in to the U2560 and choose Subnet View > TR069 Subnet from the navigation tree. In the terminal list, right-click an ONT and choose Tools > Configure in Real Time from the shortcut menu.
- Step 2 In the Configure in Real Time dialog box, set Root Node to Internet gateway device.
- Step 3 Configure the parameters of the voice WAN interface.
 - 1. Choose **InternetGatewayDevice** > **WANDevice** > **1** > **WANConnectionDevice** from the navigation tree. Click **Add** in the lower left part to create an instance.
 - 2. Choose **2** > **WANIPConnection** from the navigation tree. Click **Add** in the lower left part. Choose **1** from the navigation tree. In the right pane, set the parameters as follows:
 - Set **Enable** to **1**, indicating that the WAN connection is enabled.
 - Set **Connection Type** to **IP_Routed**, indicating that the connection type of the WAN interface is in routing mode.
 - Set **Addressing Type** to **DHCP**, indicating that the WAN interface obtains IP addresses in DHCP mode.
 - Set X_HW_SERVICELIST to VOIP, indicating that the WAN interface provides the VoIP access service.
 - Set X_HW_VLAN to 20, indicating the VLAN ID of the WAN interface is 20.
 - Set X_HW_PRI to 6, indicating that the priority level of the WAN interface is 6.

- If the WAN interface obtains IP addresses in static or DHCP mode, choose **WANIPConnection** to set parameters of the voice WAN interface.
- If the WAN interface obtains IP addresses in PPPoE mode, choose **WANPPPConnection** to set parameters of the voice WAN interface.

Configure in Real Time								
Root Node Internet gateway device								
InternetGatewayDevice	^	Parameter	Value					
LANDevice		Enable	1					
		ConnectionStatus	Unconfigured					
WANConnectionNur		ConnectionType	IP_Routed					
WANConnectionDev		Name	wan2					
		NATEnabled	0					
= 2 = WANIPConne		AddressingType	DHCP					
± 1		ExternalIPAddress						
WANPPPConn		SubnetMask						
Services		DefaultGateway						
X_HVV_DHCPSLVSERVER Time		DNSEnabled	1					
		DNSServers						
X_HW_Security		MACAddress	28:6E:D4:0D:BC:EC					
X_HW_APMPolicy	-	PortMappingNumberOfEntries	0					
DeviceInfo X HW BattervInfo		X_HW_SERVICELIST	VOIP					
X_HW_ALG		X_HW_VLAN	20					
	~	X_HW_PRI	6					
		X_HW_MultiCastVLAN	4294967295					
Add Delete		X_HW_VenderClassID						
Refrech Modify								
Kerresn Modify								
			OK Cancel Save					

Step 4 Configure the voice protocol parameters.

Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 from the navigation tree. In the right pane, set the parameters as follows:

- Set SignalingProtocol to SIP, indicating that the SIP protocol is used.
- Set **Region** to **CN**, indicating the country code of China.
- Set X_HW_PortName to wan2, indicating that the new WAN interface 2 is bound.

Configure in Real Time						
Root Node Internet gateway device 🗸						
InternetGatewayDevice	~	Parameter	Value			
LANDevice		Name	- Value			
		Reset	0			
VoiceService		SignalingProtocol	SIP			
⊡ 1		Region	CN			
		DTMFMethod	InBand			
PhyInterface		DigitMap	x.S x.#			
		X_HW_DigitMapMatchMode	Min			
X_HW_DialSN X_HW_LipeTest ⁻		X_HW_PortName	wan2			
X HW InnerCal		X_HW_OverseaVer	0			
X_HW_DHCPSLVSERVER		X_HW_HowierSendFlag	1 Classed			
Time Laver2Ferruardian		X_HW_InterfaceState	Closed			
X HW Security	-					
X_HW_APMPolicy						
DeviceInfo						
X_HVV_BatteryInto X_HVV_ALG	~					
<						
Add Delete]					
Refresh Modify		<		>		
			OK Cancel	Save		

Step 5 Configure the SIP service parameters.

Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 > SIP from the navigation tree. In the right pane, set the parameters as follows:

- Set **ProxyServer** to **softx3000.huawei.com**, indicating that the address of the SIP proxy server is **softx3000.huawei.com**.
- Set **RegistarServer** to **200.200.200.00**, indicating that the SIP registration address is **200.200.200.200**.

Configure in Real Time					
Root Node Internet gateway device 🗸					
 Services 	~	Parameter	Value		
VoiceService		ProxyServer	softx3000.huawei.com	^	
= 1 = VoiceProfile		ProxyServerPort	5060		
		ProxyServerTransport	UDP		
Name		X_HW_SecondaryProxyServer			
Reset		X_HW_SecondaryProxyServer	5060		
Region		RegistrarServer	200.200.200.200		
DTMFMeth DigitMap		UserAgentDomain			
X_HW_Dig		UserAgentPort	5060		
X_HW_Por		Organization		_	
X_HVV_OV		RegistrationPeriod	600	=	
X_HW_Int		TimerT1	500		
		TimerT2	4000		
■ <u>∧_</u> nvv_n2*		TimerT4	5000		
± RTP		RegisterRetryInterval	30		
± Tone		InboundAuthUsername			
± FaxT38	≤	InboundAuthPassword			
		UseCodecPriorityInSDPRespor	0		
Add Delete		DSCPMark	0		
Refresh Modify		CTDResponseManNumberOfFle	>	×	
			OK Cancel Save	٦	

Step 6 Configure the information about SIP voice users.

 Choose InternetGatewayDevice > Service > VoiceService > 1 > VoiceProfile > 1 > Line > 1 from the navigation tree. In the right pane, set DirectoryNumber to 88001234, indicating that the telephone number of SIP user 1 is 88001234.

Configure in Real Time	X
Root Node Internet gateway device DTMFMethod DigitMap X_HW_DigitMapMatchMod X_HW_PortName X_HW_OverseaVer X_HW_HowlerSendFlag X_HW_InterfaceState # SIP # X_HW_H248 # MGCP # RTP # Tone # FaxT38 # X_HW_FaxModem # X_HW_RemoteCapServer X_HW_RemoteCapServer X_HW_DialSN Add Delete	Value ed L234 e zing
Refresh Modify	Cancel Save

 Choose 1 > SIP from the navigation tree. In the right pane, set AuthUserName to 88001234@softx3000.huawei.com and AuthPassword to iadtest1, indicating that the user name and password of user 1 for authentication are 88001234@softx3000.huawei.com and iadtest1 respectively.

Configure in Real Time			×
Root Node Internet gateway de	ViC	~	
± KIP	^	Parameter	Value
Tone		AuthUserName	88001234 @softx3000 buawei.com
± Fax138		AuthDassword	iadtest1
T X HW Ring			BUCESCI
Enable			
DirectoryNumber			
PhyReferenceList			
X HW Priority			
Status	=		
CallState			
± SIP			
± X_HVV_H248			
GallingEestures			
VoiceProcessing			
⊕ Stats			
Codec			
± 2	~		
<			
Add Delete			
Refresh Modify		<	
			OK Cancel Save

3. Set information about SIP user 2 in the same way.

Choose InternetGatewayDevice > Service > VoiceService > 1 > VoiceProfile > 1 > Line from the navigation tree. Click Add in the lower left part. Choose 2 from the navigation tree. In the right pane, set DirectoryNumber to 88001235, indicating the telephone number of SIP user 2 is 88001235.

Choose 2 > SIP from the navigation tree. In the right pane, set AuthUserName to **88001235@softx3000.huawei.com** and AuthPassword to **iadtest2**, indicating that the user name and password of user 2 for authentication are

88001235@softx3000.huawei.com and iadtest2 respectively.

Step 7 Restart the voice process.

Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 from the navigation tree. In the right pane, set Reset to 1, indicating that the voice process will be restarted.

Configure in Real Time		X
Root Node Internet gateway devic	✓	
InternetGatewayDevice	Parameter	Value
LANDevice	Name	Valde
WANDevice Services	Reset	1
	SignalingProtocol	SIP
∃ 1 ⊒ VeiseProfile	Region	CN
	DTMFMethod	InBand
Name	DigitMap	8800xxxx
Reset SignalingPr	X_HW_DigitMapMatchMode	
Region	X_HW_PortName X_HW_OverseaVer	0
DigitMap	X_HW_HowlerSendFlag	1
X_HW_Dig X_HW_Por	X_HW_InterfaceState	
X_HW_Ove		
X_HW_HOV X_HW_Inte		
± X_HW_H24 ± MGCP ✓		
Add Delete		
Refresh Modify	<	
		OK Cancel Save

Step 8 Click OK after the configuration.

----End

Result

- User 1 with telephone number **88001234** can call user 2 with telephone number **88001235**, and the communication between them is normal. The communication is also normal for user 2's calling user 1.
- Check whether the voice communication between users using different ONTs is normal.

3.5.5 Configuring the H.248-based Voice Service Through the U2560

This topic provides an example of how to configure the H.248-based voice service through the U2560.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- The ONT is auto discovered on the U2560. For details, see **Commissioning Interoperation Between the U2560 and the ONT Through the Web Page**.
- Two telephone sets must be available and each must be connected to ports TEL1 and TEL2 respectively on the ONT.

Context

Every data change must be saved. You can click **Save** in a window to save data changes. If you navigate to another node without saving data changes, a dialog box will be displayed prompting you to save the data changes. In this case, click **YES** in the dialog box. New data will be automatically applied to the ONTs after the data changes are saved.



When configuring services on the U2560, do not modify the WAN interface connecting the U2560 and the ONT. Otherwise, the U2560 loses communication with the ONT.

Procedure

- **Step 1** Log in to the U2560 and choose **Subnet View** > **TR069 Subnet** from the navigation tree. In the terminal list, right-click an ONT and choose **Tools** > **Configure in Real Time** from the shortcut menu.
- Step 2 In the Configure in Real Time dialog box, set Root Node to Internet gateway device.
- Step 3 Configure the parameters of the voice WAN interface.
 - 1. Choose **InternetGatewayDevice** > **WANDevice** > **1** > **WANConnectionDevice** from the navigation tree. Click **Add** in the lower left part to create an instance.
 - 2. Choose **2** > **WANIPConnection** from the navigation tree. Click **Add** in the lower left part. Choose **1** from the navigation tree. In the right pane, set the parameters as follows:
 - Set **Enable** to **1**, indicating that the WAN connection is enabled.
 - Set **Connection Type** to **IP_Routed**, indicating that the connection type of the WAN interface is in routing mode.
 - Set **Addressing Type** to **DHCP**, indicating that the WAN interface obtains IP addresses in DHCP mode.
 - Set X_HW_SERVICELIST to VOIP, indicating that the WAN interface provides the VoIP access service.
 - Set X_HW_VLAN to 20, indicating the VLAN ID of the WAN interface is 20.
 - Set X_HW_PRI to 6, indicating that the priority level of the WAN interface is 6.

- If the WAN interface obtains IP addresses in static or DHCP mode, choose **WANIPConnection** to set parameters of the voice WAN interface.
- If the WAN interface obtains IP addresses in PPPoE mode, choose **WANPPPConnection** to set parameters of the voice WAN interface.

Configure in Real Time 🔍								
Root Node Internet gateway device								
InternetGatewayDevice	<u>^</u>	Parameter	Value					
± LANDevice		Enable	1					
		ConnectionStatus	Unconfigured					
WANConnectionNur		ConnectionType	IP_Routed					
WANConnectionDev		Name	wan2					
		NATEnabled	0					
= 2 = WANIPConne		AddressingType	DHCP					
± 1		ExternalIPAddress						
WANPPPConn		SubnetMask						
Services Services		DefaultGateway						
X_HVV_DHCPSLVSERVER Time		DNSEnabled	1					
Layer3Forwarding		DNSServers						
X_HW_Security		MACAddress	28:6E:D4:0D:BC:EC					
X_HW_APMPolicy	-	PortMappingNumberOfEntries	0					
+ X HW Battervinfo		X_HW_SERVICELIST	VOIP					
■ X HW ALG		X_HW_VLAN	20					
	⊻	X_HW_PRI	6					
		X_HW_MultiCastVLAN	4294967295					
Add Delete		X_HW_VenderClassID						
Refresh Modify		<						
Moulty								

Step 4 Configure the voice protocol parameters.

Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 from the navigation tree. In the right pane, set the parameters as follows:

- Set **SignalingProtocol** to **H248**, indicating that the H.248 protocol is used.
- Set **Region** to **CN**, indicating the country code of China.
- Set X_HW_PortName to wan2, indicating that the new WAN interface 2 is bound.

onfigure in Real Time 💌 Root Node Internet gateway device 🗸						
 InternetGatewayDevice LANDevice WANDevice Services VoiceService 1 VoiceProfile 1 PhyInterface X_HW_RemoteC X_HW_DialSN 		Parameter Name Reset SignalingProtocol Region DTMFMethod DigitMap X_HW_DigitMapMatchMode X_HW_PortName	Value 0 H248 CN InBand x.S x.# Min wan2			
		X_HW_OverseaVer X_HW_HowlerSendFlag X_HW_InterfaceState	0 1 Closed			
DeviceInfo X_HW_BatteryInfo X_HW_ALG Add Delete Refresh Modify	 ✓ 	<				

Step 5 Configure the H.248 service parameters.

Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 > X HW H248 from the navigation tree. In the right pane, set the parameters as follows:

- Set CallAgent1 to 200.200.200, indicating that the IP address of the MGC server is 200.200.200.200.
- Set **Domain** to **6877687714852901**, indicating that the MG registration address is **68776877148529010016ECC54B80**.

Domain is ONT's domain name registered on the MGC. It is globally unique. **Domain** in this example is ONT's SN.

• Set **MIDFormat** to **DomainName**, indicating that the MG uses its domain name to register.

Configure in Real Time			×
Root Node Internet gateway de	ViC	v	
🖃 VoiceProfile	~	Parameter	Value
□ 1	-1	CallAgent1	200.200.200.200
Reset		CallAgentPort1	2944
SignalingProtocol		CallAgent2	
Region DTMEMethod		CallAgentPort2	2944
DigitMap		LocalPort	2944
X_HW_DigitMapMatchM X_HW_PortName		Domain	68776877148529
X_HW_OverseaVer		DeviceName	
X_HW_HowlerSendFlag		MIDFormat	DomainName
SIP		CallAgentMID1	
■ X_HW_H248		CallAgentMID2	
MGCP		DSCPMark	0
+ Tone			
X_HW_FaxModem			
± X_HVV_Ring			
	<u> </u>		
	-		
Add Delete			
Refresh Modify		<	
			OK Cancel Save

Step 6 Configure the TIDs of H.248 voice users.

 Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 > Line > 1 > X_HW_H248 from the navigation tree. In the right pane, set LineName to A0, indicating that the TID of H.248 voice user 1 is A0. The user telephone number set on the MGC is 88001234.

Configure in Real Time 🛛 🛛 💌					
Root Node Internet gateway de	ViC				
 Forme FaxT38 X_HW_FaxModem X_HW_Ring Line Ine I Enable DirectoryNumber PhyReferenceList X_HW_RtpLoop X_HW_Priority Status callState SIP X_HW_H248 MGCP CallingFeatures VoiceProcessing Stats Codec PhyInterface X_HW_RemoteCapServer Add Delete 		Parameter LineName	A0	Value	
Refresh Modify			ок С	Cancel Save)

2. Configure the TID of H.248 voice user 2 in the same way.

Choose InternetGatewayDevice > Service > VoiceService > 1 > VoiceProfile > 1 > Line from the navigation tree. Click Add in the lower left part. Choose $2 > X_HW_H248$ from the navigation tree. In the right pane, set LineName to A1, indicating that the TID of H.248 voice user 2 is A1. The user telephone number set on the MGC is 88001235.

Configure in Real Time				×
Root Node Internet gateway de	Vice	•		
+ Tone				
	-	Parameter	Value	
		LineName	A1	
X_HW_Ring				
+ 1				
= 2				
Enable				
PhyReferenceList				
X_HW_RtpLoop				
X_HW_Priority Status	=			
CallState				
E SIP				
CallingFeatures				
VoiceProcessing				
± Stats				
PhyInterface				
Add Delete				
Refresh Modify		<		>
			OK Cancel	Save

Step 7 Restart the voice process.

Choose InternetGatewayDevice > Services > VoiceService > 1 > VoiceProfile > 1 from the navigation tree. In the right pane, set Reset to 1, indicating that the voice process will be restarted.

Configure in Real Time							
Root Node Internet gateway device 🗸							
InternetGatewayDevice	~	Parameter	Value				
LANDevice		Name	1000				
WANDevice		Reset	1				
	=	SignalingProtocol	H248				
□ 1		Region	CN				
VoiceProfile		DTMFMethod	InBand				
- L Name		DigitMap	x.S x.#				
Reset		X_HW_DigitMapMatchMode	Min				
SignalingProt		X_HW_PortName	wan2				
DTMFMetho			X_HW_OverseaVer	0			
DigitMap X HW/ Digit!		X_HW_HowlerSendFlag	1				
X_HW_Porth		X_HW_InterfaceState	Closed				
X_HW_Over							
X_HW_Inter							
± SIP							
± X_HVV_H248 ± MGCP	~						
<	-1						
Add Delete	1						
Add Delete	J						
Refresh Modify		<					
			OK Cancel Save				



----End

Result

• User 1 with telephone number **88001234** can call user 2 with telephone number **88001235**, and the communication between them is normal. The communication is also normal for user 2's calling user 1.

- The termination IDs of line 1 and line 2 configured on the MGC correspond to telephone numbers **88001234** and **88001235** respectively.
- Check whether the voice communication between users using different ONTs is normal.

3.5.6 Configuring the Wi-Fi Access Service Through the U2560

This topic provides an example of how to configure the Wi-Fi access service through the TR-069 server.

Prerequisite

- The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.
- The ONT is auto discovered on the U2560. For details, see Commissioning Interoperation Between the U2560 and the ONT Through the Web Page.

• A portable computer with the Wi-Fi function must be available.

Context

The Wi-Fi wireless access service includes the Layer 3 bridge Wi-Fi service and the Layer 3 route Wi-Fi service.

- Layer 3 Wi-Fi service: Search for the SSID is performed on the PC. After the user passes the verification, the PPPoE auto dialup is performed on the PC. The IP address is allocated by the upper-layer BRAS. The ONT is connected to the OLT and then to the upper-layer network in the Layer 3 mode to provide the high-speed Internet access service.
- Layer 3 route Wi-Fi service: Search for the SSID is performed on the PC. After the user passes the verification, the PPPoE auto dialup is performed on the PC. The ONT is connected to the OLT and then to the upper-layer network in the Layer 3 mode to provide the high-speed Internet access service.

Every data change must be saved. You can click **Save** in a window to save data changes. If you navigate to another node without saving data changes, a dialog box will be displayed prompting you to save the data changes. In this case, click **YES** in the dialog box. New data will be automatically applied to the ONTs after the data changes are saved.

When configuring services on the U2560, do not modify the WAN interface connecting the U2560 and the ONT. Otherwise, the U2560 loses communication with the ONT.

Procedure

- **Step 1** Log in to the U2560 and choose **Subnet View** > **TR069 Subnet** from the navigation tree. In the terminal list, right-click an ONT and choose **Tools** > **Configure in Real Time** from the shortcut menu.
- Step 2 In the Configure in Real Time dialog box, set Root Node to Internet gateway device.
- **Step 3** Configure the Wi-Fi parameters.
 - 1. Choose **InternetGatewayDevice** > **LANDevice** > **1** > **WLANConfiguration** > **1** from the navigation tree. In the right pane, set the parameters as follows:
 - Set **Enable** to **1**, indicating that the WLAN service is enabled.
 - Set **RegulatoryDomain** to **CN**, indicating the country code of China.
 - Set **SSID** to **ChinaNet-huawei**.
 - Set **BeaconType** to **WPA** and **WPAEncryptionModes** to **TKIPandAESEncryption**, indicating that the encryption mode of the WPA is **TKIP&AES**.
 - Set **WPAAthenticationMode** to **PSKAuthentication**, indicating that the authentication mode is **Pre-Shared Key**.

Configure in Real Time						
Root Node Internet gateway de	Root Node Internet gateway device					
= I ANDevice	÷.	Parameter	Value			
		Name	athu	Ê		
X_HW_WlanEnable		Enable	1			
WLANConfiguration		RegulatoryDomain	CN			
± 1		Standard	11ng			
LANHostConfigMana		TransmitPower	100			
Hosts I ANEthernetInterfa		Channel	1			
X_HW_LANGlobalCo	X_HW_LANGlobalCc		1			
WANDevice		X_HW_HT20	1			
Services		SSID	ChinaNet-huawei			
		SSIDAdvertisementEnabled	1			
		WMMEnable	1			
X_HW_Security		BeaconType	WPA			
X_HW_APMPolicy Application	-	BasicEncryptionModes	None			
X HW BattervInfo		BasicAuthenticationMode	None			
		WPAEncryptionModes	TKIPandAESEncryption			
	≤	WPAAuthenticationMode	PSKAuthentication			
		IEEE11iEncryptionModes	AESEncryption			
Add Delete		IEEE11iAuthenticationMode	PSKAuthentication			
Refresh Medify		MEDKoulodov		×		
Kerresit				-1		
			UK Cancel Save			

2. Choose **PreSharedKey** > 1, 1 from the navigation tree. In the right pane, set **PreSharedKey** to **chinahuawei**, indicating that the WPA encryption key is **chinahuawei**.

Configure in Real Time				×]
Poot Nodo Internet rateway device					
Note Note Incomer gateria, ac		<u> </u>			
X_HVV_KaulusPort X_HW/ RadjusKey	^	Parameter		Value	
TotalBytesSent		PreSharedKey	chinahuawei		
TotalBytesReceived					I
TotalPacketsSent					I
BSSID					I
TransmitPowerSupporte					I
WMMSupported					I
WEPKey BroCharodKov					I
+ 1					I
Stats					I
± WPS					1
± Hosts					
LANEthernetInterfaceConfig					
± X_HW_LANGlobalConfiguration					
vices					
W DHCPSI VSERVER					
he	~				
<					
	_				
Add Delete					
Refresh Modify		<		>	
			ок С	ancel Save	

Step 4 Configure the parameters of the WAN interface.

- Configure the parameters of the WAN interface Route
 - 1. Choose InternetGatewayDevice > WANDevice > 1 > WANConnectionDevice from the navigation tree. Click Add in the lower left part to create an instance.
 - 2. Choose **2** > **WANPPPConnection** from the navigation tree. Click **Add** in the lower left part. Choose the new **1** branch from the navigation tree. In the right pane, set the parameters as follows:
 - Set Enable to 1, indicating that the WAN connection is enabled.
 - Set **Connection Type** to **IP_Routed**, indicating that the connection type of the WAN interface is in routing mode.
 - Set NATEnable to 1, indicating that the NAT function is enabled.
 - Set Username to iadtest@pppoe and Password to iadtest, indicating that the PPPoE user name is iadtest@pppoe and the password is iadtest.
 - Set X_HW_SERVICELIST to INTERNET, indicating that the service type of the WAN interface is Internet.
 - Set X_HW_VLAN to 40, indicating that the VLAN ID of the WAN interface is 40.
 - Set X_HW_PRI to 1, indicating that the priority level of the WAN interface is 1.

- If the WAN interface obtains IP addresses in static or DHCP mode, choose **WANIPConnection** to set the parameters of the WAN interface.
- If the WAN interface obtains IP addresses in PPPoE mode, choose **WANPPPConnection** to set the parameters of the WAN interface.

oot Node Internet gateway devi		×	
InternetGatewayDevice		Parameter	Value
LANDevice		Enable	1
VVANDevice I		ConnectionStatus	Unconfigured
WANConnectionNur		ConnectionType	IP_Routed
WANConnectionDev		DefaultGateway	
⊕ 1 □ □		Name	wan2
= 2 = WANIPConne		NATEnabled	1
WANPPPConn		Username	iadtest@pppoe
• 1		Password	iadtest
Services		ExternalIPAddress	
X_HVV_DHCPSLVSERVER Time		DNSEnabled	1
Layer3Forwarding		DNSServers	
X_HW_Security		MACAddress	28:6E:D4:0D:BC:EC
X_HW_APMPolicy	-1	PortMappingNumberOfEntries	0
+ X HW BattervInfo		X_HW_SERVICELIST	INTERNET
X_HW_ALG		X_HW_VLAN	40
🕀 X HW MainUPnP	4	X_HW_PRI	1
		X_HW_MultiCastVLAN	4294967295
Add Delete			
Refresh Modify		<	

- Configure the parameters of the WAN interface Bridge
 - 1. Choose InternetGatewayDevice > WANDevice > 1 > WANConnectionDevice from the navigation tree. Click Add in the lower left part to create an instance.
 - Choose 2 > WANPPPConnection from the navigation tree. Click Add in the lower left part. Choose the new 1 branch from the navigation tree. In the right pane, set the parameters as follows:
 - Set Enable to 1, indicating that the WAN connection is enabled.
 - Set **Connection Type** to **IP_Bridged**, indicating that the connection type of the WAN interface is in bridge mode.
 - Set X_HW_SERVICELIST to INTERNET, indicating that the service type of the WAN interface is Internet.
 - Set X_HW_VLAN to 40, indicating that the VLAN ID of the WAN interface is 40.
 - Set **X_HW_PRI** to **1**, indicating that the priority level of the WAN interface is 1.



Step 5 Bind the SSID.

Choose InternetGatewayDevice > WANDevice > 1 > WANConnectionDevice > 1 > WANIPConnection > 1 > X_HW_LANBIND from the navigation tree. In the right pane, set SSID1Enable to 1, indicating that the WAN interface is bound to SSID 1.

Configure in Real Time						
Root Node Internet gateway device						
			1			
I Frable	-	Parameter		Value		
ConnectionStatus		Lan1Enable	0			
ConnectionType		Lan2Enable	0			
DefaultGateway		Lan3Enable	0			
Name NATEnabled		Lan4Enable	0			
Username		SSID1Enable	1			
Password External ID Address		SSID2Enable	0			
DNSEnabled		SSID3Enable	0			
DNSServers			SSID4Enable	0		
MACAddress PortMappingNumber						
X_HW_SERVICELIST						
X_HW_VLAN						
X_HW_PKI X_HW_MultiCastVLAI						
PortMapping						
X_HW_LANBIND						
es						
_DHCPSLVSERVER	\mathbf{v}					
<						
Add Delete						
					1	
Refresh Modify		<			>	
			ОК	Cancel	Save	

----End

Result

- Layer 3 bridge Wi-Fi service: SSID radio signals can be searched on the PC. After the user enter the authentication key and pass the authentication, the user can access the Internet.
- Layer 3 route Wi-Fi service: SSID radio signals can be searched on the PC. After the user enter the authentication key and pass the authentication, the PC can obtain the IP address allocated by the DHCP IP address pool on the ONT. After the PPPoE dialup is successfully performed on the ONT, the user can access the Internet.

The security mode and encryption configured on a Wi-Fi terminal must be the same as those of an ONT. If you cannot find the following encryption modes: TKIP&AES, and AES. The reason may lie in an old Wi-Fi driver version. If so, replace the old version with a new one.

3.6 Operation Guide on the XML Configuration File

This topic describes how to issue the XML configuration files on the Web page and on the U2000.

The ONT voice service and gateway involve a large amount of configuration information, most of which is not defined in the OMCI protocol and cannot be configured on the Web page or the U2000. Issuing the XML configuration file functions as a supplement to completing all ONT configurations.

- Web interface and the U2000 cannot use the same XML configuration file. The XML configuration file of Web interface contains all configuration data, while the XML configuration file of the U2000 contains only part of the configuration data.
- H.248 and SIP can share the same XML configuration file, but the configurations involving voice service need to be re-configured accordingly.
- The XML configuration file is generally exported for modifying, and then imported back. Configuration rolls back or even factory defaults are restored if an incorrect XML configuration file is imported. When configuration parameters of an XML configuration file need to be modified, please contact Huawei technical engineers for help.

3.6.1 Operation Guide on the XML Configuration File (on the Web Page)

This topic describes how to issue the XML configuration file on the Web page.

Prerequisite

You have established the environment for logging in to the Web page for service configuration and have successfully logged in to the Web page. For details, see **3.4.3 Locally Logging in to the Web Interface**.

Procedure

Step 1 Export the XML configuration file.

- 1. In the navigation tree, choose System Tools > Configuration File.
- 2. In the details area, click **Download Configuration File**, as shown in the following figure.

Figure 3-10 Exporting the XML configuration file

System Tools > Configuration File
You can click "Save Configuration" to save the current configuration to the flash memory.
Save Configuration
You can click "Download Configuration File" to back up the current configuration.
Download Configuration File
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.
Configuration File: Upload Configuration File

3. In the dialog box that is displayed, click **Save** to save the XML configuration file.

Step 2 Modify the XML configuration file.

In the case of an initial deployment, use the XML configuration file released with software. Hence, the operation in step 1 is not required.

- 1. Open the XML configuration file downloaded in step 1 and find the parameters to be modified.
- 2. Modify the required parameters.



Configuration will roll back or even factory defaults are restored if an incorrect XML configuration file is issued. When configuration parameters need to be modified for an XML configuration file, please contact Huawei technical engineers for help.

3. Save the modified XML configuration file.

Step 3 Import the XML configuration file.

- 1. In the navigation tree, choose System Tools > Configuration File.
- 2. In the details area, click **Browse**. Then, choose the XML configuration file to be imported, and click **Open**.
- 3. In the details area, click Upload Configuration File, as shown in the following figure.

Figure 3-11 Importing the XML configuration file

System Loois > Configuration File					
You can click "Save Configuration" to save the current configuration to the flash memory.					
Save Configuration					
You can click "Download Configuration File" to back up the current configuration.					
Download Configuration File					
If you enter the path of the configuration file and then click "Upload Configuration File", your home gateway will be updated with the saved configuration file.					
Configuration File: Upload Configuration File					

4. The configuration will take effect after the ONT restarts automatically.

----End

3.6.2 Operation Guide on the XML Configuration File (on the U2000)

This topic describes how to issue the XML configuration files on the U2000.

Prerequisite

The Layer 2 service channels between the OLT and ONTs are enabled by running the OLT commands. For details, see **Enabling Layer 2 Service Channels Between an OLT and a GPON ONT (on the OLT CLI)**.

Context

Issuing the XML configuration file on the U2000 applies to the following two typical scenarios:

- Configuring an ONT
- Configuring ONTs in batches

Procedure

- Configure an ONT.
 - 1. Export the XML configuration file.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose GPON ONU.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select a required record from the ONT list, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
 - f. In the dialog box that is displayed, click **Export** to export the XML configuration file, as shown in the following figure.

Configure VAS					×
Profile Name:			Vendor ID:	HWTC(2011)	-
Terminal Type:	247	•	Version:	V1R002C06	-
Activated Status:	Activated				
 ⊇47 Config Info Time Services WAN Device ALG Ability Security Security Layer 3 For 	e warding	Paramete	r Name	Parameter Value	NTTask
	Unbind	Import	E <u>x</u> poi	rt ОК Са	ancel

Figure 3-12 Exporting the XML configuration file

- 2. Modify the XML configuration file.
 - a. Open the XML configuration file downloaded in step 1 and find the parameters to be modified.
 - b. Modify the required parameters.



Configuration will roll back or even factory defaults are restored if an incorrect XML configuration file is issued. When configuration parameters need to be modified for an XML configuration file, please contact Huawei technical engineers for help.

- c. Save the modified XML configuration file.
- 3. Import the XML configuration file.

- a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- b. In the navigation tree, choose GPON > GPON Management.
- c. In the window on the right, choose GPON ONU.
- d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
- e. Select a required record from the ONT list, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
- f. In the dialog box that is displayed, click **Import**. Then, in the dialog box that is displayed, choose the XML configuration file to be imported, as shown in the following figure.

Configure VAS					×
Profile Name:			Vendor ID:	HWTC(2011)	-
Terminal Type:	247	-	Version:	V1R002C06	-
Activated Status:	Activated				
 ⊇47 Config Info Time Services WAN Device LANDevice ALG Ability Security Layer 3 For 	e warding	Parameter	Name	Parameter Value	NT Task
	<u>U</u> nbind	Import	<u> </u>	t ОК Са	ancel

Figure 3-13 Importing the XML configuration file

g. Select **Switch to ONT Load Task** and click **OK** to issue the XML configuration file to the ONT on the U2000. The configurations take effect without the requirement of restarting the ONT.

- Configure ONTs in batches.
 - 1. Add a value-added service profile of the ONT.
 - a. From the main menu, choose **Configuration** > **Access Profile Management**. In the navigation tree of the displayed tab page, choose **PON Profile** > **ONT VAS Profile**.
 - b. On the **ONT VAS Profile** tab page, right-click, and then choose **Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set relevant parameters.
 - Profile Name: ONT-XML
 - Vendor ID: HWTC(2011)
 - Terminal Type: 247
 - Version: V1R002C06-Later

If a proper value-added service profile of the ONT is available, select it and this operation is not required.

2. Export the XML configuration files.

In the **Add ONT VAS Profile** dialog box, click **Export** to export the XML configuration files, as shown in the following figure.

Figure 3-14 Exporting the XML configuration files

Add OHT VAS Pro	ofile				×
Profile Name:	ONT-XML		* Vendor ID:	HWTC(2011)	*
Terminal Type:	247	•	* Version:	V1R002C06 ~ Later	*
 ⇒ 247 Config In → Time ➡ Services ➡ WAN Devic → ALG Abilit ⊕ Security ⊕ Layer 3 Fi 	ifo. ice ;e y orwarding	Param	eter Name	Parameter V	'alue
	<u>[</u> m	nport E <u>x</u> r	oort	OK Cancel	Apply

- 3. Modify the XML configuration file.
 - a. Open the XML configuration file downloaded in step 1 and find the parameters to be modified.
 - b. Modify the required parameters.



Configuration will roll back or even factory defaults are restored if an incorrect XML configuration file is issued. When configuration parameters need to be modified for an XML configuration file, please contact Huawei technical engineers for help.

- c. Save the modified XML configuration file.
- 4. Import the XML configuration files.
 - a. In the **Add ONT VAS Profile** dialog box, click **Import** to import the XML configuration files, as shown in the following figure.

Figure 3-15 Importing the XML configuration files

Add OHT VAS Pr	ofile					×
Profile Name:	ONT-XML		* Vendor ID:	HWTC(2011)	•]*
Terminal Type:	247	•	Version:	V1R002C06 ~ Later	•] *
 ⇒ 247 Config Ir → Time ➡ Services ➡ WAN Devic → ALG Abilit ⊕ Security ⊕ Layer 3 F 	rfo. ice ;e y orwarding	Parar	neter Name	Paramete	er Value	
		Import E	xport	OK Cancel	Apply	

- b. Click OK.
- 5. Bind the value-added service profile.
 - a. In the **Physical Map** navigation tree on the **Main Topology** tab page, doubleclick the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - b. In the navigation tree, choose GPON > GPON Management.
 - c. In the window on the right, choose **GPON ONU**.
 - d. On the **GPON ONU** tab page, set the search criteria to find the GPON ONU records.
 - e. Select an ONT from the list, right-click, and choose **Bind VAS Profile** from the shortcut menu. In the dialog box that is displayed, choose the created profile, and click **OK**.

----End

4 Maintenance and Troubleshooting

About This Chapter

This topic describes the general troubleshooting flowchart and methods of preliminarily locating faults, and how to locate faults on the Web page, on the U2000, and on the OLT CLI.

4.1 Frequently Used Methods for Troubleshooting This topic describes how to locate faults on the Web page, on the U2000, and on the OLT CLI.

4.2 General Troubleshooting Flowchart and Methods This topic describes the general troubleshooting flowchart and the methods of preliminarily locating faults.

4.3 Tools Used for Troubleshooting

This topic describes the tools required for troubleshooting: digital multimeter and optical power meter.

4.4 Remote Maintenance and Troubleshooting on the Web Page This topic describes how to remotely maintain and troubleshoot the ONT on the Web page.

4.5 Maintenance and Troubleshooting on the NMS This topic describes how to maintain and troubleshoot the ONT on the NMS.

4.6 Maintenance and Troubleshooting on the OLT CLI This topic describes how to maintain and troubleshoot the ONT on the OLT CLI.

4.1 Frequently Used Methods for Troubleshooting

This topic describes how to locate faults on the Web page, on the U2000, and on the OLT CLI.

Table 4-1 shows the methods for locating faults on the Web page, on the U2000, , and on theOLT CLI.

Fault Location Method	Fault Location Method (Detail)
Remote Web	4.4.1 Remotely Logging in to the Web Page
U2000	4.5.1 PPPoE Dialup Emulation
	4.5.2 Querying the Physical State of a POTS Port
	4.5.3 Querying the Status of a VoIP User
	4.5.4 Querying and Deleting VoIP Statistics
	4.5.5 Caller Emulation Test
	4.5.6 Callee Emulation Test
	4.5.7 Automatic Emulation Test
	4.5.9 VoIP Loop-Line Test
	4.5.8 Local Loopback and Remote Loopback on a POTS Port
OLT CLI	4.6.1 Querying and Deleting Performance Statistics of an ETH Port

 Table 4-1 Fault location methods

4.2 General Troubleshooting Flowchart and Methods

This topic describes the general troubleshooting flowchart and the methods of preliminarily locating faults.

Context

Figure 4-1 shows the general troubleshooting flowchart.





Procedure

Step 1 Locate a fault preliminarily.

Find the fault location and determine the cause of the fault. **Table 4-2** lists the possible causes during preliminary fault locating.

Fault Type	Possible Cause
ONT registration failure	• The PON terminal goes online in an incorrect mode.
	• The optical fiber connected to the ONT is of poor quality or is loosely connected.
	• The optical power of the ONT is not within the normal range.
	• The minimum and maximum logical distances configured on the OLT port to which the ONT is connected are inconsistent with the actual distances.
	• The ONT auto-find function is disabled on the OLT.
	• When the ONT is added, the configured SN of the ONT is different from the actual ONT SN.
	• An ONT with the same SN is already connected to the OLT.
	• The ONT is a rogue ONT.
Call failure or poor voice quality	• The connection between the telephone set and the ONT is abnormal.
	• The ONT port to which the telephone set is connected is configured incorrectly.
	• The telephone set does not register with the voice server.
	• The voice service of the telephone set is not configured with a high priority.
	• The line connections are abnormal.
	• The telephone set is faulty.
	• The numbers configured on the ONT are incomplete.
	• The digitmap configuration is incorrect.
	• The codec and authentication configured on the ONT are incorrect.
	• A phone number conflict occurs during the registration.
	• The voice IP address fails to be obtained.

Table 4-2 Locate a fault preliminarily

Fault Type	Possible Cause		
Internet access failure	• The user terminal or the loop line is faulty.		
	• The PON port is faulty.		
	• The data configuration of the upper-layer device is incorrect.		
	• The PON board on the OLT is faulty.		
	• The optical path is faulty.		
	• The board or port on the ONT is faulty.		
	• There are network attacks.		
	• The WAN port fails to obtain the address.		
	• The ping operation with the IP addresses of the ONT WAN port and the ONT fails.		
	• The WAN MAC address of the ONT defaults to 00000000002.		
	• The NAT function is disabled on the bound WAN port.		
	• The LAN port on the ONT is a bridge Ethernet port, but the PC connected to the LAN port fails to obtain the IP address allocated by the upper-layer network.		

Step 2 Check the status of the optical fiber.

Check the following items:

- Whether the optical fiber is properly connected.
- Whether the optical fiber is bent excessively.
- Whether the optical fiber connector is clean.
- Whether the mean launched Tx optical power is normal.
- Whether the Rx optical sensitivity is normal.

Step 3 Check the ONT status.

Check the status of the LEDs on the ONT.

You can also query the ONT status on the OLT.

In the GPON mode, run the **display ont info** command to check the ONT information. Specifically, mainly check **Control Flag**, **Run State**, **Config State**, and **Match State**.

- If **Control Flag** is **active** and **Run State** is **up**, it indicates that the ONT works in the normal state, that is, the user passes the authentication and goes online.
- If Control Flag is active and Run State is down, it indicates that the user is offline.
- If **Control Flag** is **deactive**, the ONT registration is disabled. In this case, run the **ONT activate** command in the GPON mode to activate the control flag.
- If Config State is normal, it indicates that the ONT configuration recovery is successful.

- If **Config State** is **failed**, it indicates that the ONT configuration recovery fails. A possible cause of this failure is that the ONT is bound to an incorrect ONT profile. To resolve this problem, run relevant commands to issue a correct ONT profile, or reset the ONT.
- If Match State is match, it indicates that the configured capacity set of the ONT is the same as the actual ONT capabilities. If Match State is mismatch, it indicates that the configured capacity set of the ONT is different from the actual ONT capabilities, which will cause registration failure. In this case, add a new ONT service profile.
- **Step 4** Check the statistics of the ONT.
 - In the GIU mode, run the **display port statistics** command to query the traffic statistics of the upstream port of the ONT. Specifically, check whether receive and transmit traffic exists.
 - In the GPON mode, run the **display statistics ont** command to query the performance statistics of the ONT PON port.
 - In the GPON mode, run the **display statistics ont-eth** command to query the performance statistics of the ONT ETH ports.

Step 5 Check the data configuration of the ONT.

- Run the **display dba-profile** command to check the DBA profile bound to the ONT.
- Run the **display service-port** command to check whether the traffic stream configuration is correct.
- Run the **display vlan** command to check whether the upstream port of the ONT is added to a VLAN.
- **Step 6** Check the status of the upper-layer device. Specifically, check whether the OLT is in the normal state.

----End

4.3 Tools Used for Troubleshooting

This topic describes the tools required for troubleshooting: digital multimeter and optical power meter.

4.3.1 Digital Multimeter

This topic describes the functions and usage instructions of the digital multimeter.

The digital multimeter is a simple and practical test meter frequently used in the electrotechnical and electronic industries. It is inexpensive, convenient to carry and easy to use, and has a complete set of functions.

Basically, the digital multimeter is used to measure the resistance, DC voltage, AC voltage, current and capacitance, and test diodes and triodes.

To use the digital multimeter, do as follows:

- 1. Turn on the power supply. (If a digital multimeter without a dedicated power switch is used, skip this step.)
- 2. Select the items to be tested.
- 3. Choose a proper measurement range.
- 4. Perform the measurement correctly.

- 5. (Optional) Press the button for keeping the current measurement value unchanged.
- 6. Read the measurement value.

4.3.2 Optical Power Meter

This topic describes the appearance, functions, and usage instructions of the optical power meter.

The optical power meter is a necessary test meter for testing an optical fiber communication system. It is mainly used to measure the optical power of various wavelengths at multiple measurement points of an optical link. Optical power indicates the energy of the light at a measurement point of an optical link and is an important index of the optical fiber network. When the optical power is smaller than a specified value, the optical receive end will fail to detect optical signals. In other words, the optical receive end cannot receive the signals sent from the transmit end. Hence, it is important to use the optical power meter correctly.

The following considers EXFO's PPM-350B optical power meter as an example to describe how to use an optical power meter. (Other dedicated optical power meters for PON are used in a similar way.)

The PPM-350B optical power meter can measure the optical power of various wavelengths, including 1310 nm, 1490 nm, and 1550 nm in the GPON network. Figure 4-2 shows the appearance of the PPM-350B optical power meter.



Figure 4-2 Appearance of the PPM-350B optical power meter

As shown in **Figure 4-2**, the PPM-350B optical power meter is different from common optical power meters. Specifically, the PPM-350B has a downstream input optical port and an upstream

input optical port and can display the optical power of three wavelengths: 1310 nm, 1490 nm, and 1550 nm.

Figure 4-3 shows the common measurement points.

Figure 4-3 Measurement points of the optical power in the GPON network



Maintenance engineers should also know related optical specifications on the ONT side, such as the maximum output optical power of the 1310 nm wavelength, minimum input optical power of the 1490 nm wavelength, and receiver sensitivity of the 1490 nm or 1550 nm wavelength. **Table 4-3** lists the optical specifications on the ONT side.

Parameter Type	Wavelength (nm)	Unit	Min.	Max.
Upstream data	1310	dBm	+0.5	+5
Downstream data	1490	dBm	-28	-8
Downstream CATV	1550	dBm	-8	+2

Table 4-3 Optical specifications of optical ports on GPON ONTs

To use an optical power meter, do as follows:

- 1. Connect optical fibers to optical ports correctly in upstream and downstream directions.
- 2. Turn on the power supply.
- 3. Choose the measurement unit (dB or dBm).
- 4. Perform the measurement.

Figure 4-4 shows the measurement interface of the optical power meter.
1310 nm ONT	[dBm Warning
1490 nm OLT	
1550 nm VIDEO	

Figure 4-4 Measurement interface of the optical power meter

Optical channel loss is the total insertion loss caused by optical fibers, optical splitters, optical fiber connectors, and fiber connection points. Table 4-4 shows the estimation of optical channel loss in the engineering design.

Item		Average Loss (dB)
Connection	Connector	0.3
point	Mechanical splicing	0.2
	Fusion splicing	0.1
Optical splitter	1:64	19.7
	1:32	16.5
	1:16	13.5
	1:8	10.5
	1:4	7.2
	1:2	3.2
Optical fiber (G.	1310 nm (1 km)	0.35
652)	1490 nm (1 km)	0.25

TT 11 4 4 4	N 1	1		•	• •	
Table 4-4 (Jptical	loss	parameters	ın	engineering	g

Optical channel loss = L x a + n1 x b + n2 x c + n3 x d + e + f (dB)

- a indicates the average loss of an optical fiber per kilometer (unit: dB/km). L indicates the total length of the optical fiber (unit: km). The loss of patch cords and pigtail fibers used in engineering can be ignored because they are usually very short.
- b indicates the loss of a fusion splicing point (unit: dB) and n1 indicates the number of fusion splicing points.
- c indicates the loss of a mechanical splicing point (unit: dB) and n2 indicates the number of mechanical splicing points.
- d indicates the loss of a connector (unit: dB) and n3 indicates the number of connectors.
- e indicates the loss of an optical splitter (unit: dB). Only 1-level optical splitting is considered here. In the case of 2-level optical splitting, the loss of two optical splitters must be considered.
- f indicates the engineering margin. Generally, the value is 3 dB.

4.4 Remote Maintenance and Troubleshooting on the Web Page

This topic describes how to remotely maintain and troubleshoot the ONT on the Web page.

4.4.1 Remotely Logging in to the Web Page

By remotely logging in to the Web page, maintenance engineers can perform maintenance and troubleshooting without any site visit.

Prerequisite

- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and Layer 2 service channels between the OLT and the ONT are enabled.

Impact on the System



Exercise caution when remotely logging in to the Web page because it deteriorates ONT security.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- **Step 2** In the navigation tree, choose **GPON** > **GPON Management**.
- Step 3 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- **Step 4** Select a required record from the ONT list, right-click, and choose **Configure Value-Added Service** from the shortcut menu.
- Step 5 Configure static WAN parameters.

In the navigation tree, choose WAN Device > WAN Device 1 > WAN Connection. Select WAN Connection, right-click, and choose Add IP Connection from the shortcut menu. Select WAN IP Interface1 and add a static WAN interface.

- Set WAN Interface Name, which identifies a WAN interface and can be specified freely.
- Set WAN Enable to enable.
- Set Connection Type to IP_Routed.
- Set **Vlan ID** the same as the CVLAN ID of the traffic streams configured on the OLT.
- Set Addressing Type to Static and set IP Address, Subnet Mask, and Default Gateway.
- Set Service Type to INTERNET.

For details, see Figure 4-5.

Figure 4-5	Configuring	static WAN	parameters
------------	-------------	------------	------------

Configure VAS						X
Profile Name:			Vendor ID:	HWTC()	2011)	-
Terminal Type:	247	-	Version:	V1R002	:C06	-
Activated Status:	Activated					
247 Config Info Time Services WAN Device WAN Device WAN Device WAN Device ALG Ability Security E Layer 3 For	e evice 1 N Connection WAN Connection 1 - WAN IP Interface WAN IP Interface 1 warding	WAN WAN Conn NATE Vian I Priori MultiC Addre IP Add Subn Defau Servic DNS Optio	Parameter Nar IP interface inde Interface Name Enable ection Type nabled D(1~4094) ty(0~7) Cast VLAN(1~40 essing Type dress et Mask ift Gateway ce Type Enabled Server n60 Vender Cla	ne	Parameter Value 1 ont-web enable IP_Routed disable 50 0 Static 10.10.10.10 255.255.255.0 10.10.10.1 INTERNET enable	
		mnort	Evnort	(Switch to Current ONT 1	ask
		inbour				

Step 6 Enable the access rights on the WAN.

In the navigation tree, choose Security > ACL Services. On the right pane, set HTTP WAN Enables to enable.

For details, see **Figure 4-6**.

Configure VAS						×
Profile Name:			Vendor ID:	HWTC(2011)	-
Terminal Type:	247	-	Version:	V1R002	2006	•
Activated Status:	Activated					
E- 247 Config Info		HTTF	Parameter Nai 9 LAN Enables	me	Parameter Value enable	•
WAN Device	e	HTTP ETP I	WAN Enable		enable disable	▼ ▼
ALG Ability		FTP V	VAN Enable		disable	•
E- Security	nvices	TELN	IET LAN Enable	1	enable	•
±- Layer 3 For	warding	TELN	IET WAN Enable	е	disable	-
				[Switch to Current ONT	Task
	Unbind I	mport	Export	i	OK Cance	

Figure 4-6 Enabling the access rights on the WAN

----End

Result

Enter the configured static IP address in the address bar of the Internet Explorer. The login Web page is displayed. Enter the user name and password (the default user name is **telecomadmin** and the default password is **admintelecom**). The configuration page is displayed.

4.5 Maintenance and Troubleshooting on the NMS

This topic describes how to maintain and troubleshoot the ONT on the NMS.

4.5.1 PPPoE Dialup Emulation

After enabling PPPoE dialup emulation, you can emulate PPPoE dialup on the ONT and locate faults.

Prerequisite

- The user is a user with the operator authority or higher.
- The OLT and the NMS communicate with each other properly.
- PPPoE users are configured on the BRAS.
- The NMS is able to discover an online ONT and data of the Internet access service is configured.

Context

Currently, the mainstream access mode of broadband users is PPPoE dialup. In this mode, all service packets are encapsulated in PPPoE packets and PPPoE dialup authentication is terminated on the BRAS. The ONT is usually deployed on the edge of a network and resides between PPPoE dialup users and the BRAS, connecting PPPoE users to the network.

With the PPPoE dialup emulation function enabled on the ONT, you can emulate PPPoE dialup for testing and report collected test results to the NMS server. After analyzing the test result on the NMS server, you can determine where a fault occurs, which is very useful for daily maintenance and troubleshooting.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.
- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- Step 5 Select a record from the ONT list, right-click, and then choose PPPoE Test.
- **Step 6** In the dialog box that is displayed, set the related PPPoE emulation parameters, as shown in the following figure.

Figure 4-7 PPPoE dialup emulation

PP	PoE Test			×
	BBBaE Lloor	indtact@nnnon	*	
	PPPUE OSUI.	lautest@pppoe		Start
	PPPoE Password:	•••••	*	Stop
	Authentication Mode:	CHAP	×	
	Retry Times(1-3):	3	÷	
	User Side VLAN ID(1-4095):	10	*	
	UNI Port ID:	1	*	
	Test Result:		1	
				Close

Step 7 Click Start. After the test is complete, test results are displayed on the NMS.

----End

4.5.2 Querying the Physical State of a POTS Port

This topic describes how to verify whether a POTS port is in the normal state by querying the physical state of the POTS port on the NMS.

Prerequisite

- The user is a user with the operator authority or higher.
- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.

- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- Step 5 Select a required record from the ONT list, and then click the **The Ont's UNI Port Info** tab in the lower pane.
- Step 6 View the icons in column Status, as shown in the following figure.

Figure 4-8 Querying the physical state of a POTS port

GPON UNI	Port GPON ONU	GPON ONU Details	3											
0/13											× (🗸 Find	
Status 🗠	Operation Status 🗠	Configuration Status \wedge	Frame 🗠	Slot 🗠	Port 🗠	ONU ID	Nam	ie 🔿	Alias 🛆	Verdor ID	Termina	al Type	Software V	е
0	Activate	Initial	0	13	1		3 10.167	.223	-					^
0	Activate	Initial	0	13	1		4 10.167	.223	-					
0	Activate	Normal	0	13	1		5 10.167	.223	-	HWTC(2011)	245		V1R002C0	15
0	Activate	Initial	0	13	1		6 10.167	.223		HWTC(2011)	245		V1R002C0	IE.
0	Activate	Initial	0	13	1		7 10.167	.223		HWTC(2011)	240		V1R002C0	14
<u> </u>	Activate	Normal	0	13	1		8 10.167	.223	-	HWTC(2011)	110		V1R002C0	16
<u> </u>	Activate	Initial	0	13	1		9 10.167	.223	-	HWTC(2011)	447		V1R002C0	IE
<u> </u>	Activate	Normal	0	13	1		10 10.167	.223		HWTC(2011)	240		V1R002C0	14
<u> </u>	Activate	Initial	0	13	1		12 10.167	.223		HWTC(2011)	245		V1R002C0	E
<u> </u>	Activate	Normal	0	13	1		13 10.167	.223	-	HWTC(2011)	247		V1R002C0	E
<u> </u>	Activate	Normal	0	13	1		14 10.167	.223		HWTC(2011)	240		V1R002C0	14
<	A otivoto	Insitial		10	L •		16 10 167	L		LINETO (2014)	245			Ĩ
No.13, Total	:20							Add	R	eal Time Perforr	nance		Details	
T-CONT	Current ONU: UNI P	ort Info IP Host	ServicePort	Info POTS	User VA	.G WAN	l Interface	<< 12						
Details	Running In	ifo ONU O	ptics Module	Info	Line Pr	ofile	Serv	ice Prof	ile	GEM Port		IGN	1P User	
	Status ~			U	JNI Type 🛆					UNHD				
	0		ETH					1						
	<u> </u>		ETH 2											
			ETH 3											
			ETH					4						
			Pots					1						
			Pots					2						
	<u> </u>		CATV UNI					1						

For the icon meanings, right-click an icon, and choose **Lengend** from the shortcut menu, as shown in the following figure.



Figure 4-9 Querying the status legends of a POTS port

----End

4.5.3 Querying the Status of a VoIP User

This topic describes how to verify VoIP service status by querying registration and calling states of the VoIP user on the NMS.

Prerequisite

- The user is a user with the operator authority or higher.
- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.
- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.

- Step 5 Select a required record from the ONT list, and then click the POTS User tab in the lower pane.
- Step 6 View the user registration states in column Status and the user calling states in column Call Status, as shown in the following figure.

Figure 4-10 Querying the status of a VoIP user

IGMP User T-CONT	Current ONU: UNI Port I	Info IP Host	ServicePort Info	POTS User VAG	WAN Inte	erface	
Details R	unning Info	ONU Opti	cs Module Info	Line Profile		Service Profile	GEM Port
							No. 0, Total:2
Status 🗠		Call Status 🛆		Interface ID 🗠		Directory Num	ber 🗠
Initializing	Idle		1		8	88001234	
Initializing	Idle		2		8	88001235	

The registration states and calling states are listed as follows:

- Registration states include Up, Initializing, Registering, Unregistering, Error, Testing, Quiescent, and Disabled.
- Calling states include Idle, Calling, Ringing, Connecting, and InCall.

----End

4.5.4 Querying and Deleting VoIP Statistics

VoIP statistics include RTP statistics and calling statistics. This topic describes how to query and delete VoIP statistics.

Prerequisite

- The user is a user with the operator authority or higher.
- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.

Context

To query accurate VoIP statistics, delete the original VoIP statistics first.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.
- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- Step 5 Select a required record from the ONT list, and then click the POTS User tab in the lower pane.
- Step 6 Query VoIP statistics.
 - 1. Select a record from the list, right-click, and then choose **Performance Statistic**.
 - 2. In the dialog box that is displayed, view the VoIP statistics, as shown in the following figure.

Figure 4-11 Querying VoIP statistics

Performance Statistic		×
Item	Count	
Packets Sent (Packet)	0	<u>-</u>
Packets Received (Packet)	0	
Bytes Sent (Byte)	0	
Bytes Received (Byte)	0	
Packets Lost (Packet)	0	
Receive Packet Loss Rate (%)	0	
Far End Packet Loss Rate (%)	0	
Receive Interarrival Jitter (ms)	0	
Far End Interarrival Jitter (ms)	0	
Round Trip Delay (ms)	0	
Incoming Calls Received	0	
Incoming Calls Answered	0	
Incoming Calls Connected	0	
Incoming Calls Failed	0	
Outgoing Calls Attempted	0	
Outgoing Calls Answered	0	-
Outgoing Calls Connected	0	
Outgoing Calls Failed	0	_
		<u> </u>
	1 🕶 III 1	
	<u>C</u> lose	

Step 7 Delete VoIP statistics.

- 1. Select a record from the list, right-click, and then choose **Clear Performance Statistic**.
- 2. In the dialog box that is displayed, click **Yes**.
- 3. Perform step 2 to check whether VoIP statistics are deleted.

----End

4.5.5 Caller Emulation Test

The caller emulation test verifies the basic calling services and preliminarily locates a fault.

Prerequisite

- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.

• The user connected to the POTS port that is enabled with caller emulation successfully registers with the softswitch.

Context

The call emulation test verifies the basic calling services during service provisioning, and works with the POTS line test to preliminarily locate a fault.

There are three types of call emulation tests: caller emulation test, callee emulation test, and automatic emulation test. The call emulation test is irrelevant to protocols for the upstream transmission. That is, it is applicable to SIP and H.248.

After the POTS port is configured with parameters for the caller emulation test and is enabled with the caller emulation test, the offhook and dialing emulation can be performed on the POTS port. If the called number is correct and the callee is free, the phone of the caller is ringing. After picking up the phone, the callee hears his/her own voice.

Impact on the System

After a POTS port is enabled with the caller emulation test, services carried on the POTS port are interrupted. These services will be recovered after caller emulation is complete.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.
- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- Step 5 Select a required record from the ONT list, and then click the The Ont's UNI Port Info tab in the lower pane.
- Step 6 Select a record from the list whose UNI Type is Pots, right-click, and choose Caller Emulation Test from the shortcut menu.
- Step 7 In the dialog box that is displayed, set Callee Number, as shown in the following figure.

Figure 4-12 Caller emulation test

Caller Emulation	Test		×
Note: After the emula can hear the ringing successful.Then, the engineer hears the v and received succes	ation test is started, if the test engineer on the callee side tone, it indicates that the signaling interaction is a test engineer picks up the phone and speaks. If the roice, it indicates that the media streams are transmitted sofully.	(<u>S</u> tart
POTS ID: Caller Number: Callee Number:	1 88001234 88001235	*	
Test Result:		^	
			<u>S</u> top <u>C</u> lose

Step 8 Click Start.

----End

Result

After the caller emulation test is enabled, if the phone on the callee side (whose number is dialed by the emulated caller) rings and the ringing is audible, the signaling connection is successful. A test engineer answers the phone, and if the test engineer's voice can be heard on the receiver, the media channel is available.

4.5.6 Callee Emulation Test

The callee emulation test verifies the basic calling services and preliminarily locates a fault.

Prerequisite

- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.
- The user connected to the POTS port that is enabled with callee emulation successfully registers with the softswitch.

Context

The call emulation test verifies the basic calling services during service provisioning, and works with the POTS line test to locate a fault.

There are three types of call emulation tests: caller emulation test, callee emulation test, and automatic emulation test. The call emulation test is irrelevant to protocols for the upstream transmission. That is, it is applicable to SIP and H.248.

After callee emulation is configured on the POTS port, the caller calls the callee and then is put through to the callee automatically.

Impact on the System

- After callee emulation is enabled on a POTS port, the callee cannot hear the dial tone after offhook but hears mute. After the POTS port is enabled with callee emulation, services carried on the POTS port are interrupted. These services will be recovered after callee emulation is complete.
- After a POTS port is enabled with callee emulation, if the user of this port is not called by a caller, the user will exit callee emulation in three minutes. Within these three minutes, the VoIP service and other services are interrupted.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.
- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- Step 5 Select a required record from the ONT list, and then click the The Ont's UNI Port Info tab in the lower pane.
- Step 6 Select a record from the list whose UNI Type is Pots, right-click, and choose Callee Emulation Test from the shortcut menu.
- Step 7 In the dialog box that is displayed, click Start, as shown in the following figure.

Figure 4-13 Callee emulation test

Callee Emulation	Test	×
Note: After starting th dial the telephone n whether the medial	ne emulation test, ask the test engineer at the remote end to umber of the emulation user connected to the port to check streams are transmitted and received successfully.	<u>S</u> tart
POTS ID: Callee Number:	1 88001234	
Test Result:		
	≡	Ston

----End

Result

After the callee is called, the phone of the callee is not ringing but emulates the automatic offhook. If the callee hears his/her own voice, callee emulation is successful.

4.5.7 Automatic Emulation Test

The automatic emulation test verifies the basic calling services and preliminarily locates a fault.

Prerequisite

- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.
- The user connected to the POTS port that is enabled with automatic emulation successfully registers with the softswitch.

Context

The call emulation test verifies the basic calling services during service provisioning, and works with the POTS line test to preliminarily locate a fault.

There are three types of call emulation tests: caller emulation test, callee emulation test, and automatic emulation test. The call emulation test is irrelevant to protocols for the upstream transmission. That is, it is applicable to SIP and H.248.

Before enabling an automatic emulation test, you need to enable a callee emulation test and then analyze the test according to the returned results. The test is performed automatically.

Impact on the System

- After callee emulation is enabled on the POTS port, the callee cannot hear the dial tone after offhook but hears mute. After the POTS port is enabled with callee emulation, services carried on the POTS port are interrupted. These services will be recovered after callee emulation is complete.
- After a POTS port is enabled with callee emulation, if the user of this port is not called by a caller, the user will exit callee emulation in three minutes. Within these three minutes, the VoIP service and other services are interrupted.
- After a POTS port is enabled with the automatic emulation test, services carried on the POTS port are interrupted. These services will be recovered after automatic emulation is complete.

Precautions

- Before enabling an automatic emulation test, enable a callee emulation test. This is because when an automatic emulation test is enabled, the dialing operation will be automatically performed. If the callee is not in the callee emulation state, the test will fail.
- In the automatic emulation test, the preset called number must be the number of the callee.

- Step 1 Enable a callee emulation test for the callee. For details, see Callee Emulation Test.
- **Step 2** Enable an automatic emulation test for the caller.
 - 1. In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
 - 2. In the navigation tree, choose GPON > GPON Management.
 - 3. In the window on the right, choose GPON ONU.
 - 4. On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
 - 5. Select a required record from the ONT list, and then click the **The Ont's UNI Port Info** tab in the lower pane.
 - 6. Select a record from the list whose UNI Type is Pots, right-click, and choose Auto Caller Emulation Test from the shortcut menu.
 - 7. In the dialog box that is displayed, set **Callee Number** to the number of the callee, as shown in the following figure.

Figure 4-14 Automatic emulation test

Auto Caller Emula	tion Test	×
Note: Start the called Then, start the auton number to the teleph whole test does not	I party emulation test for the port mapping the called party. natic emulation test for the calling party and set the called none number used in the called party emulation test. The require any test engineers on the called party side.	<u>S</u> tart
POTS ID: Caller Number:	1 88001234	
Callee Number:	*	
		Stop
		Close

8. Click Start.

----End

Result

After an automatic emulation test is enabled, the caller automatically dials the number of the callee to call the callee and the callee picks up the phone automatically. After the test is complete, test results are displayed on the NMS.

4.5.8 Local Loopback and Remote Loopback on a POTS Port

The local loopback and remote loopback on a POTS port are used for determining the section of the line where VoIP service failures occur.

Prerequisite

- The user is a user with the operator authority or higher.
- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.

Impact on the System

After loopback is set on a POTS port, normal communication is interrupted and an echo is heard by the caller.

Precautions

- The loopback can be set only after a call is set up.
- After onhook, the communication ends and loopback is cancelled automatically.
- Direct switching between local loopback and remote loopback cannot be performed. To switch between local loopback and remote loopback, cancel the current loopback first.

Procedure

- **Step 1** Make calls between VoIP users on an ONT.
- **Step 2** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 3 In the navigation tree, choose GPON > GPON Management.
- Step 4 In the window on the right, choose GPON ONU.
- Step 5 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- **Step 6** Select a required record from the ONT list, and then click the **The Ont's UNI Port Info** tab in the lower pane.
- Step 7 Select a record from the list whose UNI Type is Pots, right-click, and choose Config Port Loopback from the shortcut menu, as shown in the following figure.

Figure 4-15 Local loopback and remote loopback on a POTS port

C	onfigure Loopback			×
	-Loopback Status			
	🔿 No Loopback	● Local Loopback	○ Remote Loopback	
		ОК	Cancel <u>A</u> pply)

Step 8 In the dialog box that is displayed, select a loopback type and click **OK** to start a test. The loopback types include **No Loopback**, **Local Loopback**, and **Remote Loopback**.

----End

Result

- After local loopback is set, the local voice is audible. If the local voice is not audible, the POTS port of the ONT is faulty.
- After remote loopback is set, the peer end can hear his/her echo. If the echo is not audible, the link from the peer end to the local ONT is faulty.

The communication recovers after loopback is cancelled or the phone is placed on the hook.

4.5.9 VoIP Loop-Line Test

A VoIP loop-line test is used for locating a fault that occurs on wires A and B. It includes the voltage test, resistance test, and current test.

Prerequisite

- The user is a user with the operator authority or higher.
- The OLT and the NMS communicate with each other properly.
- The NMS is able to discover an online ONT and VoIP service parameters are configured.

Precautions

If a loop-line test is required in communication, No Test must be set to Force.

- **Step 1** In the **Physical Map** navigation tree on the **Main Topology** tab page, double-click the target OLT, or select the target OLT, right-click, and choose **NE Explorer**.
- Step 2 In the navigation tree, choose GPON > GPON Management.
- Step 3 In the window on the right, choose GPON ONU.
- Step 4 On the GPON ONU tab page, set the search criteria to find the GPON ONU records.
- Step 5 Select a required record from the ONT list, and then click the The Ont's UNI Port Info tab in the lower pane.
- Step 6 Select a record from the list whose UNI Type is Pots, right-click, and choose Outer Line Test from the shortcut menu.
- Step 7 In the dialog box that is displayed, set **Busy Processing** to **No Test** or **Force**, as shown in the following figure.

Outer Line Test	×
POTS ID: 1	<u>S</u> tart
Busy Processing	
No Test O Force	
Test Result:	
	Close

Step 8 Click Start. After the test is complete, test results will be displayed on the NMS.

----End

4.6 Maintenance and Troubleshooting on the OLT CLI

This topic describes how to maintain and troubleshoot the ONT on the OLT CLI.

4.6.1 Querying and Deleting Performance Statistics of an ETH Port

This topic describes how to query or delete the performance statistics of an ETH port by sending OMCI messages to the ONT from the OLT.

Context

Before querying accurate performance statistics, delete the performance statistics of the Ethernet port first.

Procedure

• Query the performance statistics of an ETH port.

In GPON mode, run the **display statistics ont-eth** command to query the performance statistics of an ETH port.

• Delete the performance statistics of an ETH port.

In GPON mode, run the **clear statistics ont-eth** command to delete the performance statistics of an ETH port.

----End

Example

To query the performance statistics of ETH port 1 on ONT 1 that is connected to GPON port 0/2/0, do as follows:

huawei(config-if-gpon-0/2)#display statistics ont-eth 0 1 ont-port 1

Received frames	:	98	100%	
Received unicast frames	:	0	0%	
Received multicast frames	:	0	0%	
Received broadcast frames	:	98	100%	
Received 64-byte frames	:	0	0%	
Received 65~127-byte frames	:	87	89%	
Received 128~255-byte frames	:	6	6%	
Received 256~511-byte frames	:	5	5%	
Received 512~1023-byte frames	:	0	0%	
Received 1024~1518-byte frames	:	0	0%	
Received undersize frames	:	0	0%	
Received oversize frames	:	0	0%	
Received fragments	:	0		
Received jabbers	:	0		
Received FCS error frames	:	0		
Discard frames	:	0		
Received alignment error frames	:	0		
MAC sub-layer received error frames	:	0		
PPPOE filtered frames	:	0		
Buffer overflows on receive	:	0		
Received PAUSE frames	:	0		
Received right bytes	:	11119		
Received bad bytes	:	0		
-				
Sent frames	:	0	100%	
Sent unicast frames	:	0	0%	
Sent multicast frames	:	0	0%	
Sent broadcast frames	:	0	0%	
Sent delay frames	:	0		
Sent MTU exceeded discard frames	:	0		
Carrier sense error frames	:	0		
SQE test error messages	:	0		
Sent single collision frames	:	0		
Sent multiple collision frames	:	0		
Sent excessive collision frames	:	0		
Late collision frames	:	0		
MAC sub-layer sent error frames	:	0		
Buffer overflows on transmit	:	0		
Sent PAUSE frames	:	0		
Sent right bytes	:	0		
Sent bad bytes	:	0		
Up traffic (kbps)	:	0		
Down traffic (kbps)	:	0		

To delete the performance statistics of ETH port 1 on ONT 1 that is connected to GPON port 0/2/0, do as follows:

huawei(config-if-gpon-0/2)#clear statistics ont-eth 0 1 ont-port 1

5 Web Page Reference

About This Chapter

This topic describes the usage and meanings of the parameters on the Web Page.

Before configuring and viewing the parameters on the Web page, log in to the Web page. For details about how to log in to the Web page, see Locally Logging in to the Web Interface.

The Web page configurations of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447 and the HG8240 are similar but the HG8240's Web page does not contain the **Wi-Fi** node.

Because different software versions support different voice protocols, the **Voice** node contains different parameters. The V100R002C06 supports the SIP protocol and the V100R002C07 supports the H.248 protocol.

The configuration window for an administrator is different from that for a common user.

- Compared with a common user, an administrator has permissions to view and configure all parameters on the Web page except the **Modify Login Password** under the **System Tools**.
- A common user does not have permissions to view the following parameters:
 - LAN Port Work Mode under the LAN node
 - ONT Access Control Configuration under the Security node
 - The Voice node
 - Time Setting and TR-069 under the System Tools node
 - Download Configuration File and Upload Configuration File on the Configuration File window under the System Tools node
- A common user does not have permissions to configure the WAN Configuration parameter under the WAN node.

5.1 Status

This topic describes how to query the information about the WAN interface, VoIP interface, and Wi-Fi port through the Web page.

5.2 WAN

This topic describes how to configure the WAN interface through the Web page.

5.3 LAN

This topic describes how to set the working mode of the LAN port, the LAN host, and the DHCP server through the Web page.

5.4 WLAN

This topic describes how to perform basic and advanced configurations of the WLAN through the Web page.

5.5 Security

This topic describes how to configure the IP address filter, MAC address filter, DoS, and ONT access control through the Web page.

5.6 Route

This topic describes how to configure the default route and static route through the Web page.

5.7 Forward Rules

This topic describes how to configure the DMZ, port mapping, and port trigger through the Web page.

5.8 Network Applications

This topic describes how to configure the USB, ALG, UPnP, and ARP through the Web page.

5.9 Voice

This topic describes how to configure the voice service through the Web page.

5.10 System Tools

This topic describes how to use the system tools on the Web page, including using the tools to restart the device, restore the default configuration, and conduct the test.

5.1 Status

This topic describes how to query the information about the WAN interface, VoIP interface, and Wi-Fi port through the Web page.

5.1.1 WAN Information

In the navigation tree on the left, choose **Status** > **WAN Information**. In the pane on the right, you can view the status of the WAN interface, mode of obtaining an IP address, IP address, and subnet mask, as shown in **Figure 5-1**.

Figure 5-1 WAN Information

Status > WAN Information							
On this page, you can query the connection status and line status of the WAN interface.							
WAN Name	Status	IP Acquisition Mode	IP Address	Subnet Mask	VLAN/Priority	MAC Address	Connect
1_INTERNET_R_VID_150	Connected	PPPoE	192.168.11.52		150/1	00:00:00:00:00:03	AlwaysOn

5.1.2 VoIP Information

In the navigation tree on the left, choose **Status** > **VoIP Information**. Then, in the pane on the right, you can query the information such as user status and call status. The SIP configuration page is slightly different from the H.248 configuration page, as shown in Figure 5-2 and Figure 5-3.

Figure 5-2 VoIP Information - SIP

Status > VoIP Information					
On this page, you can query the voice user list and status.					
Sequence	Register User Name(Telephone Number)	User Status	Call Status		
1	77770085	Up	Idle		
2	77770086	Up	Idle		
To restart the VoIP service, click "Restart VoIP".					
Restart VolP					

Figure 5-3 VoIP Information - H.248

Status > VoIP Information					
On this pa	ge, you can quer	y the voice user list and :	status.		
Sequence	Line Name	Telephone Number	User Status	Call Status	Interface Status
1	AO		Up	Idle	Inconvico
2	A3		Up	Idle	Inservice
To restart the VoIP service, click "Restart VoIP".					
Restart V	'oIP				

If the VoIP service needs to be restarted, click Reset VoIP in the pane on the right.

5.1.3 Wi-Fi Information

In the navigation tree on the left, choose **Status** > **Wi-Fi Information**. Then, in the pane on the right, you can query the information such as Wi-Fi port status, Wi-Fi packet statistics, and SSID, as shown in **Figure 5-4**.

Figure 5-4 Wi-Fi Information

St	Status > WLAN Information										
	On this page, you can query the WLAN status, WLAN statistics of packets and SSID Information.										
,	WLAN Status	3									
	WLAN Enab	le:	Enable								
	WLAN Char	inel:	0								
	WLAN Statistics of Packets										
	COID Index		Receive (Rx)				Transmit (Tx)				
	SSID IIIdex	SSID Manie	Bytes	Packets	Error	Di	scarded	Bytes	Packets	Error	Discarded
	1	WirelessNet	0	0	0	0		0	0	0	0
1	SSID Infomation										
	SSID Index	SSID Name	Sec	Security Configuration		Authentication Mode			Encryption Mode		
	1	WirelessNet	Uncont	igured			Open			None	

- In the pane on the right, click **Enable** or **Disable** to enable or disable the Wi-Fi function.
- Click the link in blue to go to the corresponding configuration page.

5.1.4 Eth Port Information

In the navigation tree on the left, choose **Status** > **Eth Port Information**. In the pane on the right, you can view the duplex mode, speed, and status of the ETH port, as shown in **Figure 5-5**.

Figure 5-5 Eth Port Information

Status > Eth Port Information								
On this page, you can query the information of user ports.								
Ethernet	Port State							
Dort		State		Re	ceive (Rx)	Transmit (Tx)		
Port	Mode	Speed	Link	Bytes	Packets	Bytes	Packets	
1	Full	100M	Up	73834	449	100135	368	
2	Half	10M	Down	0	0	0	0	
3	Holf	1.0M	Down	0	0	0	0	
3	naii	TOW	Down	0	0	0	0	

5.1.5 DHCP Server Information

In the navigation tree on the left, choose **Status** > **DHCP Server Information**. In the pane on the right, you can view the basic information about the DHCP server, including the IP address assigned to the connected PC through DHCP, MAC address, and remaining lease time, as shown in **Figure 5-6**.

Figure 5-6 DHCP Server Information

Status > DHCP Information						
On this page, you can query the basic information about the DHCP, including host name, IP address, MAC address, remaining leased time and device type.						
Host Name	IP Address	MAC Address	Remaining Leased Time	Device Type		
z58440b	192.168.100.50	00:e0:4c:86:15:1d	259187(s)	Computer		

5.1.6 Optic Information

In the navigation tree on the left, choose **Status** > **Optic Information**. In the pane on the right, you can view the optical status, transmit optical power, receive optical power of the optical module, as shown in **Figure 5-7**.

Figure 5-7 Optic Information

Status > Optical Information				
On this page, you can query the status of the optical transceiver.				
Optical Status:	auto			
Tx Optical Power:	2.67dBm			
Rx Optical Power:	-24.94dBm			
Working Voltage:	3291mV			
Bias Current:	24mA			
Working Temperature:	35°C			

5.1.7 Battery Information

In the navigation tree on the left, choose **Status** > **Battery Information**. In the pane on the right, you can view the connection status and available capacity of the external standby battery, as shown in **Figure 5-8**.

Figure 5-8 Battery Information

Status > Battery Information		
On this page, you can look over the inform	nation of the battery.	
Battery Connection Status:	disconnect	
Battery Available Capacity:	0%	

5.1.8 Device Information

In the navigation tree on the left, choose **Status** > **Device Information**. In the pane on the right, you can view the product name, hardware version, and software version, as shown in **Figure 5-9**.

Figure 5-9 Device Information

Status > Device Information			
On this page, you can query the basic info	rmation about the terminal.		
Product Name:	HG8247		
Description:	EchoLife HG8247 GPON Terminal (CLASS B)		
Serial Number:	485754433C9F3304		
Hardware Version:	120D0010		
Software Version:	V1R002C07		
ONT Registration Status:	O5 (Operation state)		
ONT ID:	1		

5.1.9 Remote Management

Click the **Status** tab and then choose **Remote Manage** from the navigation tree. In the right pane, view the remote management status and service application status, as shown in **Figure 5-10**.

Figure 5-10 Remote management

Status > Remote Manage	Status > Remote Manage		
On this page, you can query	the remote management status.		
Inform Status:	no inform connect		
ACS Connect Status:	no ACS connect		
Config Status:	no config information		

5.2 WAN

This topic describes how to configure the WAN interface through the Web page.

5.2.1 WAN Configuration

- WAN Configuration route
 - 1. In the navigation tree on the left, choose WAN > WAN Configuration. In the pane on the right, click New. In the dialog box that is displayed, set Mode to Route, as shown in Figure 5-11.

Figure 5-11 WAN Configuration - route

WAN > WAN Configuration							
On this page,you can config equipment through the WAI consistent with those of the	gure WAN paramete N interface. During t upper-layer netwol	ers.The ON the commu rk equipme	F home gateway co nication, the param nt.	mmunicates eter settings	s with the up s of the WAN	pper-layer n V interface r	etwork nust be
						New	Delete
Connection	Name	VL	AN/Priority		IP Acquis	ition Mode	
	·						
Enable WAN Connection:							
Service List:	INTERNET	*					
Mode:	Route	*					
VLAN ID:	150		*(1-4094)				
802.1p:	1	*]				
MultiCast VLAN ID:			(1-4094)				
IP Acquisition Mode:	O DHCP O S	Static 💿 I	PPPoE				
Enable NAT:							
User Name:	iadtest@pppoe		*(1-63)Characters				
Password:	•••••		*(1-63)Characters				
Dial Method	Auto	*					
Binding options:	LAN1	LAN2	LAN3	LAN4	4		
	Apply Ca	ncel					

2. Click **Apply** to apply the configuration.

Table 5-1 describes the parameters related to the WAN in route mode.

Table 5-1 Parameters related to the WAN in route mode

Parameter	Description
Enable	Indicates whether to enable the WAN connection.

Parameter	Description
Service List	Indicates the service type of the WAN interface. It can be set to TR069, INTERNET, TR069_INTERNET, VOIP, TR069_VOIP, VOIP_INTERNET, or TR069_VOIP_INTERNET.
VLAN ID	Indicates the VLAN ID. It ranges from 1 to 4094.
	The VLAN ID must be the same as the CVLAN ID on the OLT.
802.1p	Indicates the 802.1p value. It ranges from 0 to 7.
IP Acquisition Mode	Indicates the mode of obtaining an IP address on the ONT. It can be set to DHCP, static, or PPPoE.
	• In DHCP mode, the IP address is dynamically obtained.
	• In static mode, the IP address is set statically. You need to enter the IP address, subnet mask, IP addresses of the active and standby DNS servers, and default gateway.
	• In PPPoE mode, you need to enter the user name and password.
NAT	Indicates whether to enable the NAT function.
Vendor ID	Set the option 60 field on the DHCP client. The IP address can be obtained from the DHCP server only when the option 60 field is the same as the setting on the upper-layer DHCP server. When IP Acquisition Mode is set to DHCP , this parameter is configurable.
Binding options	Used to bind the WAN interface to the LAN port or to the wireless SSID. NOTE Before setting the binding options, set the work mode of the LAN port or the wireless SSID. The binding options can be set only after the work mode or wireless SSID is successfully set. For details, see 5.3.1 LAN Port Work Mode and 5.4.1 WLAN Configuration .

• WAN Configuration - bridge

 In the navigation tree on the left, choose WAN > WAN Configuration. In the pane on the right, click New. In the dialog box that is displayed, set Mode to Bridge, as shown in Figure 5-12.

Figure 5-12 WAN Configuration - bridge

VAN ≻ WAN Configuration					
On this page, you can confi the upper-layer network equ	gure WAN parame Jipment, and the p	eters. The ONT parameters mu:	home gateway u st be consistent	uses the WAN interfa for both.	ce to communicate with
					New Delete
Connection	Name	VLAN	Priority	IP Acq	uisition Mode
Enable WAN Connection:					
Mode:	Bridge	~			
Service List:	INTERNET	*			
VLAN ID:	150	*(0-4094)		
802.1p:	1	~			
MultiCast VLAN ID:		(1-	4094)		
Bridge Type:	IP_Bridged	*			
Binding options:	LAN1	LAN2 SSID2	LAN3	LAN4	
	Apply C	ancel			

2. Click **Apply** to apply the configuration.

 Table 5-2 describes the parameters related to the WAN in bridge mode.

Table 5-2 Parameters related to the WAN in bridge mode

Parameter	Description
Enable	Indicates whether to enable the WAN connection.
Service List	Indicates the service type of the WAN interface. It is always set to INTERNET.
VLAN ID	Indicates the VLAN ID. It ranges from 1 to 4094.
	The VLAN ID must be the same as the CVLAN ID on the OLT.
802.1p	Indicates the 802.1p value. It ranges from 0 to 7.
MultiCast VLAN ID	The multicast VLAN ID ranges from 1 to 4094.
	The multicast VLAN ID must be the same as the multicast VLAN ID on the OLT.

Parameter	Description
Bridge Type	It can be set to IP or PPPoE.
Binding options	Used to bind the WAN interface to the LAN port or to the wireless SSID.
	NOTE Before setting the binding options, set the work mode of the LAN port or the wireless SSID. The binding options can be set only after the work mode or wireless SSID is successfully set. For details, see 5.3.1 LAN Port Work Mode and 5.4.1 WLAN Configuration.

- WAN in route mode: The ONT functions as a gateway. The IP address of the ONT can be obtained through DHCP, Static, or PPPoE. The IP address of the PC connected to the ONT can be obtained from the DHCP address pool of the ONT or can be set manually.
- WAN in bridge mode: The ONT functions as a relay and does not process data. The ONT does not obtain the IP address allocated by the upper-layer device and it does not allow manual configuration of a static IP address. The IP address of the device connected to the ONT can be obtained through DHCP, PPPoE, or static.
 - In the case of the DHCP mode, you need to set the DHCP relay. After configuration is complete, the user-side IP address is obtained from the upper-layer device. For the detailed procedure, see **5.3.3 DHCP Server Configuration**.
 - In the case of the PPPoE mode, the user-side IP address is obtained through PPPoE authentication of the upper-layer device.

5.3 LAN

This topic describes how to set the working mode of the LAN port, the LAN host, and the DHCP server through the Web page.

5.3.1 LAN Port Work Mode

 In the navigation tree on the left, choose LAN > LAN Port Work Mode. In the pane on the right, determine whether the LAN port works in layer 3 mode, as shown in Figure 5-13.

Figure 5-13 LAN Port Work Mode

LAN > LAN Port Work Mode	
On this page, you can configure the LAN ports to work in layer3 mode by selecting the correspond layer3 ports will be assigned working as HG ports.	ling check box. The
🗹 LAN1 🗹 LAN2 🗌 LAN3 🗌 LAN4	
	Apply Cancel

If the check box corresponding to the LAN port is selected, it indicates that the LAN port works in layer 3 mode, that is, the gateway mode; if the check box corresponding to the LAN port is deselected, it indicates that the LAN port works in layer 2 mode, that is, the bridge mode.

By default, the check boxes corresponding to all LAN ports are deselected, that is, all LAN ports work in layer 2 mode.

2. Click **Apply** to apply the configuration.

5.3.2 LAN Host Configuration

 In the navigation tree on the left, choose LAN > LAN Host Configuration. In the pane on the right, set the management IP address and subnet mask of the LAN host, as shown in Figure 5-14.

Figure 5-14 LAN Host Configuration

LAN ≻ LAN Host Config	Iration
On this page, you ca that the address poo Otherwise, the DHC	n configure the LAN management IP address. After changing the LAN host IP address, make sure of configured in the DHCP server must be in the same subnet with the new LAN IP address. P server may not work normally.
IP Address:	192.168.100.1 *
Subnet Mask:	255.255.255.0 *
	Apply Cancel

The IP address of the device connected to the LAN port must be in the same subnet as the management IP address. In this way, you can access an ONT through the Web page and perform query and management. You can manually set the IP address of the device connected to the LAN port to be on the same network segment as the management IP address, or start the DHCP server to set the IP address in the DHCP address pool to be on the same network segment as the management IP address. For details, see **5.3.3 DHCP Server Configuration**.

2. Click **Apply** to apply the configuration.

5.3.3 DHCP Server Configuration

1. In the navigation tree on the left, choose LAN > DHCP Server Configuration. In the pane on the right, you can configure the LAN side DHCP address pool for the ONT that functions as a gateway. After the configuration, the PC connected to the LAN port can automatically obtain an IP address from the address pool, as shown in Figure 5-15.

Figure 5-15 DHCP Server Configuration

LAN > DHCP Server Config	uration	
On this page,you can co Computer and Phone to	onfigure the DHCP Server o obtain IP address.	r parameters for the LAN side device including HGW, STB, Camera,
Primary Address Pool		
Enable primary DHCP ser	ver: 🔽	
Enable DHCP L2Relay:		
LAN Host IP Address:	192.168.100.1	
Subnet Mask:	255.255.255.0	
Start IP Address:	192.168.100.2	* (IP address must be in the same subnet with Lan Host)
End IP Address:	192.168.100.254	*
Leased Time:	3 day	
Primary Address Pool Sub	section	
Device Type	Start IP Address	End IP Address
HGW:	192.168.100.10	192.168.100.29
STB:	192.168.100.80	192.168.100.89
Camera:	192.168.100.90	192.168.100.99
Computer:	192.168.100.100	192.168.100.200
Phone:	192.168.100.201	192.168.100.220
Secondary Address Pool		
Enable secondary Server:		
IP Address:	192.168.2.1	*
Subnet Mask:	255.255.255.0	*
Start IP Address:	192.168.2.2	*
End IP Address:	192.168.2.254	*
Leased Time:	3 day	×
Option60:	MSFT 5.0	
	Apply Cance	el

2. Click **Apply** to apply the configuration.

Table 5-3 describes the parameters related to the DHCP server.

Table 5-3 Parameters related to the DHCP set	rver
--	------

Parameter	Description
Enable primary DHCP server	Indicates whether to enable the primary DHCP server. If the check box is selected, you can set the primary DHCP server.

Parameter	Description
Enable DHCP L2 Relay	Indicates whether to enable the DHCP L2 Relay.
	The DHCP relay is a process in which cross- subnet forwarding of DHCP broadcast packets is implemented between the DHCP client and the DHCP server. In this manner, the DHCP clients in different physical subnets can obtain IP addresses which are dynamically allocated from the same DHCP server.
	• If Mode of the WAN port is Route , the IP address of the ONT is obtained from upper-layer DHCP servers in different subnets and the user-side IP addresses are obtained from the DHCP address pool of the ONT.
	• If Mode of the WAN port is Bridge , the ONT functions as a bridge. Thus, the ONT does not have an IP address. The user-side IP addresses are obtained from upper-layer DHCP servers in different subnets.
Start IP Address	Indicates the start IP address in the IP address pool on the primary DHCP server. It must be in the same subnet as that of the IP address set in "LAN Host Configuration". Otherwise, the DHCP server fails to work normally.
End IP Address	Indicates the end IP address in the IP address pool on the active DHCP server. It must be in the same subnet as that of the IP address set in "LAN Host Configuration". Otherwise, the DHCP server fails to work.
Leased Time	Indicates the lease time of the IP address pool on the active DHCP server. Options: minute, hour, day, and week.
Enable secondary DHCP server	Indicates whether to enable the secondary DHCP server. If the check box is selected, you can set the secondary DHCP server.
IP Address	Indicates the IP address of the secondary DHCP server.
Subnet Mask	Indicates the subnet mask of the secondary DHCP server.
Start IP Address	Indicates the start IP address in the IP address pool on the secondary DHCP server.

Parameter	Description
End IP Address	Indicates the end IP address in the IP address pool on the secondary DHCP server.
Leased Time	Indicates the lease time of the IP address pool on the secondary DHCP server. Options: minute, hour, day, and week.
Option60	Indicates the option 60 field of the secondary DHCP server. A user-side DHCP client can obtain an IP address from the IP address pool on the secondary DHCP server only when the option 60 field carried by the user-side DHCP client is the same as this setting.

5.4 WLAN

This topic describes how to perform basic and advanced configurations of the WLAN through the Web page.

5.4.1 WLAN Configuration

 In the navigation tree on the left, choose WLAN > WLAN Configuration. In the pane on the right, select the Enable WLAN option box. In the dialog box that is displayed, set the basic Wi-Fi parameters, including the SSID, authentication mode, and encryption mode, as shown in Figure 5-16.

Figure 5-16 WI-FI Basic Configuration

WLAN > WLAN Confi	MLAN > WLAN Configuration					
On this page, you can set the WLAN parameters, including the WLAN switch, SSID configuration, and channel selection.						
🗹 Enable WLAN						
Basic Configration						New Delete
SSID Index	SSID Name	SSID State	Associate	d Device Number	Broadcast SSID	Security Configuration
1	WirelessNet	Enable	32		Enable	Unconfigured
SSID Configuration	n in Detail					
SSID Name:		WirelessNet	*			
Enable SSID:		V				
Associated Device	e Number:	32	*			
Broadcast SSID:		~				
WMM Enable:		 Image: A start of the start of				
Authentication Mo	de:	Open	~			
Encryption Mode:	[None	~			
		Apply	Cancel			
Advance Configuration						
Transmitting Pow	er:	100%	~			
Regulatory Doma	in:	CHINA	*			
Channel:		Auto	~			
Channel Width:		20MHz	~			
Mode:		802.11b/g/n	~			
DTIM Period:	[1		(1-255, default: 1)		
Beacon Period:	[100		ms (20-1000ms, (default: 100)	
RTS Threshold:	[2346		Byte(s) (1-2346 by	rte, default: 2346)	
Frag Threshold:	[2346		Byte(s) (256-2346	byte, default: 2346)	
		Apply	Cancel			

2. Click **Apply** to apply the configuration.

 Table 5-4 describes the basic Wi-Fi parameters.

Table 5-4	Basic	Wi-Fi	parameters
-----------	-------	-------	------------

Parameter	Description
Enable WLAN	Indicates whether to enable the wireless network. The following parameters can be set only when the wireless network is enabled.
SSID	Indicates the name of the wireless network. It is used to differentiate different wireless networks. It consists of a maximum of 32 characters, without space or Tab character.A default SSID1, named WirelessNet is created after the creation of an ONT. The system can configure up to four SSIDs at a time and cannot assign IP addresses to Wi-Fi terminals by SSID.

Parameter	Description	
Associated Device Number	Specifies the number of STAs. It ranges from 1 to 32.	
Broadcast Ssid	Indicates whether to enable or hide broadcast.	
	• If the option box is selected, it indicates that the SSID broadcast function is enabled. The ONT periodically broadcasts the SSID, that is, the name of the wireless network. In this way, any STA can search for the wireless network.	
	• If the option box is not selected, it indicates that the SSID broadcast function is disabled. The SSID is hidden, and the STA cannot search for the wireless network. The SSID can be obtained only through a request.	
WMM Enable	Indicates whether to enable the QoS of the wireless network. After the function is enabled, the video and voice QoS can be improved.	
Authentication Mode	Indicates the authentication mode for the STA to request access to the wireless network. The mode can be Open, Shared, WPA Pre-Shared Key, WPA2 Pre-Shared Key, WPA Enterprise, WPA2 Enterprise, or Wi-Fi Protected Setup.	
	It is set to open by default, that is, the STA can access the network without authentication.	
Encryption Mode	Indicates the encryption mode for the STA to request access to the wireless network. The encryption mode and encryption parameters vary with the authentication mode.	
	• If the authentication mode is set to Open , the encryption mode can be set to None or WEP .	
	• If the authentication mode is set to Shared , the encryption is WEP .	
	• If the authentication mode is set to WPA Pre-Shared Key, WPA2 Pre-Shared Key, WPA Enterprise, or WPA2 Enterprise, the encryption mode can be set to AES, TKIP, or TKIP&AES.	
	• If the authentication mode is set to Wi-Fi Protected Setup , WPS Mode must be set to Pin or Push-button .	
	NOTE	
	• Pin indicates the pin-based encryption.	
	• Push-button indicates the push-button-based encryption.	
	When WPS Mode is set to Push-button , press the WPS button on the ONT and press the WPS icon included with the STA within two minutes, or run the WPS setup program in the STA to install the WPS software.	

- The security mode and encryption configured on a Wi-Fi terminal must be the same as those of an ONT. If the TKIP&AES, or AES encryption mode is not configured on the Wi-Fi terminal, the Wi-Fi terminal may have an old-version driver. If so, update the driver version.
- When two SSIDs are configured, if you modify the information of an SSID, the other SSID will re-choose a channel, causing the service to be interrupted for a few minutes.

5.5 Security

This topic describes how to configure the IP address filter, MAC address filter, DoS, and ONT access control through the Web page.

5.5.1 IP Filter Configuration

 In the navigation tree on the left, choose Security > IP Filter Configuration. In the pane on the right, enable the IP address filter function. After selecting the filter mode, click New. Then, in the dialog box that is displayed, configure the rule for filtering IP addresses from the WAN interface to the LAN port, as shown in Figure 5-17.

Security > IP Filter (Configuration			
On this page, y LAN.	ou can configure the WAN-to	o-LAN filtering to prohibit o	certain IP addresses in the WA	N from accessing the
Enable IP Filter:				
Filter Mode:	BlackList 🐱			
				New Delete
Protocol	LAN-side IP Address	LAN-side Port	WAN-side IP Address	WAN-side Port
 Configure				
Protocol:	TCP/UDP 🔽			
LAN-side IP Addre	ess: 192.168.100.0	192.168.100.99		
LAN-side Port:	 ALL 			
	O User-defined			
WAN-side IP Addr	ress: 💿 ALL			
	OUser-defined			
WAN-side Port:	 ALL 			
	OUser-defined			
	Apply Cance	el		

Figure 5-17 IP Filter Configuration

2. Click **Apply** to apply the configuration.

The IP address filter function is a security mechanism configured on the residential gateway. It enables or disables all or partial ports in an Intranet IP address segment to communicate with all or partial ports in an Extranet IP address segment. The IP address filter configuration is used to limit communication between an Intranet device and an Extranet device.

Table 5-5 describes the parameters related to the IP address filter.

Parameter	Description
IP address filter function	Indicates whether to enable the IP address filter function by clicking OPEN or CLOSE .
Filter Mode	Indicates the IP address filter rule of the blacklist or whitelist.
	• Blacklist: indicates that the data meeting the rule in the filter rule list is not allowed to pass.
	• Whitelist: indicates that the data meeting the rule in the filter rule list is allowed to pass.
	The filter mode is global config mode. Thus, the blacklist and whitelist mode cannot be used at the same time.
Protocol	Indicates the type of the protocol, which may be TCP/UDP, TCP, UDP, ICMP, or ALL.
LAN-side IP Address	Indicates the IP address on the LAN side.
LAN-side Port	Indicates the port ID on the LAN side. This parameter can be configured when Protocol is set to TCP/UDP , TCP or UDP .
WAN-side IP Address	Indicates the IP address on the WAN side.
WAN-side Port	Indicates the ID of the WAN side port. This parameter can be configured when Protocol is set to TCP/UDP , TCP or UDP .

Table 5-5 Parameters related to the IP address filter

5.5.2 MAC Filter Configuration

1. In the navigation tree on the left, choose **Security** > **MAC Filter Configuration**. In the pane on the right, after enabling MAC filter and selecting the filter mode, click **New**. On the dialog box that is displayed, configure the MAC filter rule for the PC to access the Internet, as shown in **Figure 5-18**.

Figure 5-18 MAC Filter Configuration

Security > MAC Filter Co	onfiguration	
On this page, you ca	an configure the MAC filtering to prohibit certain PCs from accessing the Internet.	
Enable MAC filter:		
Filter Mode:	Blacklist 💌	
	New Dele	əte
	Source MAC Address	
Source MAC Address:	00:15:17:2C:EF:97 *(AA:BB:CC:DD:EE:FF)	
	Apply Cancel	

2. Click **Apply** to apply the configuration.

The MAC address lists of PCs in the network are saved on the ONT. Configuring MAC filter rules enables the PCs that conform to the rules to access the Internet service or disables the PCs that do not conform to the rules to access the Internet service. A PC may have more than one IP addresses but a unique MAC address. Therefore, configuring MAC filter rules effectively controls the Internet service access rights of PCs in a LAN.

 Table 5-6 describes the parameters related to the MAC filter.

Parameter	Description
MAC address filter function	Indicates whether to enable the MAC address filter function by clicking OPEN or CLOSE .
Filter Mode	Indicates the MAC address filter rule of the blacklist or whitelist.
	• Blacklist: indicates that the data meeting the rule in the filter rule list is not allowed to pass.
	• Whitelist: indicates that the data meeting the rule in the filter rule list is allowed to pass.
	The filter mode is global config mode. Thus, the blacklist and whitelist mode cannot be used at the same time.
Source MAC Address	Indicates the source MAC address in the MAC address filter rule.

Table 5-6 Parameters related to the MAC address filter

5.5.3 URL Filter Configuration

 Click the Security tab and then choose URL Filter Configuration from the navigation tree. In the pane on the right, after enabling URL filter and selecting the filter mode, click New. On the dialog box that is displayed, configure the URL filter rule for the PC to access the Internet, as shown in Figure 5-19.

Figure 5-19 URL Filter Configuration

Security > URL Filter Configuration		
On this page, you can con the following URL rule are otherwise only the data pa	figure the parameters of URL filter. If enable smart URL filter, the data packets complying with forbidden(or allowed) to pass the device when you access any site of the web server. ackets of your accessing site are forbidden(or allowed) to pass.	
Enable URL Filter:		
Enable Smart URL Filter:		
Filter Mode:	Blacklist 👻	
	New Delete	
	URL Address	
	-	
URL Address: W	ww.xxx.com *	
	Apply Cancel	

2. Click **Apply** to apply the configuration.

5.5.4 DoS Configuration

 In the navigation tree on the left, choose Security > DoS Configuration. In the pane on the right, determine whether to enable the DoS attack-preventive configuration, as shown in Figure 5-20.

Figure 5-20 DoS Configuration

Security > Dos Configuration		
On this page, you can configure the DoS parameters,Denial of Service(DoS) is an attack action that decreases the availability of systems by preventing authorized users from accessing some special services.		
EnablePrevent SYN Flooding Attack:		
Enable Prevent ICMP Echo Attack:		
Enable Prevent ICMP Redirect Attack:		
Enable Prevent Land Attack:		
Enable Prevent Smurf Attack:		
Enable Prevent Winnuke Attack:		
	Apply Cancel	

2. Click **Apply** to apply the configuration.

Denial of service (DoS) attack is a network-based attack that denies users from accessing the Internet. The DoS attack initiates a large number of network connections, making the server or the program running on the server break down or server resources exhaust or denying users to access the Internet service. As a result, the network service fails.

Table 5-7 describes the parameters related to the DoS.

Parameter	Description
Prevent SYN Flooding Attack	Indicates whether to enable the prevent SYN flooding attack.
	In the attack, several source hosts send SYN packets to a destination host. After receiving the SYN ACK packets from the destination host, the source hosts do not respond. In this case, the destination host establishes many connection queues for the source hosts and maintains these queues all the time because no ACK response is received. As a result, many resources are used and the destination host fails to provide normal services for normal connections.
Prevent ICMP Echo Attack	Indicates whether to enable the prevent ICMP echo attack.
	In the attack, many ICMP echo packets are sent to a destination host within a short time. As a result, the network is congested or the resources of the host are exhausted.
Prevent ICMP Redirect Attack	Indicates whether to enable the prevent ICMP redirect attack.
	In the attack, many ICMP redirect packets are sent to a destination host within a short time. As a result, the network is congested or the resources of the host are exhausted.

 Table 5-7 Parameters related to the DoS

5.5.5 ONT Access Control Configuration

 In the navigation tree on the left, choose Security > ONT Access Control Configuration. In the pane on the right, configure the rule of ONT access control, as shown in Figure 5-21.

Figure 5-21 ONT Access Control Configuration

Security > ONT Access Control Configuration		
On this page, you can enable and disable the access right assigned to the ONT.		
LAN Service		
Enable LAN-side PC to access the ONT through FTP:		
Enable LAN-side PC to access the ONT through HTTP:		
Enable LAN-side PC to access the ONT through TELNET:		
WAN Service		
Enable WAN-side PC to access the ONT through FTP:		
Enable WAN-side PC to access the ONT through HTTP:		
Enable WAN-side PC to access the ONT through TELNET:		
	Apply Cancel	

2. Click Apply to apply the configuration.

5.6 Route

This topic describes how to configure the default route and static route through the Web page.

5.6.1 Default Route Configuration

1. In the navigation tree on the left, choose **Route** > **Default Route Configuration**. In the pane on the right, select or deselect the **Default Route** option button to enable or disable the default route of the system, as shown in **Figure 5-22**.

Figure 5-22 Default Route Configuration

Route > Default Route Configuration		
On this page, you can confi	gure the default route.	
Enable Default Route:		
WAN Name:	1_INTERNET_R_VID_150	
	Apply Cancel	

If an ONT fails to find a matching routing entry after receiving a packet, the WAN interface specified by the default route configuration sends the packet to a network device. Before the default route of the system is enabled, the WAN interface must obtain the IP address. Therefore, the parameters of the WAN interface must be correctly set. For details, see **5.2.1 WAN Configuration**.

2. Click Apply to apply the configuration.

5.6.2 Static Route Configuration

1. In the navigation tree on the left, choose **Route** > **Static Route** Configuration. In the pane on the right, click **New**. In the dialog box that is displayed, set the parameters related to the static route, as shown in Figure 5-23.

Figure 5-23 Static Route Configuration

Route > Static Route Configuration	- on		
On this page, you can configu interface name. When you co address.	ire the static route, including the IP ad nfigure the static route, if the specified	dress, subnet mask, gatew WAN interface is offline, pl	ay IP address and WAN ease clear the gateway IP
			New Delete
WAN Name	Destination Address	Gateway	Subnet Mask
Destination Network Address:	20.20.20.20	*	
Subnet Mask:	255.255.255.255	*	
Gateway IP Address:	10.10.10.1		
WAN Name:	1_INTERNET_R_VID_150	~	
	Apply Cancel		

2. Click **Apply** to apply the configuration.

Table 5-8 describes the parameters related to the static route.

the static route
1

Parameter	Description
Destination Network Address	Indicates the destination IP address of the static route.
Subnet Mask	Indicates the subnet mask of the static route.
Gateway IP Address	Indicates the gateway IP address of the static route.
Interface	Indicates the WAN interface that the route travels through.

5.6.3 Policy Route Configuration

1. In the navigation tree on the left, choose **Route > Policy Route Configuration**. In the pane on the right, click **New**. In the dialog box that is displayed, set the parameters related to the policy route, as shown in **Figure 5-24**.

Figure 5-24 Policy Route Configuration

Route > Policy Ro	ute Configuration				
The policy route can be configured on this page. This route is used to send the packets of certain services (Internet, IPTV) to the OLT through a specific WAN.					
		New Delete			
	Vendor ID	WAN Name			
Vendor ID:	huawei *(Option60; for exa	mple: *VenderID* *VenderID VenderID* or VenderID)			
Vendor ID: WAN Name:	huawei *(Option60; for exa 1_TR069_VOIP_R_VID_ V	mple: *VenderID* *VenderID VenderID* or VenderID)			

2. Click **Apply** to apply the configuration.

5.7 Forward Rules

This topic describes how to configure the DMZ, port mapping, and port trigger through the Web page.

5.7.1 DMZ Configuration

1. In the navigation tree on the left, choose **Forward Rules** > **DMZ Configuration**. In the pane on the right, click **New**. In the dialog box that is displayed, set the parameters related to the DMZ, as shown in **Figure 5-25**.

Figure 5-25 DMZ Configuration

Forward Rules > DMZ Configuration					
On this page, you can configure the parameters of the DMZ device. The DMZ device provides services for unreliable external accesses. It is a buffer between a secure system and an insecure system. If the WAN port is not listed in the port mapping table, the application requests from the WAN connection are forwarded to the DMZ device.					
				New Delete	
	WAN Name		Enable DMZ	Host Address	
Enable (Enable DMZ:				
WAN Name: 2_INTERNET_B_VID_1					
Host Address: 192.168.100		100 *			
	Apply Cancel				

2. Click **Apply** to apply the configuration.

The demilitarized zone (DMZ) is a technology that enables the ONT to forward all received packets through a specified internal server. The technology enables a computer in the LAN to be completely exposed to all users on the Internet or enables the mutual communication without restrictions between a host with a specified IP address and other users or other servers on the Internet. In this way, many applications can run on the host with the specified IP address. The host with the specified IP address receives all connections and files that can be identified.

If the LAN-side device does not provide website service or other network services, do not set the device to a DMZ host because all ports of a DMZ host are opened to the Internet.

Table 5-9 describes the parameters related to the DMZ.

Parameter	Description
Interface Name	Indicates the name of the WAN interface. If the WAN interface is not in the port mapping table, the application requests from the WAN connection are directly forwarded to the host in the DMZ.
Host Address	Indicates the IP address of the DMZ host.
Enable DMZ	Indicates whether to enable the DMZ.

5.7.2 PortMapping Configuration

 In the navigation tree on the left, choose Forward Rules > PortMapping Configuration. In the pane on the right, click New. In the dialog box that is displayed, set the parameters related to port mapping, as shown in Figure 5-26.

Figure 5-26 PortMapping Configuration

Forward Rules > Port Mapping Configuration									
On this page by setting po	, you can se rt mapping (t up virtual serve parameters.	ers on the LAN	l netw	vork and allow t	hese servers to b	e access	ed from the	e Internet
								New	Delete
WAN Na	me Ma	apping Name	Protocol	E)	cternal Port	Internal Port	Inter	nal Host	Enable
Туре:		 Custorr 	1		🔘 Applicatio	n	选择		~
WAN Name:		1_INTERN	IET_R_VI 🔽		Protocol:		TCP		*
External Start P	ort:	123		A.	External End	Port:	124		*
Internal Start Po	ort:	200		A	Internal End F	Port:	201		*
External Source	Start Port:	145			External Sour	ce End Port:	146		
Internal Host:		192.168.10	00.100	A	External Sour	ce IP Address:	50.20.3	6.16	
Mapping Name	:	FTP Server	,	A.	Enable Port N	1apping:	~		
								Apply	Cancel

2. Click Apply to apply the configuration.

Port mapping indicates that the Intranet server is allowed to be open to the Extranet (for example, the Intranet provides the Extranet with a WWW server or FTP server). Port mapping is to map

the Intranet host IP address and port ID to Extranet IP address and corresponding port ID so that users from Extranets can access the Intranet server. With port mapping, the users cannot see the Intranet IP address and they see the Extranet IP address.

Table 5-10 describes the parameters related to port mapping.

Parameter	Description
Interface	Indicates the name of the WAN interface where port mapping is enabled.
Protocol	Indicates the protocol type of port mapping packet, which may be TCP, UDP, or TCP/UDP.
External Start Port	Indicates the destination start port of the external data packet.
External End Port	Indicates the destination end port of the external data packet.
Internal Start Port	Indicates the internal destination start port of the port mapping packet.
Internal End Port	Indicates the internal destination end port of the port mapping packet.
External Source Start Port	Indicates the source start port of the external data packet.
External Source End Port	Indicates the source end port of the external data packet.
Internal Host	Indicates the IP address of the host to which the port is mapped.
External Source IP Address	Indicates the source IP address of the external data packet.
Mapping Name	Indicates the name of the port mapping rule.
Enable PortMapping	Indicates whether to enable port mapping.

Table 5-10 Parameters related to port mapping

5.7.3 PortTrigger Configuration

 In the navigation tree on the left, choose Forward Rules > PortTrigger Configuration. In the pane on the right, click New. In the dialog box that is displayed, set the parameters related to the port trigger, as shown in Figure 5-27.

Figure 5-27 PortTrigger Configuration

Forward Rules > Port Trigger Configuration						
On this name, you can configure the range of the part that is used for the LONL side employing to espece the Internet and						
enable th	On this page, you can configure the range of the port that is used for the LAN-side applications to access the internet and enable the port automatically.					
						New Delete
	WAN Name	Status	Trigger Port	Open Port	Trigger Protocol	Open Protocol
Enable Port	t Trigger:	~				
WAN Name	c.	1_INTE	RNET_R_VID_150	~		
Trigger Prot	tocol:	UDP		~		
Open Proto	col:	UDP		~		
Trigger Star	t Port:	200		*		
Trigger End	Port:	201		*		
Open Start F	Port:	145		*		
Open End F	Port:	146		*		
		Apply	Cancel			

2. Click **Apply** to apply the configuration.

The port trigger indicates that a specific Extranet port is automatically enabled when a corresponding Intranet port sends a packet and the packet is mapped to the Intranet port on the host. A specific mapping packet is sent from the ONT through the Intranet so that specific packets of the Extranet can be mapped to the corresponding host. A specified port on the gateway firewall is open to some applications for remote access. The port trigger can dynamically enable the open port of the firewall.

Table 5-11 describes the parameters related to the port trigger.

Parameter	Description
Interface	Indicates the name of the WAN interface where the port trigger is enabled.
Trigger Protocol	Indicates the protocol type of the port trigger packet, which may be TCP, UDP, or TCP/UDP.
Open Protocol	Indicates the protocol type of the open data packet.
Trigger Start Port	Indicates the destination start port of the port trigger packet.
Trigger End Port	Indicates the destination end port of the port trigger packet.
Open Start Port	Indicates the destination start port of the open packet.
Open End Port	Indicates the destination end port of the open packet.
Enable	Indicates whether to enable the port trigger.

Table 5-11 Parameters related to the port trigger

5.8 Network Applications

This topic describes how to configure the USB, ALG, UPnP, and ARP through the Web page.

5.8.1 USB

1. In the navigation tree on the left, choose **Network Applications** > **USB**. In the pane on the right, set the parameters related to FTP downloading to share the FTP file of the ONT, as shown in **Figure 5-28**.

Figure 5-28 USB

Network Application > USB Application						
FTP Client Configuration						
You can download the file from FTP server to the USB mass storage device by config FTP client.						
FTP URL:		ftp://192.168.100.3	3/*.*			
Port Number:		21				
User Name:		123				
Password:		•••				
Device:		No USB Device	✓			
Local Path:						
		Download				
User Name	Password	Port Number	Download URL	Local Path	State	
User Name 	Password 	Port Number 	Download URL 	Local Path 	State 	
User Name FTP Server Config	Password guration	Port Number 	Download URL 	Local Path 	State 	
User Name FTP Server Config You can share	Password guration	Port Number nass storage devic	Download URL e in LAN by config FTP Server.	Local Path 	State 	
User Name FTP Server Config You can share Enable FTP Serv	Password guration data of USB r er:	Port Number nass storage devic	Download URL e in LAN by config FTP Server.	Local Path 	State 	
User Name FTP Server Config You can share Enable FTP Serv User Name:	Password guration data of USB r rer:	Port Number nass storage devic Image devices root	Download URL e in LAN by config FTP Server.	Local Path 	State 	
User Name FTP Server Config You can share Enable FTP Serv User Name: Password:	Password guration e data of USB r er:	Port Number mass storage devic root ••••••	Download URL e in LAN by config FTP Server.	Local Path 	State 	
User Name FTP Server Config You can share Enable FTP Serv User Name: Password: Device:	Password guration e data of USB r rer:	Port Number mass storage devic v root No USB Device	Download URL e in LAN by config FTP Server.	Local Path 	State 	
User Name FTP Server Config You can share Enable FTP Serv User Name: Password: Device: Root Directory Pa	Password guration e data of USB r er:	Port Number mass storage devic v root No USB Device	Download URL e in LAN by config FTP Server.	Local Path 	State 	

2. Click **Download** to download files from the FTP server to the USB storage device.

Table 5-12 describes the parameters related to the USB.

Table 5-12	Parameters	related	to	the	USB
------------	------------	---------	----	-----	-----

Parameter	Description
Download URL	Indicates the path of the file downloaded through FTP.
Port Number	Indicates the FTP port number. It is set to 21 by default. Generally, the setting is not required.

Parameter	Description
User Name	Indicates the user name for connecting to the FTP server. If the FTP server supports anonymous login, the setting is not required.
Password	Indicates the password for connecting to the FTP server. If the FTP server supports anonymous login, the setting is not required.
Device	Indicates the drive of the external USB device for saving the file downloaded through FTP. When the USB storage device is connected to the USB port, the drop-down list is available.
Local Path	Indicates the path for saving the FTP-downloaded file to the external USB device. If the path is not entered, the path specified in Download URL is used by default.

5.8.2 ALG Configuration

 In the navigation tree on the left, choose Network Applications > ALG Configuration. In the pane on the right, determine whether to enable the FTP or TFTP, as shown in Figure 5-29.

Figure 5-29 ALG Configuration

Network Application > ALG Cor	ifiguration
On this page, you can enal hardware can be used.	le the ALG of a service by selecting the corresponding check box. Then, the applications and
Enable FTP ALG:	
Enable TFTP ALG:	
Enable H323 ALG:	
Enable SIP ALG:	
Enable RTSP ALG:	
	Apply Cancel

2. Click **Apply** to apply the configuration.

When the NAT function is enabled, the application level gateway (ALG) function needs to be enabled to ensure that some application software and hardware can be normally used.

5.8.3 UPnP Configuration

1. In the navigation tree on the left, choose **Network Applications** > **UPnP Configuration**. In the pane on the right, determine whether to enable the UPnP, as shown in **Figure 5-30**.

Figure 5-30 UPnP Configuration

Network Application > UPnP Configuration		
On this page, you ca and-play and autom: supports the UPnP f and learn the perforr	n enable or disable the universal plug and play (UPnP) function(The UPnP function supports plug- atic discovery of multiple types of network equipment. If the UPnP function is enabled, a device that unction can access networks, obtain an IP address, transmit performance data, detect other devices, nance data of the other devices).	
Enable UPnP:		
	Apply Cancel	

2. Click **Apply** to apply the configuration.

Universal Plug and Play (UPnP) is the name of a group of protocols. The UPnP supports zero configuration networking and automatic discovery of different network devices. If the UPnP is enabled, the UPnP-enabled device can be dynamically connected to the network to obtain the IP address, obtain the transfer performance, discover other devices, and learn the performance of the other devices. The UPnP-enabled device can be automatically disconnected from the network, without affecting the device or other devices.

When the UPnP is enabled, the LAN-side PC automatically finds the ONT, which is considered as a peripheral device of the PC and is plug-and-play. After running application software on the PC, port mapping entries are automatically generated on the ONT through the UPnP protocol, thus improving the running speed.

5.8.4 ARP Configuration

1. In the navigation tree on the left, choose **Network Applications** > **ARP Configuration**. In the pane on the right, click **New**. In the dialog box that is displayed, set the resolution rule between a MAC address and an IP address, as shown in **Figure 5-31**.

Figure 5-31 ARP Configuration

Idetwork App	uncation PARE Com	iguration		
On this page, you can configure the static ARP, including the IP address and MAC address.				
				New Delete
	IP Address MAC Address			
IP Address	c	192.168.100.100 *		
IP Address MAC Addre	: ss:	192.168.100.100 * 00:15:17:2C:EF:97 *		

2. Click **Apply** to apply the configuration.

Static ARP means to manually add an ARP entry on an ONT. A static ARP never ages and can only be deleted manually. If the mapping between the IP address and MAC address of the peer device is available, configuring a static ARP entry benefits a lot. For example, the dynamic ARP entry learning is omitted during device communication and the static ARP entry prevents a device from learning an incorrect ARP entry in the case of malicious attacks.

5.8.5 Portal Configuration

1. Click the **Network Application** tab and then choose **Portal Configuration** from the navigation tree. In the right pane, enable/disable the portal function and set the redirection URL addresses for different types of devices, as shown in **Figure 5-32**.

Figure 5-32 Portal configuration

Network A	Network Application > Portal Configuration			
On thi type w	On this page, you can configure the portal information. The browser will display a specified page according to your device type when you access the internet first time.			
Enable P	ortal:			
Default R	edirection URL:	www.xxx.com		
		New De	elete	
	Device ty	De Redirection URL address		
Device Ty	/pe:	Computer 🗸		
Redirecti	on URL Address:	www.xxx.com *		
		Apply Cancel		

2. Click **Apply** to apply the configuration.

If the type of the device that you use is not configured with a URL address or the device type cannot be identified, the system redirects to the default URL address upon the first access to the Internet.

5.8.6 DDNS Configuration

 Click the Network Application tab and then choose DDNS Configuration from the navigation tree. In the right pane, configure DDNS parameters, including Service Provider, Host Name, Service Port, Domain Name, Username, and Password, as shown in Figure 5-33.

Figure 5-33 DDNS configuration

Network Application > DDNS Configuration						
On this page, you can configure the DDNS parameters, including the service provider,the username and password,also the domain name you want to update.						
						New Delete
	WAN Name		Status		Service Provider	Domain Name
Enable DDN	18:	✓				
WAN Name:		1_IN	TERNET_R_VI	D_1 🗸		
Service Prov	rider:	dynd	ns-static	*		
Host Name:		mem	bers.dyndns.or	rg	*(1-255)Character	
Service Port	:	80			* (1-65535)	
Domain Nar	me:	www.	abc123.com		*(1-255)Characters	
Username:		user			*(1-255)Character	
Password:		••••			*(1-255)Character	
		Арр	ly Cancel	I		

2. Click **Apply** to apply the configuration.

Dynamic domain name service (DDNS) associates a static domain name with the dynamic IP address of its host.

Assume that server A provides HTTP or FTP service and it is connected to the Internet using routers. If server A obtains an IP address through DHCP, or server A is connected to the Internet through PPPoE, PPTP, or L2TP, the IP address is an dynamic IP address. That is, its IP address may change each time when server A initializes its connection to the Internet.

The mapping between the domain name and IP address provided by the domain name service (DNS) server is static, and the mapping does not update when the IP address changes. Therefore, when the IP address of server A changes, users on the Internet cannot access server A with domain names.

With DDNS, which associates a static domain name with the dynamic IP address of its host, users on the Internet can access the server only with domain names.

5.8.7 IGMP Configuration

1. Click the **Network Application** tab and then choose **IGMP Configuration** from the navigation tree. In the right pane, configure the IGMP parameters, as shown in **Figure 5-34**.

Figure 5-34 IGMP configuration

Network Application > IGMP Configuration			
On this page, you can set the IGMP parameters; You can enable the IGMP for the WAN interface by choosing HomeGateway as the IGMP work mode. You can configure the parameters such as robustness, general query interval, general response time, special query number, special query interval and special response time only when IGMP work mode is HomeGateway and IGMP proxy are enabled.			
IGMP Enable:	Enable 💊		
IGMP Work Mode:	Proxy 💊		
Robustness:	2	*(1~10 default value: 2)	
General query interval:	125	*(30~5000s default value: 125s)	
General query response time:	100	*(1~255 unit: 0.1s default value: 100)	
Specific query number:	2	*(1~10 default value: 2)	
Specific query interval:	10	*(1~5000 unit: 0.1s default value: 10)	
Specific query response time:	10	*(1~255 unit: 0.1s default value: 10)	
	Apply Cancel		

2. Click **Apply** to apply the configuration.

The IGMP function of WAN ports can be enabled only when IGMP works in the gateway mode. Only when IGMP proxy is enabled in the gateway mode, parameters such as **Robustness**, **General query interval**, **General query response time**, **Specific query number**, **Specific query interval**, and **Specific query response time**.

5.8.8 QoS Configuration

1. Click the **Network Application** tab and then choose **QoS Configuration** from the navigation tree. In the right pane, enable/disable QoS and select a QoS mode, as shown in **Figure 5-35**.

Figure 5-35 QoS configuration

Network Application > QoS Configuration		
On this page, you can set t	he QoS parameters. You can enable or disable QoS service and select a mode for QoS.	
Enable QoS:		
QoS Mode:	INTERNET,TR069	
	Apply Cancel	

2. Click **Apply** to apply the configuration.

5.8.9 Terminal Limit Configuration

 Click the Network Application tab and then choose Terminal Limit Configuration from the navigation tree. In the right pane, configure relative parameters, as shown in Figure 5-36.

Figure 5-36 Terminal Limit Configuration

Network A	Application ≻ Terr	minal Limit Configuration		
On th be for	On this page, you can set the maximum number of terminal; The terminal whose index exceeding the number limit will be forbidden to access the internet.			
Limit Mo	de:	Type Limit 👻		
		Apply Cancel		
			New Delete	
	Enable	Device Type	Type Limit Number	
Enable T	Type Limit:			
Device T	уре:	Computer 👻		
Type Lim	hit Number:	4 *(0-253	0	
		Apply Cancel		

2. Click Apply to apply the configuration.

5.9 Voice

This topic describes how to configure the voice service through the Web page.

The Web page for configuring the voice service varies with the loaded voice protocols. The following topics describe the Web pages after the H.248 protocol and the SIP protocol are loaded.

- Device software version V100R002C00 supports the SIP protocol.
- Device software version V100R002C01 supports the H.248 protocol.

5.9.1 VoIP Interface Configuration

- Configuring VoIP Interface SIP Protocol
 - 1. In the navigation tree on the left, choose **Voice** > **VoIP Interface Configuration**. In the pane on the right, parameters of a VoIP interface can be configured, including the IP addresses of the primary server and secondary server, and digitmap.
 - a. Configured the Interface Basic Parameters.

Figure 5-37 Interface Basic Parameters Configuration - SIP protocol

Voice > VoIP Basic Configuration			
Interface Basic Parameters			
You can set the voice interfa	are hasic narameters		
Primary Proxy Address:	172.23.111.11	*(IP or Domain)	
Primary Proxy Port:	5060	*(1-65535)	
Standby Proxy Address:		(IP or Domain)	
Standby Proxy Port:	5060	(1-65535)	
Home Domain:	soft3000.huawei.com	(IP or Domain)	
Local Port:	5060	*(1-65535)	
Digitmap:	7777)0000		
Digitmap Match Mode:	Min 💌		
Registration Period:	600	(Uint:s)(1~65534)	
Signaling Port:	2_VOIP_R_VID_200 (Se messages.)	lect the name of the WAN that will carry the voice signaling	
Media Port:	(Sele	ect Media for voice signaling. The media port is same with ıty.)	
Region:	CN - China		
	Apply Cancel		

b. Configured the User Basic Parameters.

Figure 5-38 User Basic Parameters Configuration - SIP protocol

User Basic Parameters					
On this page, you can set the basic parameters for the voice users.					
					New Delete
	Sequence	e Register User Name	e Auth User Name	Password	Associated POTS
V	1			******	1
	2			******	2
Enable User:					
Register User Name:		80001234	(Telphone Number)		
Associated POTS: 1					
Auth User Name: 234@softx3000.huawei.com		com (The length must be b	etween 0-64.)		
Password:		•••••	(The length must be b	etween 0-64.)	
		Apply Cancel			

2. Click **Apply** to apply the configuration.

 Table 5-13 describes the parameters used for configuring a VoIP interface based on the SIP protocol.

Parameter	Description
Primary Server	
Proxy Server Address	Indicates the IP address (provided by the ISP) of the primary SIP proxy server.
Proxy Server Port	Indicates the ID (provided by the ISP) of the port used for communication between the primary SIP proxy server and the VoIP terminal. The ID ranges from 1 to 65535 and the default ID is 5060.
Secondary Server	
Proxy Server Address	Indicates the IP address (provided by the ISP) of the secondary SIP proxy server.
Proxy Server Port	Indicates the ID (provided by the ISP) of the port used for communication between the secondary SIP proxy server and the VoIP terminal. The ID ranges from 1 to 65535 and the default ID is 5060.
General	
Home Domain	Indicates the domain of the registration server of the VoIP terminal in network communications, such as softx3000.huawei.com.
Local Port	Indicates the ID of the local port on the ONT. The ID ranges from 1 to 65535 and the default ID is 5060.
Digitmap	Indicates the voice digitmap.
Digitmap Match Mode	 Indicates the digitmap matching mode, including Min and Max. Min: If the dialed character string matches a digitmap scheme, the system immediately reports the number to the call proxy. Max: If the dialed character string matches a digitmap scheme, the system does not immediately report the number to the call proxy but starts the short timer. If a user does not continue dialing digits, the system reports the number to the call proxy after the short timer times out; if the user continues dialing digits and the number that matches the digitmap to the call proxy.
Registration Period	Indicates the valid registration period. When this period expires, the SIP user needs to register again. The value range is 1s to 65534s, and the default value is 600s.
Signaling Port	Indicates the signaling WAN port used for connecting the VoIP terminal to the SIP server.

Table 5-13 Parameters used for configuring a VoIP interface based on the SIP protocol

Parameter	Description
Media Port	Indicates the WAN port of the voice media streams. When the name of the media port is empty, it indicates that the name of the media port is the same as that of the signaling port.
Region	Indicates the country code.
Advance Interface Parame	eters
Fax Transmode	 Indicates the fax mode, including pass-through and T.38. Pass-through: The MG encodes the fax signals transmitted by a fax machine according to the voice codec (G.711), and then coverts such signals into the RTP data packets for real-time transmission over an IP network. T.38: The MG, through ITU-T T.38, converts the T.30-compliant fax signals transmitted by a fax machine into the T.38 packets for transmission over an IP bearer network.
Fax Switchmode	Indicates the fax switching mode, including negotiation and self-switch. The fax switching mode is selected according to the customer requirements.
Profile Body	Indicates the control point parameters. Such parameters are selected according to the softswitch. Generally, the default settings are adopted.
Software Parameters	Indicates the software parameters. Such parameters are selected according to the softswitch. Generally, the default settings are adopted.
Enable Echo Cancellation	Enables or disables echo cancellation. By default, echo cancellation is enabled.
Register User Name	Indicates the register phone number.
Auth User Name	Indicates the authentication user name.
Password	Indicates the authentication password.

• VoIP Interface Configuration - H.248 Protocol

- 1. In the navigation tree on the left, choose **Voice** > **VoIP Interface Configuration**. In the pane on the right, parameters of a VoIP interface can be configured, including the primary MGC server, secondary MGC server, and digitmap.
 - a. Configured the Interface Basic Parameters.

Figure 5-39 Interface Basic Parameters Configuration - H.248 protocol

Voice > VoIP Basic Configuration				
Interface Basic Parameters				
You can set the voice inter	ace basic parameters.	e basic parameters.		
		_		
Primary MGC Address:	172.23.1.2	*(IP or Domain)		
Primary MGC Port:	2944	*(1-65535)		
Standby MGC Address:		(IP or Domain)		
Standby MGC Port:	2944	(1-65535)		
MG Domain:	soft3000.huawei.com			
Local Port:	2944	*(1-65535)		
Device Name:				
MID Format:	IP 🗾			
Digitmap Match Mode:	Min 💌			
RTP TID Prefix:	A100			
Start Number of RTP TID:	0			
Width of RTP TID Number:	6			
Signaling Port	2_VOIP_R_VID_200 • ()	Select the name of the WAN that will carry the voice signaling		
orginaling i ort.	messages.)			
Media Port:	(Sel	ect WAN name for media. The media port name is same with		
	signaling port name when it is empty.)			
Region:	CN - China	<u>-</u>		
	Apply Cancel			

b. Configured the User Basic Parameters.

Figure 5-40 User Basic Parameters Configuration - H.248 protocol

User Basic Parameters					
On this page, you can set the basic parameters for the voice users.					
					New Delete
		Sequence	Line Nam	ie	Associated POTS
	1			1	
	2			2	
Enable Line Name:					
Line Name:		A0	*		
Associated POTS:		1 💌			
		Apply Cancel			

2. Click **Apply** to apply the configuration.

 Table 5-14 describes parameters used for configuring a VoIP interface based on the H.248 protocol.

Parameter	Description
Primary Server	
MGC Address	Indicates the IP address (provided by the ISP) of the primary MGC server.
MGC Port	Indicates the ID (provided by the ISP) of the port used for communication between the primary MGC server and the VoIP terminal. The ID ranges from 1 to 65535 and the default ID is 2944.
Secondary Server	
MGC Address	Indicates the IP address (provided by the ISP) of the secondary MGC server.
MGC Port	Indicates the ID (provided by the ISP) of the port used for communication between the secondary MGC server and the VoIP terminal. The ID ranges from 1 to 65535 and the default ID is 2944.
General	
MG Domain	Fill the domain name when Register Format is set to DomainName , such as user.huawei.com.
MG Port	Indicates the ID of the local port on the ONT. The ID ranges from 1 to 65535 and the default ID is 2944.
Device Name	Fill the device name when Register Format is set to DeviceName .
MID Format	Indicates the MG registration format. It can be the MG domain name, IP address, or device name. The MG register format must be the same as the register format provided by the ISP.
Digitmap Match Mode	 Indicates the digitmap matching mode, including Min and Max. Min: If the dialed character string matches a digitmap scheme, the system immediately reports the number to the softswitches.
	 Max: If the dialed character string matches a digitmap scheme, the system does not immediately report the number to the softswitches but starts the short timer. If a user does not continue dialing digits, the system reports the number to the softswitches after the short timer times out; if the user continues dialing digits and the number matches the long digitmap, the system reports the number that matches the digitmap to the softswitches.
RTP TID Prefix	Indicates the prefix of the ephemeral termination. The default prefix on Huawei softswitches is A100.

Table 5-14 Parameters used for configuring a VoIP interface based on the H.248 protocol

Parameter	Description
Start Number of RTP TID	Indicates the start number of the suffix of the ephemeral termination. The default value is 0.
Width of RTP TID Number	Indicates the length of the suffix of the ephemeral termination. The default value is 6.
Signaling Port	Indicates the signaling WAN port used for connecting the VoIP terminal to the MGC server.
Media Port	Indicates the WAN port of the voice media streams. When the name of the media port is empty, it indicates that the name of the media port is the same as that of the signaling port.
Region	Indicates the country code.
Advanced Interface config	guration
Fax Transmode	 Indicates the fax mode, including pass-through and T.38. Pass-through: The MG encodes the fax signals transmitted by a fax machine according to the voice codec (G.711), and then coverts such signals into the RTP data packets for real-time transmission over an IP network. T.38: The MG, through ITU-T T.38, converts the T.30-compliant fax signals transmitted by a fax machine into the T.38 packets for transmission over an IP bearer network.
Fax Switchmode	Indicates the fax switching mode, including negotiation and self-switch. The fax switching mode is selected according to the customer requirements.
Profile Index	Indicates the control point parameters. Such parameters are selected according to the softswitch. Generally, the default settings are adopted.
Software Parameters	Indicates the software parameters. Such parameters are selected according to the softswitch. Generally, the default settings are adopted.
Start Negotiate Version	 Indicates the start version of the H.248 protocol for negotiation. It is selected according to the softswitch. The value range is 0 to 3, and the default value is 2. 0: Indicates that the negotiation is based on the profile parameters. 1-3: Indicates the start version of the H.248 protocol for negotiation.
Enable Echo Cancellation	Enables or disables echo cancellation. By default, echo cancellation is enabled.

5.9.2 VoIP User Configuration

• VoIP User Configuration - SIP protocol

 In the navigation tree on the left, choose Voice > VoIP User Configuration. In the pane on the right, you can configure parameters of a VoIP user, including the register user name, authentication user name, password, and associated POTS, as shown in Figure 5-41.

Figure 5-41 VoIP User Configuration - SIP protocol

Voice > VoIP Advanced Configuration				
On this page, you can set interface advanced parameters.				
Interface Advanced Parame	ters			
Enable Echo Cancellation:				
Fax Transmode:	pass-through 💌			
Fax Switchmode:	negotiation 💌			
Profile Body:	1=4294967295;2=1;3=1;4= 1=0;12=0;13=1;14=1;15=0 22=1;23=64;24=15;25=180	1=4294967295;2=1;3=1;4=1;5=0;6=0;7=1;8=600;9=1;10=0;1 1=0;12=0;13=1;14=1;15=0;16=0;17=0;18=0;19=0;20=1;21=1; 22=1;23=64;24=15;25=180;26=32;27=120;28=120;29=30;30		
Software Parameters:	Default	Default		
Apply Cancel				
User Advanced Parameters				
Sequence	Register User Name	Auth User Name	Associated POTS	
1	77770254	77770254@ont.huawei.com	1	
2	77770255	77770255@ont.huawei.com	2	
Codec	Period(ms)	Priority	Enable	
G.711MuLaw	20 •	2 (1-100)		
G.711ALaw	20 1 (1-100)		V	
G.729	20 🔽	3 (1-100)		
G.722	20 🔹	4 (1-100)		

Apply Cancel

2. Click **Apply** to apply the configuration.

 Table 5-15 describes parameters used for configuring a VoIP user based on the SIP protocol.

Table 5-15 Parameters used	for configuri	ng a VoIP user	based on the S	IP protocol
----------------------------	---------------	----------------	----------------	-------------

Parameter	Description
Register User Name	Indicates the telephone number of a voice user.
Enable	Indicates whether to enable a voice user.
Auth User Name	Indicates the authentication user name of a voice user.
Password	Indicates the authentication password of a voice user.

Parameter	Description
Associated POTS	Indicates the POTS port associated with a voice user.

• VoIP User Configuration - H.248 Protocol

 In the navigation tree on the left, choose Voice > VoIP User Configuration. In the pane on the right, you can configure the line name and associated POTS, as shown in Figure 5-42.

Figure 5-42 VoIP User Configuration - H.248 Protocol

Voice > VoIP Advanced Config	uration	
You can set the voice interface advanced parameters.		
Enable Echo Cancellation:		
Fax Transmode:	pass-through	
Fax Switchmode:	negotiation 💌	
Profile Index:	Default	
Software Parameters:	Default	
Start Negotiate Version:	2 "0" indicates negotiating H.248 version according to profile parameters.)	
	Apply Cancel	

2. Click **Apply** to apply the configuration.

 Table 5-16 describes parameters used for configuring a VoIP user based on the H.248 protocol.

Parameter	Description
Line Name	Indicates the termination ID of a voice user. It must be consistent with the MG termination ID on the MGC.
Associated POTS	Indicates the POTS port associated with a voice user.
Enable	Indicates whether to enable a voice user.

5.10 System Tools

This topic describes how to use the system tools on the Web page, including using the tools to restart the device, restore the default configuration, and conduct the test.

5.10.1 Reboot

In the navigation tree on the left, choose **System Tools** > **Reboot**. In the pane on the right, click **Reboot** to restart the device, as shown in **Figure 5-43**.

Figure 5-43 Reboot

S	ystem Tools > Reboot
	On this page, you can reboot the home gateway by clicking "Reboot".
	Reboot

Save the configuration data before restarting the device. For details, see **5.10.2 Configuration** File.

5.10.2 Configuration File

In the navigation tree on the left, choose **System Tools** > **Configuration File**. In the pane on the right, click the button as required, as shown in **Figure 5-44**.

Figure 5-44 Configuration File

System Tools > Configuration File	
You can click "Save Configuration" to save the current configuration You can click "Save and Reboot" to save the current configuration of the current current configuration of the current	ration to the flash memory. tion to the flash memory and then reboot the device.
Save Configuration	Save and Reboot
You can click "Download Configuration File" to back up the cu	rrent configuration.
Download Configuration File	
If you enter the path of the configuration file and then click "Up with the saved configuration file.	load Configuration File", your home gateway will be updated
Configuration File: Browse	Upload Configuration File

- Click **Save Configuration** to save the current configuration to the flash memory. This prevents data loss due to the restart of the device.
- Click **Save and Reboot** to save the current configuration to the flash memory and then reboot the device.

- Click **Download Configuration File**. In the dialog box that is displayed, click **Save**, specify the path of saving the configuration file, and then back up the file to the local disk.
- Click **Browse** following the **Configuration File** text box. In the dialog box that is displayed, select the configuration file to be uploaded. Click **Upload Configuration File** to upload the configuration file that is saved in the local disk. After the configuration file is successfully uploaded, the device automatically restarts and then the new configuration takes effect.



Before uploading the configuration file, choose the configuration file with the correct type and the name of the selected configuration file must not be the same as that of any file saved in the device. Otherwise, the configuration file fails to be uploaded.

5.10.3 USB Backup Restore CFG

Click the **System Tools** tab and then choose **USB Backup Restore CFG** from the navigation tree. In the pane on the right, the button as required, as shown in **Figure 5-45**.

Figure 5-45 USB Backup Restore CFG

System Tools ≻ USB Backup Restore C	FG	
On this page, you can backup cont	figuration files to the USB device or restore configuration files from the USB device.	
Restore enable		
Enable restore from USB:		
	Apply Cancel	
Backup configuration Device: NO USB DEVICE Backup configuration		

- Select **Enable restore from USB** to configure whether the system supports fast recovery of the backed up configured file from the USB storage device.
- Click **Backup configuration** to back up the configuration file to the specified USB storage device.



After the configuration file in the USB storage device is successfully uploaded, the device is restarted and then the new configuration data takes effect.

5.10.4 Firmware Upgrade

1. In the navigation tree on the left, choose **System Tools** > **Firmware Upgrade**. In the pane on the right, click **Browse**. In the dialog box that is displayed, select the target software

version of the device. Click **Update Firmware** to upgrade the software of the device, as shown in **Figure 5-46**.

Figure 5-46 Firmware Upgrade



2. After the upgrade is successful, a message is displayed indicating that the device needs to be reset. Click **Reset**. The configuration data takes effect after the device is reset.

5.10.5 Restore Default Configuration

In the navigation tree on the left, choose **System Tools** > **Restore Default Configuration**. In the pane on the right, click **Restore Default Configuration** to restore the factory defaults, as shown in **Figure 5-47**.

Figure 5-47 Restore Default Configuration

```
System Tools > Restore Default Configuration
On this page, you can restore the default configuration by clicking "Restore Default Configuration".
Restore Default Configuration
```



Exercise caution when you perform this operation because it restores factory defaults.

5.10.6 Ping Test

In the navigation tree on the left, choose **System Tools** > **Ping Test**. In the pane on the right, enter the destination IP address for the ping test in the **IP Address** text box, and then click **Start**, as shown in **Figure 5-48**.

Figure 5-48 Ping test

System Tools > Maintenance	
Ping Test	
On this page, you can check the connectivity to the LAN or the Internet by performing a Ping Test.	
Target: Start The result: PASS	
Maintenance	
To end maintenance, please click the "Maintenance End" button.	
Maintenance End	

- If the ping test is successful, **The result** is displayed as **PASS**, that is, the ONT can interwork with the device with the destination IP address.
- If the ping test fails, **The result** is displayed as **FAIL**, that is, the ONT cannot interwork with the device with the destination IP address.

5.10.7 Log

In the navigation tree on the left, choose **System Tools** > **Log**. In the pane on the right, click **Download log File**. In the dialog box that is displayed, click **Save**, specify the path of saving the log file, and save the file to the local disk, as shown in Figure 5-49.

Figure 5-49 Log

rstem Tools > Log	
Enable and set the filter Level	
On this page, you can set whether to save the log, set the filter level and backup the log.	
Save Log:	
Filter Level: Error V	
Apply Cancel	
Download or look over log	
You can look over the running log which you have backed up or download the log file to a local computer. By clicking "Download Log File", you can download operation log files of the terminal to a local computer.	
Download Log File	
Manufacturer:Huawei Technologies Co., Ltd; Anno 2015 ProductClass:HG8247; SerialNumber:6877687700000001; IP:192.168.100.1; HWVer:120D0011; SWVer:V1R002C04S902T;	

5.10.8 ONT Authentication

1. In the navigation tree on the left, choose **System Tools** > **ONT Authentication**. In the pane on the right, you can view or change the authentication mode for the registration of the ONT on the OLT, as shown in **Figure 5-50**.

Figure 5-50 ONT Authentication

HUAWEI Status	WAN LAN WLAN	Security Route	Forward Rules	Network Application	Voice	System Tools
Reboot	System Tools > ONT Auth	nentication				
Configuration File						
USB Backup Restore CFG	On this page, you c	an change the parame	ters for authenticatio	n on the OLT. Reset the ONT	after chan	ging the parameters.
Firmware Upgrade						
Restore Default Configuration	Authentication Mode:	● LOID		C Password		
Maintenance	LOID:	123456	(The loid must I	be between 1-24 characters i	n length)	
Log	Password:	pon824522	(The password	must be between 1-12 chara	cters in len	gth)
ONT Authentication		Apply Cancel				
Time Setting						
TR-069						
Advanced Power Management						
Modify Login Password						

2. Click **Apply** to apply the configuration.

The user can modify the ONT SN by using the phone on condition that the ONT has never been online. Otherwise, the ONT cannot be modified. The modification is performed as follows:

Connect the phone to the POTS port on an ONT, dial "**SN**SN#" (SN indicates ASCII codes), and then restart the ONT.

5.10.9 Time Setting

1. In the navigation tree on the left, choose **System Tools** > **Time Setting**. In the pane on the right, set the parameters related to the system time, including the SNTP server, time zone, and daylight saving time (DST), as shown in **Figure 5-51**.

Figure 5-51 Time Setting

Bystem Tools ≻ Time Settin	g	
On this page, you can the operation logs of t	configure the SNT he terminal must h	P protocol, time zone, and daylight saving time to accurately set the time. Some of ave a time stamp.
Auto Synchronization	Network Time Sen	ver
Primary SNTP Server:		clock.fmt.he.net
Secondary SNTP Server:	Secondary SNTP Server: clock.nyc.he.net 💌	
Time Zone:	Time Zone: (GMT) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London 💌	
Time Synchronization Cy	Time Synchronization Cycle: 360 (s)	
		Apply Cancel
🗹 Enable Daylight Savir	ng Time	
	7/1////0/0/0	
DST Start Time(ext):	714/110/0/0	mm/ww/dd/hh/mm/ss(m-month,w-week,d-day,h-hour,m-minute,s-second)
DST End Time(ext):	9/4/1/0/0/0	mm/ww/dd/hh/mm/ss(m-month,w-week,d-day,h-hour,m-minute,s-second)
		Apply Cancel

2. Click **Apply** to apply the configuration.

Table 5-17 describes the parameters related to the system time.

Table 5-17 Parameters related to	the system time
----------------------------------	-----------------

Parameter	Description
Auto Synchronization Network Time Server	Indicates whether to enable the auto synchronization network time server, that is, SNTP server.
Primary SNTP Server	Indicates the primary SNTP server.
Secondary SNTP Server	Indicates the secondary SNTP server.
Time Zone	Indicates the time zone.
Time Synchronization Cycle	Indicates whether to enable the DST.
DST Start Time	Indicates the DST start time.
DST End Time	Indicates the DST end time.

If the SNTP server is configured based on domain name format, a static route or a default route must be configured. If the static route or default route is not configured, the ONT will fail to obtain time from the SNTP server. For detailed procedures, see **5.6 Route**. If the SNTP server is configured based on IP address format, you can skip the operation above.

5.10.10 TR-069

1. In the navigation tree on the left, choose **System Tools** > **TR-069**. In the pane on the right, set the parameters related to the interconnection between the ONT and the TR-069 server, as shown in **Figure 5-52**.

Figure 5-52 TR-069

System Tools > TR-069				
ACS parameters config				
If the TR069 auto-provisioning function is enabled, you can set the ACS parameters of the terminal.				
Enable Period Inform:				
Period Inform Interval:	43200	*[1 - 2147483647](s)		
Period Inform Time:		yyyy-mm-ddThh:mm:ss(For example:2009-12-20T12:23:34)		
ACS URL:	tp://10.167.18.188:9090	A		
ACS User Name:	hgw	A		
ACS Password:	•••	*(Password length is from 1 to 256 characters)		
Connection Request User Name:	itms	x		
Connection Request Password:	•••	*(Password length is from 1 to 256 characters)		
	Apply Cancel			

Configuring the interconnection between the ONT and the TR-069 requires creating a WAN interface. In addition, **Service List** of the WAN interface must contain the TR069. For details, see **5.2.1 WAN Configuration**.

2. Click **Apply** to apply the configuration.

Table 5-18 describes the TR-069 parameters.

Table 5-18 TR-069	parameters
-------------------	------------

Parameter	Description
Period Inform	Indicates whether to enable the notification function.
	• If the notification function is enabled, the ONT actively sends a connection request to the TR-069 server.
	• If the notification function is disabled, the ONT does not actively send a connection request to the TR-069 server.
	When the notification function is enabled, the Period Inform Interval and Period Inform Time parameters can be set.
Period Inform Interval	Indicates the interval for the ONT to send a connection request to the TR-069 server.
Period Inform Time	Indicates the time for the ONT to send a connection request to the TR-069 server.

Parameter	Description
ACS URL	Indicates the address of the TR-069 server to which the ONT sends a connection request.
ACS User Name	Indicates the user name for the ONT to register with the TR-069 server.
ACS Password	Indicates the password for the ONT to register with the TR-069 server.
Connection Request User Name	Indicates the user name to be carried when the TR-069 server initiates a connection request to the ONT.
Connection Request Password	Indicates the password to be carried when the TR-069 server initiates a connection request to the ONT.

5.10.11 Advanced Power Management

 In the navigation tree on the left, choose System Tools > Advanced Power Management. In the pane on the right, you can start the ONT energy conservation mode and set the power saving mode, as shown in Figure 5-53.

Figure 5-53 Advanced Power Management

System Tools > Advanced Power Management				
On this page, you can set the power management mode of the ONT.				
Enable power mode configuration				
Enable:				
Check the box under "Enable" to continue to use the service while the system is in battery (backup) mode.				
Service Type	Enable			
USB:				
LAN:				
WLAN:				
VOICE:				
CATV:				
Remote Management:				
	Apply Cancel			

2. Click **Apply** to apply the configuration.

5.10.12 Modify Login Password

1. Click the **System Tools** tab and then choose **Modify Login Password** from the navigation tree. In the right pane, change the password of the **root** user, as shown in **Figure 5-54**.

Figure 5-54 Modify Login Password

System Tools > Modify Login Password					
	On this page, you can change the password of the root user to ensure security and make it easy to remember.				
	Username:	root			
	New Password:	••••	(Password length is from 1 to 64 characters)		
	Confirm Password:	••••	(Password length is from 1 to 64 characters)		
		Apply Cancel			

2. Click **Apply** to apply the configuration.

6 Technical Specifications

About This Chapter

This topic describes the technical specifications of the ONT, include its physical specifications and the standards and protocols which the ONT complies with.

6.1 Physical Specifications

This topic describes the physical specifications of the ONT, including its dimensions, weight, voltage range, and environment parameters.

6.2 Protocols and Standards

This topic provides the protocols and standards which the ports of the ONT comply with.
6.1 Physical Specifications

This topic describes the physical specifications of the ONT, including its dimensions, weight, voltage range, and environment parameters.

Table 6-1 lists the physical specifications of the HG8010/HG8110/HG8240/HG8245/HG8247/HG8447.

Item	HG8010	HG8110	HG8240	HG8245	HG8247	HG8447
Dimension s (length x width x depth)	143 mm x 115 mm x 30 mm	143 mm x 115 mm x 30 mm	195 mm x 155 mm x 34 mm	195 mm x 174 mm x 34 mm	268 mm x 213 mm x 34 mm	268 mm x 213 mm x 34 mm
Weight (including the power adapter)	About 250 g	About 250 g	About 500 g	About 550 g	About 800 g	About 800 g
Overall system power supply	11-14 V DC, 1 A	11-14 V DC, 1 A	11-14 V DC, 1 A	11-14 V DC, 2 A	11-14 V DC, 2 A	11-14 V DC, 2 A
Power adapter input range	100-240 V AC, 50-60 Hz					
Maximum power consumpti on	6W	8W	12W	17W	19.5W	20W
Temperatu re range	0°C to +40°C					
Humidity range	5%-95% (non- condensin g)	5%-95% (non- condensin g)	5%-95% (non- condensin g)	5%-95% (non- condensin g)	5%-95% (non- condensin g)	5%-95% (non- condensin g)

Table 6-1 Physical specifications

6.2 Protocols and Standards

This topic provides the protocols and standards which the ports of the ONT comply with.

- GPON: ITU-T G.984
- VoIP: H.248, SIP, G.711A/u, G.729a/b, and T.38
- Multicast: IGMPv2, IGMPv3, and IGMP snooping

- Routing: NAT, NAPT, and ALG
- Ethernet: IEEE 802.3ab
- USB: USB 1.1/USB 2.0
- Wi-Fi: IEEE 802.11n

The USB protocol and Wi-Fi protocol are applicable to the HG8245 and HG8247 only.

7 Acronyms and Abbreviations

ALG	Application Level Gateway
BRAS	Broadband Remote Access Server
CATV	Community Antenna Television
DBA	Dynamic Bandwidth Assignment
DHCP	Dynamic Host Configuration Protocol
DMZ	Demilitarized Zone
DNS	Domain Name Server
DoS	Denial of Service
FTP	File Transfer Protocol
FTTH	Fiber To The Home
GPON	Gigabit-capable Passive Optical Network
НТТР	Hyper Text Transport Protocol
IGMP	Internet Group Management Protocol
ISP	Internet Service Provider
LAN	Local Area Network
MAC	Media Access Control
NAPT	Network Address and Port Translation
NAT	Network Address Translation
NMS	Network Management System
OLT	Optical Line Terminal
OMCI	Optical Network Termination Management and Control Interface
PON	Passive Optical Network
PPPoE	Point to Point Protocol over Ethernet

PSTN	Public Switched Telephone Network
SIP	Session Initiation Protocol
SOHO	Small Office and Home Office
SSID	Service Set Identifier
STB	Set Top Box
ТСР	Transmission Control Protocol
ТКІР	Temporal Key Integrity Protocol
UDP	User Datagram Protocol
UPnP	Universal Plug and Play
URL	Uniform Resource Locator
VLAN	Virtual Local Area Network
VoIP	Voice over IP
WLAN	Wireless Local Area Network
WEP	Wired Equivalent Privacy
WPA	Wi-Fi Protected Access
WPS	Wi-Fi Protected Setup